

TOWN OF BLOOMFIELD, CONNECTICUT



PROJECT MANUAL

FOR

McMahon Wintonbury Library
Children's Garden, Site and Parking
Improvements

Town Bid #1165

Issued: December 11th, 2025

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INVITATION TO BID

Town of Bloomfield, Connecticut
McMahon Wintonbury Library
Children's Garden, Site and Parking Improvements
Town Bid #1165

The Town of Bloomfield is pleased to invite qualified Contractors to bid on the construction of the **“McMahon Wintonbury Library Children’s Garden, Site and Parking Improvements”** project. The project generally consists of the installation of a Children’s Garden area with a “Perk E Pave” porous flexible pavement surface, play equipment, seating and ornamental details, fencing, replacement of the existing parking lot, installation of a new drainage system, new concrete sidewalks, minor grading, landscaping, and other incidental work.

Sealed Bids for the McMahon Wintonbury Library Children’s Garden, Site and Parking Improvements project will be received by the Town of Bloomfield at the office of the Purchasing and Risk Manager, 2nd Floor, Town of Bloomfield Finance Department, 800 Bloomfield Avenue, Bloomfield, CT 06002 until 1:00 p.m. on January 26th, 2026. At this time, Bids will be opened and publicly read aloud. Emailed bids, faxed bids, or bids received after the stated time will not be considered.

The Project Manual, Bid Instructions and Information, Bid Form, Bidder Qualifications Statement, General Conditions, Supplemental Contract Provisions, Contract between Owner and Contractor, specifications, exhibits and addenda are available on the Town’s website, <https://www.bloomfieldct.gov/Bids.aspx> as well as from the State of Connecticut Department of Administrative Services website, https://portal.ct.gov/das/ctsource/ctsource?language=en_US . The Town reserves the right to reject any or all Bids, or to accept any Bid, should the Town deem it to be in the best interest of the Town.

Bid Security in the amount of 5 percent (5%) of the Bid must accompany each bid, in accordance with the Bid Instructions and Information. The successful bidder will be required to furnish Performance and Labor and Materials Payment bonds, each in amount equal to 100 percent (100%) of the contract price.

No Bidder may withdraw their Bid within 60 days after the actual date of the opening thereof.

Pursuant to CGS §31-53, the successful bidder will be responsible for paying prevailing wages, as determined by the Connecticut Department of Labor, and included in the Bid Documents, in association with this project.

The Town of Bloomfield is an Affirmative Action/Equal Opportunity Employer. MBE’s, WBE’s and SBE’s are encouraged to apply.

Any questions regarding the proposed work should be addressed, in writing, to Joseph Muraca, at Jmuraca@bloomfieldct.gov. Questions will not be entertained past 12:00 p.m., December 19th, 2025, and responses will be posted via addendum by 4:00 p.m. December 23rd, 2025.

BID INSTRUCTIONS AND INFORMATION

Town of Bloomfield, Connecticut
McMahon Wintonbury Library
Children's Garden, Site and Parking Improvements
Town Bid # 1165

ARTICLE 1 - GENERAL

1.01 **Owner:** The Owner of the subject Project is the Town of Bloomfield, (a.k.a. the “Town”), acting through the Town Manager, as CEO and Purchasing Agent, and any officials or agents of the Town as may be duly authorized or designated by the Town Manager, the Contract for the subject Project, the Charter of the Town, or any applicable Ordinance or Regulation of the Town, and to the extent of their applicable authority.

1.02 **Right to Accept or Reject:** The Town of Bloomfield reserves the right to accept or reject any or all bids, in whole or in part, and to invite proposals, as best serves the interests of the Town, to waive any irregularities and/or errors in the bids; and the Town reserves the right to, where anticipated funding is not available at anticipated levels or as otherwise may be in the public interest, indefinitely delay, rebid, or cancel the Project.

1.03 **Subject Project:** These “Bid Instructions and Information” and all associated Bid Documents are for the Town Project entitled “McMahon Wintonbury Library Children’s Garden, Site and Parking Improvements”, (a.k.a. the “Project”.) A brief description and location of the Project can be found in the Invitation for Bids; the Project is described, located and specified in more detail in the remainder of the Bid Documents.

1.04 **Issuing Office:** The Bid Documents for the subject Project are issued by the Office of the Purchasing Manager, (a.k.a. the “Issuing Office”), Town of Bloomfield Finance Department, 800 Bloomfield Avenue, Bloomfield, CT 06002, which office shall also administer the bid process, on behalf of the Purchasing Agent and the Town agency responsible for the project. The primary contact is Joseph A. Muraca, Jr., Purchasing Manager, (email) jmuraca@bloomfieldct.gov.

1.05 **Administering Office:** Except for the bid process, the subject Project shall be administered by the Bloomfield Public Works Department, acting through the Assistant Director of Public Works, (a.k.a. the “Administrative Officer”), or his authorized designee. The primary contact is Glen Garrity, Assistant Director of Public Works, (phone) 860-769-3576, (email) ggarritty@bloomfieldct.gov.

1.06 **Bid Due Date and Time:** In order to be considered, qualifying sealed bids must be submitted to, and received by the Issuing Office, at the address stated above, no later than 1:00 p.m. on January 25th, 2026. Emailed, faxed or bids received after the stated time will not be considered.

1.07 **Contract Time of Completion:** The Contractor shall have **175 days** subsequent to the date of commencement of Contract Times as set forth in the Notice to Proceed to bring the Contract Work to Substantial Completion.

1.08 **Prevailing Wages:** Pursuant to CGS §31-53, The successful bidder will be responsible for paying prevailing wages, as determined by the Connecticut Department of Labor, and included in the Bid Documents, in association with this project. See the Supplemental Contract Provisions for additional information.

1.09 **CHRO Requirements:** CHRO requirements do not apply to this project.

1.10 **Project Funding:** This project is 100% Town of Bloomfield funded.

1.11 **Liquidated Damages:** Time is of the essence for the Project and the Owner will suffer financial and other losses if the Project Work is not completed within the times specified in Paragraph 1.07 above, plus any extensions thereof allowed in accordance with the Contract. Also, there will be delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the Owner if the Contract Work is not completed on time. Accordingly, instead of requiring any such proof, the Owner has stipulated that as liquidated damages for delay (but not as a penalty) the Contractor shall pay **\$500** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 1.07 above for Substantial Completion until the Work is substantially complete.

1.12 **Terms Used:** The terms used within the Bid Documents shall be interpreted as set forth in Section 1 of the General Conditions.

ARTICLE 2 - BID DOCUMENTS

2.01 The complete set of the Bid Documents are enumerated in the list below, provided that any Addenda issued by the Town prior to the Bid Opening shall become part of the Bid Documents upon issuance. Said list provides the name of the subject document, or grouping of documents, and, in parentheses following the name, the location within the Bid Document set where the subject document may be found. It can be presumed that the title (as listed below) of any particular document that was created by or on behalf of the Town specifically for the subject project will be prefaced with or followed by the words “McMahon Wintonbury Library Children’s Garden, Site and Parking Improvements” on the actual document.

1. Invitation to Bid
2. Bid Instructions and Information
3. General Conditions for Public Construction Contracts
4. Supplemental Contract Provisions
5. State of CT Prevailing Wage Rates
6. Template Form of the Contract Agreement
7. Notices to Contractor
8. Project Technical Specifications
9. Bid Submittal Package
 - a) Bidder Qualifications Statement
 - b) Bid Form
 - c) OSHA Certificate of Compliance with CGS Section 31-57b
 - d) Non Collusion Affidavit

10. Improvement Plans for Bid (Under separate attachment)

2.02 The Bid Documents are only issued in electronic format and can be found on the Town of Bloomfield website, <https://www.bloomfieldct.gov/Bids.aspx> as well as the CT Department of Administrative Services website, https://portal.ct.gov/das/ctsource/ctsource?language=en_US, (Search on “Bloomfield”.) Prospective Bidders are strongly encouraged to register with the State of Connecticut Department of Administrative Services in order to assist in their assurance of receiving Addenda concerning the Project in a timely manner during the bidding process. All addenda will be posted on the Town and State DAS websites; no addenda will be mailed. **The Town is not responsible for insuring that Prospective Bidders receive any Addenda issued.**

2.03 The Town may make all or any portion of the Bid Documents available on-line at any other location or via any other means as may be deemed advantageous by the Town.

2.04 Each Bidder submitting a Bid Proposal is solely responsible for preparing such proposal based on, and in accordance with, the complete set of Bid Documents, on its understanding of the Project Site and on its own appropriate knowledge, experience and expertise in performing similar work and producing similar product as of that contemplated by the Bid Documents, and as may be necessary for successful completion of the same.

2.05 The Town, in issuing and making the Bid Documents available on the above terms, does so only for the purpose of obtaining Bids for the Project Work and does not confer or grant license of any manner for any other use.

ARTICLE 3 - EQUAL EMPLOYMENT OPPORTUNITY

3.01 Prospective Bidders are hereby notified that the Town is committed to the principles of equal employment opportunity for minority group persons and women in all contracts, including the bidding process, for the purchase of labor and materials, supplies or services, including bank depository and professional services.

3.02 In keeping with the above stated policy, the Bidders attention is directed to the appropriate provisions of the Supplemental Contract Provisions for further information regarding the obligations, responsibilities, and requirements of the Contractor with respect to equal employment opportunity with respect to this Project.

ARTICLE 4 - PREPARATION OF THE BID PROPOSAL

4.01 The Bid Proposal, (a.k.a. the “Bid”) shall be completed in full, including all required accompanying information, on the forms provided in the Bid Proposal Submittal Document and including any additional sheets as may be requested or appropriate. All written information shall be in typewritten form or printed in ink. All blanks shall be completed, all questions shall be answered, and all requested information shall be provided. Alterations or corrections on the final submitted Bid shall be crossed out with a single horizontal or diagonal line, in ink, and initialed, in ink, by the signer of the Bid. The Bid shall be signed in ink.

4.02 ***Bidder Qualifications:*** To demonstrate qualifications to perform the Work, a fully completed Bidder Qualification Statement, on the provided form, must be submitted with the Bid Proposal. The Owner reserves the right to require such additional information from the Bidder and to make such relevant investigations as it deems necessary. Each Bid must contain evidence of the submitting Bidder’s qualification to do business in Connecticut. In order to be considered qualified for the subject Project, Bidders must evidence having successfully completed projects similar in size and scope to this Project. Information concerning the relevant

qualifications and experience of all proposed subcontractors shall also be submitted in the Bid. All determinations as to the adequacy of a Bidder's qualifications shall be decided by the Purchasing Agent, utilizing whatever resources as may be deemed fit thereby.

4.03 The Bid shall contain an acknowledgment of receipt of all issued Addenda; the numbers of which shall be filled in as appropriate in the Bid Submittal Package. It is the sole responsibility of each bidder to determine if they are in receipt of all issued addenda. The most assured way to accomplish this is to contact the Issuing Office or the Administering Office within one week of the Bid Due Date.

4.04 **Unit Bid:** Where the Project bid is presented as an Itemized Unit Bid (a.k.a. "Unit Bid"), a Unit Bid Price shall be provided, in standard US numerals, in the appropriate space for each Bid Item on the Bid Form. If handwritten in ink, take care that the numerals are clear, legible, and distinct. Total Unit Prices and a Total Bid Price shall also be appropriately calculated and provided on the Bid Form. In the event of discrepancies in the bid price values provided, any discrepancy shall be resolved by applying the following precedence, highest to lowest: 1) Unit Bid Price, 2) calculated Total Unit Price, and 3) calculated Total Bid Price – as appropriate.

4.05 **Lump Sum Bid:** Where the Project bid is presented for Bid in one or more aggregate groupings of work elements that comprise a finished product as a significant part, or the whole, of the Project (a.k.a. "Lump Sum Bid"), then such finished product(s) shall be priced for bid on a lump sum basis for providing all of the work, (i.e. materials, labor, equipment, incidentals, etc.) necessary to successfully complete the subject finished product. Lump sum bid prices shall be supplied written separately in words and in numerals. As applicable, a Total Bid Price shall be calculated and appropriately provided in numerals. The order of precedence for resolving discrepancies for lump sum bids shall be: 1) the lump sum bid price written in words, 2) the lump sum bid price written in numerals, and 3) the calculated Total Bid Price.

4.06 Every Unit Bid Price or Lump Sum Bid Price, as the case may be, supplied in the Bid shall include all plant, labor, material, supplies, equipment, overhead, and other facilities necessary for, and incidental to, the construction/fulfillment of the subject item/facility/task complete, fully functional, and properly finished in strict conformance with and as may be required by the Drawings, Specifications, and all other applicable provisions of the Bid Documents, and for the use (or uses) and appearance intended by the Town.

4.07 **Signature of Bidder:** At the top of the signature page, the Bidder shall identify the legal business name under which the subject bid is being submitted and the type of business structure, (as is on file with the Secretary of State,) and the state of registration and primary business address. The signature shall be executed by a person duly authorized to do so on behalf of the submitting entity. If the submitting entity is other than a sole proprietorship or the bid is not being signed by all partners/members of the submitting entity, then written evidence of such authorization shall be provided with the bid. The signature shall be written in the appropriate signature block for the type of entity, (e.g. corporation, partnership, individual, etc.), that the signer represents. If more than one person is signing the Bid, then a copy of the signature page, appropriately signed, shall be submitted for each signer. In the event that the signer is more than one organizational level below the submitting entity, then the signer shall execute the Bid in the appropriate block for the direct entity represented thereby, and an additional sheet shall be included with the bid that describes the organizational structure that links the signor to the Bidder. The name and title of each signor shall be typewritten or printed under the associated signature. If the Bidding entity is a corporation, the corporate seal shall be affixed to the bid, and properly attested, in the vicinity of the executing signature.

4.08 The itemization of the Bid and the selection of the Bid Items are at the Town's discretion and for the Town's convenience in evaluating and comparing the submitted bids and administering the Contract.

4.09 Any quantities stated within the Bid Documents are approximate, estimated solely for use in establishing the scope of the project and comparing bids. Unit Bid Prices submitted by the successful Bidder

are to be paid for the actual quantities of the items of work successfully completed in accordance with the Contract Documents. Should the dimensions of any part of the work or the quantities of materials used or work performed be different than those estimated in the Bid Form, or presented elsewhere in the Bid Documents, only the actual quantities completed shall be measured for payment.

4.10 A Bidder, or party to a Bidding entity, may only be associated with one submitted Bid, regardless of the name under which that association occurs. Reasonable ground for belief that a party is a principal in more than one bid shall cause the rejection of all Bids in which such party is interested. In the event there is reasonable ground for belief that collusion between bidders exists, the Bids for all associated bidders shall be rejected and all parties to such collusion will not be considered in future proposals for the same work; and the same may be subject to other penalties from the Town as are allowed.

ARTICLE 5 - BID INTEGRITY

5.01 A prospective Bidder, subcontractor, supplier, or any other such entity who may have interest in any Bid, shall not directly or indirectly solicit, induce, or attempt to solicit or induce 1) any individual or entity to alter a price, or any other matter, associated with a Bid in such a manner as to make a Bid less competitive, 2) any entity to submit a false or sham Bid, or to contribute to a Bid in such a manner as to render the Bid, in whole or in part, false or a sham, 3) any entity to refrain from preparing or submitting a Bid, or from participating in, or considering to participate in, a Bid, or a subsequent Contract, as a subcontractor, supplier, or other such role, or 2) any other form or manner of collusion, to any degree, so as to, or attempt to, obtain an improper advantage over any other entity, including the Town, with respect to the Bid, or to in any way reduce the competitiveness of the subject Public Bid process.

5.02 A prospective Bidder, subcontractor, supplier, or any other such entity who may have interest in any Bid, shall promptly report to the Town any attempt by any other party to involve it in collusion of any sort or to any degree with respect to this Public Bid.

5.03 A prospective Bidder will specifically notice the requirements of this Article 5 to any and all prospective subcontractors, suppliers, and any other such entity that it is likely to, or does, use, engage, or take input from for the preparation of its Bid, or in the execution of any Contract Work as may result therefrom; and shall, at an appropriate time, inquire of, and demand a response from, the same regarding compliance with these requirements prior to, as applicable, submitting its Bid or committing to engage any such party in Project Work; and shall not utilize any of the same that are in noncompliance with this Article.

ARTICLE 6 - BID SUBMITTAL

6.01 In order to be considered, qualifying sealed bids must be submitted to, and received by the Issuing Office, at the address stated above, no later than the date and time set forth in Paragraph 1.06 above. The original Bid shall be enclosed in an opaque sealed envelope plainly marked with the Project title, Bid Number, the name, address, and email address of Bidder, and the date and time of the Bid opening, and shall consist of the completed unbound copy of the Bid Form, the Bid security, and the Bidder Qualification Statement with supporting data. Two (2) hard copies of the bid and one (1) electronic copy of the bid on a thumb drive must also be included with the bid submission. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID 1165 ENCLOSED." A mailed Bid shall be addressed to the Issuing Office. Faxed or emailed bids will not be accepted. Bids received after the stated date and time will not be considered.

ARTICLE 7 - MODIFICATION OR WITHDRAWAL OF BID

7.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner required for a Bid and delivered to the place where Bids are to be submitted prior to the Bid Due Date and Time set forth in Paragraph 1.06 above.

7.02 If within 24 hours after Bids are opened, any Bidder files a duly signed written notice with Town and promptly thereafter demonstrates to the reasonable satisfaction of the Purchasing Agent that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work

ARTICLE 8 - OPENING OF BIDS

8.01 Bids will be opened at the time and place indicated in the Invitation to Bid and read aloud publicly.

8.02 Bidders are hereby notified that only computed totals are likely to be so read aloud at the Bid Opening, and that such reading aloud of any amounts included in any submitted Bid does not in any way alter or supersede any means of evaluating the Bids stated elsewhere in these Bid Documents.

8.03 A bid tabulation will be prepared summarizing the submitted Bids, and will be posted on the Town's website after the opening of Bids.

8.04 The Town reserves the right to postpone or cancel the Bid Opening via Addendum as may be in its interest and at any time prior to the Bid Opening. In the case of postponement, the Bid Opening may be rescheduled in the same Addendum, or the postponement may be indefinite, again as may be in the interest of the Town.

8.05 Opened Bids shall remain subject to acceptance for a period not to exceed 60 calendar days, unless such period is extended with respect to its Bid in writing by any particular Bidder at the request of the Town.

ARTICLE 9 - REJECTION OF BID AND WAIVER OF IRREGULARITIES

9.01 The Town may determine a Bid to be nonresponsive or a Bidder to be nonresponsible, as the case may be, and reject such Bid if, in the opinion of the Purchasing Agent:

1. The submitted Bid does not strictly conform to law or the requirements of the Bid Documents.
2. The Bidder fails to adequately provide any information requested in the Bid Documents or otherwise by the Town as part of the Bid process, or has made significant misrepresentations of fact therein.
3. The Bidder is determined through appropriate means to be incompetent, not responsible, or otherwise unqualified for or incapable of performing the work as specified or otherwise meeting the obligations set forth by the Bid Documents.
4. The Bidder does not have a satisfactory record of compliance with federal, state, or local laws and regulations, including those pertaining to the environment, discrimination, labor, employment, safety, health, or the prompt payment of subcontractors and suppliers.

5. The Bidder does not have a satisfactory record of performance or cooperation on one or more of its previous projects with any owner and the Bidder fails to explain such record, or changes made to address such record, adequately so as to offer a satisfactory level of comfort to the Purchasing Agent regarding its ability to satisfactorily meet the contractual obligations of the Project.
6. The submitted Bid is conditional or qualified; or it is determined by the Purchasing Agent to be unbalanced to a degree as to be extreme, undeniable, or detrimental to the Town's interests.
7. A party to the Bid is reasonably believed by the Purchasing Agent to be involved in collusion with respect to this Project or to be a principal in more than one Bid.
8. Any other applicable criteria or reason as may be set forth in the Bid Documents or by law is met in the determination of the Purchasing Agent.

9.02 The Town reserves the right to waive any irregularities in any Bid or as otherwise associated with the bidding process that, in the opinion of the Purchasing Agent, are not detrimental to the Town's obligation to serve the public and as may be in the Town's interest.

9.03 The exception to the preceding paragraph is an irregularity involving price that 1) cannot be objectively resolved to a high degree of certainty, as determined by the Purchasing Agent, by applying the provisions regarding rounding or precedence set forth in Paragraphs 4.04 above or 2) will likely affect the bid result order with respect to the three apparent lowest bidders. If either case is true, regardless of the status of the other case, then no waiver is possible, and the subject Bid shall be rejected as nonresponsive.

ARTICLE 10 - PRE-BID CONFERENCE

10.01 No Pre-bid Conference will be held for this project.

ARTICLE 11 - ADDENDA AND INTERPRETATIONS

11.01 Bid Addenda may be issued to clarify, correct, or change the Bid Documents as deemed advisable by the Town. To be official, Bid Addenda must be issued by the Issuing Office and shall be in writing. Such official Addenda represent the sole means to clarify, correct, or change the Bid Documents; all other responses or information are deemed unofficial and without legal effect.

11.02 Official Bid Addenda become part of the Bid Documents upon issuance; and the provisions therein shall supersede and have precedence over any conflicting provisions of the original Bid Documents or any previously issued Addenda, unless stated otherwise therein.

11.03 All questions or requests regarding the meaning or intent of the Bid Documents, or the bid process, are to be submitted in writing, via US Mail, email, or direct delivery, to the Issuing Office. The same shall be addressed to the contact person identified in Paragraph 1.04 above using the information provided therein.

11.04 All such questions or requests must be submitted no later than 12:00 pm, December 19th, 2025, to be guaranteed an official response, if one is deemed appropriate and necessary by the Town. Questions and requests submitted subsequent to said date and time will be evaluated by the Town as to their significance to

the Town's interests with respect to the Bid, and the Bid may be postponed in accordance with Paragraph 8.04 in the event the Town determines that a response is in its interest.

11.05 Official responses, as deemed appropriate or necessary by the Town, will be issued via Bid Addenda, (in keeping with the provisions of Paragraph 11.01 above.) Where the Town determines that any particular properly submitted question or inquiry is already adequately addressed in the Bid Documents or otherwise that addressing any such question or inquiry will not further the purposes of the Bid or the Town's interests in the Bid, then the Town may elect to not address the same in an Addendum.

ARTICLE 12 - EXAMINATION OF THE SITE, BID DOCUMENTS, AND OTHER DATA

12.01 Prior to completion of its Bid Proposal and the subsequent submittal thereof to the Town, each Bidder is responsible to:

1. Examine and carefully study the Bid Documents, any Addenda thereto, and any related information identified in the Bid Documents, and thereby become familiar with, and satisfy itself as to, the nature and particulars of the Project Work, the prosecution thereof, the final product(s) contemplated by the Bid Documents, and the obligations and responsibilities of the Contractor with respect thereto.
2. Visit the Project Site, and perform the observations, investigations, explorations, tests, and measurements as it deems fit and may be reasonable, to thereby become familiar with, and satisfy itself as to, the general, local, and particular site conditions that may affect the cost, progress, or performance of the Work, or which may relate to any aspect of the means, methods, techniques, sequences, procedures, or safety of prosecuting the Work; additional visits beyond the Pre-Bid Conference, if any, may be warranted or desirable.
3. Become aware of the general nature of work or involvement at the Project Site, or otherwise, of the Town, representatives of the Town, any Utility providers, or any other such entity that may affect the cost, progress, or performance of the Work, and of the relationships and means necessary to successfully coordinate and effectuate matters so as to minimize the negative impacts of such work or involvement on the same.
4. Be or become familiar with, understand, and satisfy itself as to, all federal, state, and local laws and regulations that may apply to or affect the cost, progress, or performance of the Project Work.
5. Determine that the Bid Documents are generally sufficient to indicate and convey understanding of all terms, conditions, and requirements for the performance of the Work and completion of the Project as contemplated by the Bid Documents.
6. Appropriately apply the knowledge, expertise, experience, and other factors that render it qualified to bid on and perform the subject Project Work to the responsibilities set forth in Paragraphs 12.01.01 through 12.01.05 above, inclusive, and to the formulation and application of assumptions, judgments, and determinations necessary and otherwise used in the preparation of its Bid Proposal.
7. Promptly give the Town written notice of any and all errors, conflicts, ambiguities, or discrepancies that the Bidder discovers in the Bid Documents.

ARTICLE 13 - SUBSURFACE, UTILITY, AND HAZARDOUS ENVIRONMENTAL INFO

13.01 Prospective Bidders are directed to Articles 29 and 30 of the General Conditions, and any applicable paragraphs of the Supplemental Contract Provisions for the governing provisions regarding existing subsurface and physical conditions, Underground Facilities, and Hazardous Environmental Conditions that may be encountered or otherwise affect the Project Work.

13.02 On request, the Town shall provide a prospective Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary to the proper preparation of its Bid Proposal. The subject Bidder shall be responsible for all costs, permits, licenses, notices, safety precautions, damages, injuries, and other such matters and liabilities associated with such efforts. Said Bidder shall comply with any reasonable insurance requirements as may be imposed by the Town, and shall execute any reasonable indemnification or hold harmless measures required by the Town prior to commencing any such efforts. Said bidder shall inconvenience the Town, or any other affected entity, as minimally as possible in carrying out any such efforts; and it shall comply with any reasonable requests of the Town regarding the timing or means of any such efforts. Said Bidder shall be responsible to restore the Site to the satisfaction of the Town at the completion of any such efforts.

ARTICLE 14 - SUBSTITUTE AND “OR EQUAL” ITEMS

14.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bid Documents without consideration of possible substitute or “or equal” items, except as may be provided for in Supplemental Contract Provisions.

14.02 Articles 13.07 and 13.08 of the General Conditions set forth the provisions covering substitute or “or equal” items under the Contract.

14.03 Substitute or “or equal” items will not be considered until after determination of the Apparent Low Bidder. Where the subject specification specifically designates that an “or equal” substitute will be considered, then the Town shall consider a complying “or equal” item proposed by the Bid of the Apparent Low Bidder prior to Contract execution if so requested by the Apparent Low Bidder. In all other cases, the consideration of any other proposed substitute item prior to Contract execution is solely at the discretion and pleasure of the Town as it may deem in its interest. Neither the timing nor the disposition of any such consideration process shall in any way alter any of the responsibilities or obligations of the Apparent Low Bidder with respect to execution of the Contract. (An “or equal” or other substitute item may always be proposed by the Contractor subsequent to execution of the Contract.)

14.04 Prices shall not be included in the Bid Proposal of any Bidder, either directly or as part of a related Bid Item or the Total Bid Price, for any substitute item, unless such item is designated as a Bid Alternate Item.

14.05 Notwithstanding any other related provision within the Bid Documents, the Town reserves the right to negotiate with the Apparent Low Bidder either, or both, before or after Execution of the Contract Agreement regarding any proposed substitute item, whether or not such substitute item was included in the Bid Proposal of the Apparent Low Bidder, as may be in the Town’s interest, and appropriately respecting any rights of any other Bidders to the contrary that may exist with respect to any proposed substitute items as may have been included in their Bids.

ARTICLE 15 - BID ALTERNATES

15.01 The Town may, for any reason and as deemed in its interest, include within the Bid Form, and as may be shown, specified, or otherwise supported in the Bid Documents, solicit Bid prices for Bid Alternate Items that may be proposed to be substituted for, enhance or extend, or be in addition to any Base Bid Item, (or other Alternate Bid Item), or group or aggregate thereof, or to any other identifiable portion of the proposed Project Work. The Bid Form shall identify what other Bid Item(s), if any, any Alternate Bid Item(s) are intended to replace, enhance, or extend, as deemed by the Town to be applicable, reasonable, and necessary for proper understanding and administration.

15.02 Providing Bid prices on any such Bid Alternate Items as may be included in the Bid Form is optional for any Bidder; and a Bidder may provide prices, or not, for any number or any configuration of Bid Alternate Items as may be included on the Bid Form. A Bidder may not, however, propose a Bid price for only a portion less than the whole of any Bid Alternate Item.

15.03 Likewise, the Town may elect to incorporate any number, including none, or configuration of such Bid Alternate Items into the Project Work, and the Contract therefor, as it deems fit, except as limited by Paragraph 15.04 below; and the same may be so incorporated at any juncture following the determination of the Lowest Responsible Bidder.

15.04 Bid prices for Bid Alternate Items will not be considered in the determination of the Lowest Responsible Bidder; (i.e. only Bid Prices for the Base Bid portion of the Bid Form will be so considered.) As alluded to above, Bid Alternate Items, if any, will be incorporated into the Project following the determination of the Lowest Responsible Bidder.

15.05 Manipulation Bid Alternate Items will not be used to circumvent the integrity of the Bid process; and, in no case will a Bid Alternate Item, or any configuration thereof, be incorporated into the Project Work that would have resulted in the determination of a different Bidder as Lowest Responsible Bidder, using the same criteria and reasoning as for the original determination, if the Bid Prices had been evaluated using the subject proposed configuration of Bid Alternate Items and the Bid Prices submitted therefor by the various Bidders. Note that the submittal of a Bid Price by any Bidder that is, in the opinion of the Purchasing Agent, obviously unreasonably low for the work associated therewith, or [obviously] the submittal of no Bid Price at all, for a particular Bid Alternate Item shall result in that Bid Price from that particular Bidder not being considered in any such determination. Note also that the Purchasing Agent may, in addition to any other information or criteria deemed fit thereby, use the Bid Prices, if any, submitted by the other Bidders for the subject particular Bid Alternate Item, or submitted for similar items in the Bid, as criteria in any such determination of an obviously unreasonably low Bid Price.

15.06 The Town reserves the right to negotiate with the Lowest Responsible Bidder at any time in an effort to reduce the Contract Price from the submitted Bid Price for any or all Bid Alternate Items for inclusion in the Project; and such negotiations or the results of the same, provided the results are compliant with the provisions of Paragraph 15.05, shall not be considered to be in violation of the provisions of said Paragraph 15.05.

15.07 The Town reserves the right to award none, any or all of the Bid Alternates as it deems in its best interests.

ARTICLE 16 - BID SECURITY

16.01 Each Bid must be accompanied by a Bid security made payable to the Town of Bloomfield in an amount not less than 5% of the Total Amount Bid price set forth on the Bid Form of the subject Bidder's Bid Proposal. The Bid security must be in the form of a certified check, a cashier's check, a bank money order, or

a Bid Bond completed on AIA Document A310 and issued by a surety meeting the requirements set forth in Paragraph 20.01 of the General Conditions.

16.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required Contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, The Town may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom the Town believes to have a reasonable chance of receiving the award may be retained by the Town until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

16.03 The Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within ten days after the Bid opening.

ARTICLE 17 - OPENED BIDS TO REMAIN

17.01 The Town is required by State records retention regulations to retain all Bid related records for 6 years following the Bid Opening, at which time, pending approval from the State, such records may be destroyed by the Town.

17.02 In keeping with this requirement, all opened Bids shall remain on file with the Town for a minimum of 6 years.

ARTICLE 18 - EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 ***Apparent Low Bidder, Lowest Responsible Bidder, & Successful Bidder:*** The **Apparent Low Bidder** is the Bidder having submitted the currently eligible Bid that, to the degree that the Bids have been evaluated at the subject time, appears to have the lowest Total Bid Price [as calculated by the Town] and to best meet the other criteria set forth in the Bid Documents and otherwise in the applicable Town Laws and Regulations. The identity of the Apparent Low Bidder is subject to change in the time between the Bid Opening and the Execution of the Contract Agreement as the Bid evaluation proceeds, Bids may be rejected or withdrawn, calculation errors may be discovered and corrected, or for any other valid reason as may be allowed by the Bid Documents or otherwise by Law. At such time as the Town satisfies itself that the bid evaluation has proceeded to a point where the current Apparent Low Bidder is the Bidder that best meets the criteria for award, and notwithstanding the final step set forth in Paragraph 18.02 – 8 below, then, the Apparent Low Bidder shall become and may also be referred to as the “**Lowest Responsible Bidder**”, (a.k.a. the “**Successful Bidder**”). Upon Execution of the Contract Agreement, the Lowest Responsible Bidder shall become the Contractor. References to the Contractor as applied before Contract execution shall mean the Lowest Responsible Bidder; and references to the Apparent Low Bidder, the Lowest Responsible Bidder, or the Successful Bidder as applied at or subsequent to Contract execution shall mean the Contractor.

18.02 If awarded, the Contract will be awarded by the Town to the Bidder that is determined by the Town to be the Lowest Responsible Bidder. The following shall be considerations of the Town, based on the information included in the subject Bidder’s Bid Proposal or as otherwise available to the Town, in determining the Lowest Responsible Bidder:

1. The Bid pricing submitted and the ability, as determined by the Purchasing Agent based on the information included in the subject Bid Proposal and as is otherwise in accordance with the Bid Documents, for the subject Bidder, abiding by its Bid Proposal and any subsequent representations made

to the Town, to successfully prosecute and complete the Project Work as in accordance with the Bid Documents and to the particular appearance(s) and for the particular use(s) as contemplated by the Bid Documents.

2. The character, integrity, reputation, judgment, experience, and efficiency of the subject Bidder.
3. The record of performance of the subject Bidder on previous contracts or services for the Town and in other jurisdictions or for other owners/clients, with emphasis given to previous contracts or services of a similar nature or scope and to previous contracts and services for the Town of Bloomfield.
4. The record of compliance and cooperation of the subject Bidder with respect to Federal, State, and Local Laws and Regulations.
5. The sufficiency of the subject Bidder's financial resources with respect to the proposed Work.
6. The level of compliance of the subject Bid Proposal with the requirements prescribed by the Bid Documents.
7. Determination of the Bid that best represents the interests of the Town and the Project if it is selected for Award.
8. And, as a final step, the ability of the Town to successfully enter into a Contract with the subject Bidder.

18.03 ***Right to Negotiate:*** The Town reserves the right to negotiate with the Lowest Responsible Bidder prior to Execution of the Contract Agreement, and at any time thereafter, regarding any relevant matter, including adding or removing Work from the Project, as may be in its interest and to the extent allowed by Law, in order to successfully enter into a Contract with the subject Bidder and/or to further the interests of the Town.

18.04 ***Right to Alter Quantities of Work:*** The Town reserves the right to increase or decrease the quantities of any Bid Item, or to delete Bid Items entirely, or to add new items of Work as may be consistent with the scope and intent of the Project as contemplated by the Bid Documents and notwithstanding any relation to Bid Alternate Items, as may be determined by the Town to be in its interest. Adjustments in Project prices/compensation as a result thereof will be calculated, administered, negotiated, or otherwise handled in accordance with appropriate provisions of the Bid/Contract Documents.

18.05 ***Bid Integrity to be Maintained:*** Notwithstanding Paragraph 18.04 above, manipulation of the quantities of Work, the addition or removal of Work, or any result of any negotiation between the Town and the Contractor shall not alter the Contract Price to a point where the subject Bidder would no longer be considered the Lowest Responsible Bidder by applying the criteria and reasoning used in the initial determination thereof, or to a point where such determination is not feasible, and the same shall not be counter to or undermine the spirit and intent of the Bidding process in any other way. Excepting herefrom cases where the quantities of work are being adjusted to account for the differences between the quantities of work estimated in the Bid, which quantities are known and stated to be approximate, and the actual quantities performed or completed in prosecuting the Project Work as presented, specified, scoped, and otherwise contemplated in the Bid Documents. Also excepting herefrom the results of valid Change Orders to the Contract, executed subsequent to Contract execution, provided any such Change Order shall not be issued clearly as an attempt to circumvent the Bid integrity. In such cases, questions of determination of Lowest Responsible Bidder are not valid as such adjustments are generally random and unpredictable, or the result of unintentional oversights, and are inherent in, and integral to the integrity of, the process.

18.06 ***Notice of Award:*** Upon determination of the Lowest Responsible Bidder and of its desire to award the Contract at that time, the Town shall issue to the Lowest Responsible Bidder a written Notice of Award. The Notice of Award shall inform the Successful Bidder, in one or more actual transmittals, (a) that it has been selected as such, that the Town intends, if all other requirements are met, to award the Contract to it, (b) of notification of any discussions or negotiations, or certain submittals or other actions by the Successful Bidder, if any, that may be required of the Successful Bidder or that the Town may desire prior to a final version of the Contract Agreement being prepared, (c) that, upon being so prepared, and subject to legal review for the Town, the Town will, in a timely manner, forward an appropriate number of unsigned counterparts of the Agreement to the Successful Bidder for execution, (d) of the timeframe that the Successful Bidder is required to execute said Agreement counterparts and return them to the Town, (e) of notification of certain submittals or other actions that may be required of the Successful Bidder prior to the Town executing the Agreement or prior to the commencement of Contract Work, or particular portions thereof, and any required timeframes associated therewith, (f) of a tentative anticipated timeframe, which may be relative, for the Town to proceed with its part in the moving the Project towards commencement of the Contract Work, and (g) any other instructions the Town may deem appropriate.

18.07 ***Execution of Contract Agreement:*** Within 15 days after receipt of the unsigned counterparts of the Agreement, the Successful Bidder shall appropriately execute and deliver to the Town all of the counterparts of the Agreement, accompanied by its required, and properly executed, bonds, insurance certificates, hold harmless/indemnification agreement, and any other certificates, documents, or other information as may be required by the Notice of Award or the Bid Documents. Within 15 days after its receipt of the same, the Town shall execute the subject counterparts and deliver one original, fully executed counterpart to the Successful Bidder, now the Contractor.

18.08 Upon Execution of the Contract Agreement, the Form of Contract Agreement included in the Bid Documents for reference, if any, shall become null and void; its purpose being superseded by the executed Contract Agreement.

18.09 At some point subsequent to Contract Execution, the Town shall issue to the Contractor a Notice to Proceed in accordance with the Contract Documents. The Contractor is not authorized to commence any Project Work, or any other activities related to the Project for which compensation may subsequently be expected, prior to the date specified for the commencement of the Time of Completion in the Notice to Proceed.

ARTICLE 19 - INSTRUCTIONS TO LOWEST RESPONSIBLE BIDDER

19.01 The prospective Contractor receiving notification as the lowest responsible bidder must supply the following within 10 calendar days after said notification:

1. A list of anticipated subcontractors and suppliers for the Contract, pursuant to Paragraph 14.04 of the General Conditions, including the portions and values of the Work to be completed by each.
2. Bonds per Paragraph 20.01 of General Conditions (GCs) and Paragraph 6 of the Supplemental Contract Provisions. Note modification of payment bond per 6.1 of the Supplemental Contract Provisions.
3. Insurance Requirements per Paragraph 5 of the Supplemental Contract Provisions.
4. Schedule of Values, per Paragraph 5.03 of the General Conditions.
5. All applicable forms, certifications, approvals, or other information required pursuant to Section 5: Non-Town Agency Information of the Project Manual.

ARTICLE 20 - MISCELLANEOUS PROVISIONS

20.01 ***Sales and Use Taxes:*** The Town is exempt from Connecticut sales and use taxes on labor, materials, and equipment incorporated into the Work. Such taxes shall not be included in the Bid prices.

20.02 ***Definitions and Terminology:*** The attention of the prospective Bidder is directed to Section 1 of the General Conditions for the Bid provisions regarding the definition and interpretation of certain words, terms, and abbreviations as may be used throughout the Bid Documents.

20.03 ***Headings:*** Article headings are inserted for convenience only, and do not constitute parts of these Bid Instructions and Information. Paragraph headings, while emphasized for convenience, do constitute parts of these Bid Instructions and Information.

20.04 ***Public Bid Number 1165:*** These Bid Documents are prepared and issued as part of Public Bid Number 1165 of the Town of Bloomfield. Formal reference to this Bid shall be by this Bid Number.

TOWN OF BLOOMFIELD, CONNECTICUT

**GENERAL CONDITIONS
FOR
PUBLIC CONSTRUCTION CONTRACTS**

Issued: June 2015

Revised: July 2023

Compiled & Prepared by:

The Town of Bloomfield
Engineering Department

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SECTION 1 **DEFINITIONS AND TERMINOLOGY**

ARTICLE 1 - **DEFINITIONS**

1.01 **Defined Terms:** Wherever used in the Contract/Bid Documents, or otherwise in connection with the Contract, and printed as presented as a listed defined term within this Article 1 (i.e. if the listed term is presented with initial capital letters, then the definition shall apply when the term is printed with initial capital letters; if the listed term is not presented with initial capital letters, then the definition shall apply in all cases where such term is used), and in other cases where any listed term is used in a context where the clear intent of the use of the term is consistent with the provided definition herein, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. **Addenda** - Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bid Documents.
2. **Agreement** – The written instrument which is evidence of the terms and conditions agreed to between the Owner and the Contractor regarding the Contract Work.
3. **Amendment** – A written instrument negotiated, agreed to, and executed by the Parties that amends provisions of the Contract Documents not involving (i) Contract Prices or Times, (ii) the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters, or (iii) the performance or acceptability of the Contract Work (as changes to the Contract with respect to such matters is to be via a Change Order); although, an Amendment may direct one or more Change Orders to be issued regarding any such matters.
4. **Application for Payment** - The form acceptable to the Engineer which is to be used by the Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents, or otherwise by the Engineer.
5. **Bid** – The offer or proposal of a Bidder submitted on the prescribed form, and in accordance with the provisions of the Bid Documents, setting forth the prices proposed for the Contract Work by, and the qualifications, acknowledgements, and representations of, the subject Bidder.
6. **Bid Documents** – The documents, issued by the Owner, and enumerated in the Bid Instructions and Information document, from which, and in accordance therewith, the Bidder shall base its Bid for the Contract Work. Except as stated herein, the Bid Documents and the Contract Documents are composed of the exact same documents, with “Bid Documents” meaning said documents prior to the Effective Date of the Agreement and “Contract Documents” meaning said documents at and subsequent to the Effective Date of the Agreement. *Exception 1:* The Bid Documents will contain a template form of the Agreement, and perhaps other documents that require completion or execution as associated with the Effective Date of the Agreement or subsequent administration of the Contract; and, the Contract Documents shall contain the completed/executed versions those documents, which completed/executed versions shall have superseded and replaced the subject blank ‘form’ versions issued with the Bid Documents. *Exception 2:* Any Contract Documents added by virtue of the Agreement. *Exception 3:* Any Contract Documents issued subsequent to the Effective Date of the Agreement are not part of the Bid Documents. As such, and subject to these stated exceptions, any reference to the Contract Documents as applied prior to the Effective Date of the Agreement shall mean the Bid Documents; and any reference to the Bid Documents as applied at or subsequent to the Effective Date of the Agreement shall mean the Contract Documents.
7. **Bid Instructions** – A byname for the Bid Instructions and Information Document.

8. **Bid Item** – See “Work Item”.
9. **Bidder** – Any legal entity submitting a bid for the Contract Work.
10. **Change Order** - A document recommended by the Engineer which is signed by the Contractor (except in the case of a Unilateral Change Order) and the Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Agreement.
11. **Claim** - A demand or assertion by the Owner or the Contractor to the other Party contesting a decision of the Engineer concerning the requirements of the Contract Documents, the acceptability of Contract Work, regarding a request for a Change Order, or regarding any other matter over which the Engineer has authority; seeking resolution of a contract issue that the Engineer has declined to address; or seeking other relief or resolution with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
12. **Claim Notification Period** – As defined in Paragraph 25.03 hereof.
13. **Claim Process** – The process, requirements, and other provisions set forth in Article 25 for resolving all Claims of either Party as related to the Contract.
14. **Constituent of Concern** - Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
15. **Contract** - The entire and integrated written agreement between the Owner and the Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
16. **Contract Documents** – The set of documents enumerated as such in the Agreement. Provisions, including any additions or amendments thereto as stated in the Agreement, and including any qualifying documents, as determined by the provisions of said enumerated Contract Documents, as may be issued subsequent to execution of the Agreement. Approved shop drawings, other Contractor’s submittals, and the reports and drawings of subsurface and physical conditions are not part of the Contract Documents. Attention is directed to the definition of “Bid Documents” above for the relationship between the terms “Bid Documents” and “Contract Documents”.
17. **Contract Drawings** – The official drawings of any and every kind, or unaltered reproductions thereof, having been provided or approved by the Engineer which graphically show the location, scope, dimensions, or character of the Contract Work. Shop Drawings and other Contractor-submitted drawings are not Contract Drawings as so defined. Any use of the term “**Drawings**” within the Contract Documents, or otherwise related to the Contract, shall refer to and mean Contract Drawings.

18. **Contract Execution** – See “Effective Date of the Agreement”.
19. **Contract Price** – The monies payable by the Owner to the Contractor for completion of the Contract Work in accordance with the Contract Documents as stated in the Agreement.
20. **Contract Times** – The number of days or the dates stated in the Agreement to: (a) achieve Milestones, if any, (b) achieve Substantial Completion, and (c) fully complete the Contract.
21. **Contract Work** - The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Contract Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents. Any use of the terms “**Project Work**” or “**Work**” within the Contract Documents, or otherwise related to the Contract, shall refer to and mean Contract Work.
22. **Contractor** - The legal entity so designated in the Agreement, who has entered in to the Agreement with the Owner. The Contractor shall have control over the Contract Work and the prosecution thereof, subject to the applicable provisions of the Contract Documents.
23. **CTDOT** – The Connecticut Department of Transportation.
24. **Dispute Resolution Process:** The process, as set forth in Article 28, hereof, if invoked, resolving in a final and binding manner Claims that have failed to be resolved to the satisfaction of at least one of the Parties through the application of the Claim Process per the provisions of Article 25, and for resolving any Claims regarding Termination of the Contract or arising after final payment has been made.
25. **Effective Date of the Agreement** – the date indicated in the Agreement on which the Contract becomes effective.
26. **Engineer** – The individual or entity named as such in the Agreement.
27. **Field Order** – A written order issued by Engineer which may, based on the Engineer’s understanding of the Contract Documents, authorize minor variations in the Contract Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents, and as are consistent with the intent of the Contract Documents, or provide clarification or interpretation of the Contract Documents as related to the Contract Work.
28. **Form 819** - The State of Connecticut Department of Transportation (a.k.a. CTDOT) "Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 819, 2024" together with all supplements thereto issued by CTDOT. Any provisions of Form 819 specifically referenced by any other Contract Document (including these General Conditions) shall become part of the Contract Documents by virtue of, and to the extent of, such reference and shall be binding as specifically referenced and applicable. Any reference, whether direct or intended and/or implied, to the “State of Connecticut” therein shall be interpreted as referring to the Town of Bloomfield as appropriate and/or applicable. Any reference, whether direct or intended and/or implied, to the “State of Connecticut Department of Transportation” therein shall be interpreted as referring to the Town of Bloomfield Engineering Department or the Town of Bloomfield Department of Public Works as appropriate and/or applicable. Any reference, whether direct or intended and/or implied, to the “State of Connecticut Commissioner of Transportation” therein shall be interpreted as referring to the Town

of Bloomfield Town Manager as appropriate and/or applicable. Any terms defined by this Article 1 as may be used or referred to, either directly or indirectly, in said Form 819 shall be interpreted as being defined per this Article 1 to the extent appropriate or applicable. Where such interpretations as set forth herein are not appropriate or applicable, the interpretation shall be as intended in the Form 819.

29. **General Conditions** – Refers to this “General Conditions for Public Construction Contracts.”
30. **Hazardous Environmental Condition** - The presence at the Project Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto in connection with the Work. The presence at the Project Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition
31. **Improvements** – The various structures, utilities, drainage facilities, traffic control facilities, pavement, grading, landscaping, or other facilities or installed features, and including appurtenances incidental thereto, constructed or to be constructed and having a relation to the Project Site. Except when preceded by the word “existing”, the term “Improvements” shall refer to the Improvements constructed or to be constructed **on** the Project Site as part of the Contract Work. The term “existing Improvements” shall refer to the Improvements that existed **on or adjacent to** the Project Site at the time of the issuance of the Notice to Proceed.
32. **Improvement Drawings** – See “Improvement Plans”.
33. **Improvement Plans** - The subset of the Contract Drawings which have been prepared by or for the Engineer, and approved thereby, to show and detail the work and facilities specific to the Project, and which have been included in the Bid Documents. The Improvement Plans are issued as a set, and are included in the Contract Drawings and are to be interpreted as such. Use of the terms "**Plans**" or "**Improvement Drawings**" within these Contract Documents, or otherwise related to the Contract, shall refer to and mean the Improvement Plans.
34. **Laws or Regulations; Laws and Regulations** - Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction; these terms may be used interchangeably and have the exact same meaning.
35. **Lump Sum Work** – Work to be paid for on a lump sum basis, as described in Paragraph 4.05 of the Bid Instructions and Information Document.
36. **Milestone** - A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Contract Work.
37. **Notice of Award** – A written notice given by the Owner to the Successful Bidder informing the same of the intent to award the Contract thereto. Reference Paragraph 18.06 of the Bid Instructions and Information Document for the particulars of the Notice to Award. Any written document issued by the Owner to the Contractor subsequent to the initial Notice of Award issuance and prior to the issuance of the Notice to Proceed that provides instructions or notification to the Contractor regarding Contract Execution, meetings, timeframes, requirements, or procedures shall be considered part of the Notice of Award.
38. **Notice of Claim** – A written notice to the non-issuing Party, with copy to the Engineer, initiating a Claim per Paragraph 25.02 hereof.

39. **Notice to Proceed** - A written notice given by the Owner to the Contractor fixing the date on which the Time of Completion will commence to run, on which Contractor shall be authorized to start to perform the Contract Work, and the time frame with respect thereto that the Contractor shall commence Contract Work.

40. **Owner** – The party so designated in the Agreement; specifically, the Town of Bloomfield as defined by the term “**Town**”.

41. **Parties** – The parties to the Contract Agreement; i.e. the Contractor and the Town.

42. **Pay Item** – See “Work Item”.

43. **Progress Schedule** - A schedule prepared and maintained by Contractor describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.

44. **Project** – The total construction of which the Work to be performed under the Contract Documents, may be the whole, or a part.

45. **Project Field Representative** – A qualified person or persons furnished, full time or part time, and assigned to all or any parts of the Contract Work or Project Site by the Engineer as deemed by the Engineer to be in the Owner’s interest to assist the Engineer in providing more extensive monitoring, in terms of quantity and coverage, (however not in terms of qualifications,) of the Contract Work and preliminary review of submittals, to accept and document submittals from the Contractor, and to function as a means of informal coordination and communication between the Engineer and the Contractor. Any use of the terms “Project inspector(s)” or “inspector(s)” in relation to the observation of the Contract Work on behalf of the Owner (that does not clearly refer to the Engineer, the Project Manager, or the Town Representative) shall mean the Project Field Representative(s).

46. **Project Manager** – A qualified person who is an official or employee of the Engineer designated by an authorized official of the Engineer, and identified in the Supplemental Contract Provisions or by the Town Representative to be the primary representative of the Engineer and to act on behalf of the Engineer in all respects, and with all limitations, in respect to the Contract.

47. **Project Manual** – The written documentary information prepared for, or made available for, procuring and constructing the Contract Work. A listing of the contents of the Project Manual, which may be organized in one or more volumes, is contained in the table(s) of contents thereof.

48. **Project Site** – The lands or areas, as may be indicated or limited by the Contract Documents or otherwise by the Engineer, to be furnished by the Owner upon which the principal and majority portions of the Contract Work are to be performed, including, but making no representations regarding any obligations for the Owner, whatsoever, to furnish or make available the same, any easements or rights-of-way for access or other purposes, staging areas, or other such lands or areas furnished or made available to the Contractor by the Owner, as it may have deemed in its interest, for use in the prosecution of the Contract Work; (note: the collection and transportation of materials, supplies, or equipment, the activities of or for the Contractor in association with the Project which may take place at offices or other locations apart from the Project Site, or other such activities and matters apart from the Project Site, represent activities and matters encompassed by the Contract Work that do not take place at the Project Site.) Any use of the term “**Site**” within the Contract Documents, or otherwise related to the Contract, shall refer to and mean Project Site.

49. **Project Technical Specifications** – Specifications, issued by the Owner or the Engineer as part of the Contract Documents, and prepared by or for, and approved by, the Engineer specifically for the Project.
50. **Reference Specifications** – Specifications, included in the Contract Documents by reference, that are listed in the appropriately titled Article of the Supplemental Contract/Bid Provisions or are a condition or requirement of any permit obtained or required, or any Laws or Regulations as may be applicable, with respect to the Contract Work.
51. **Resident Project Representative** – Means the same as “Project Field Representative”.
52. **Samples** - Physical examples of materials or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
53. **Schedule of Submittals** - A schedule, prepared and maintained by Contractor, of required submittals and time requirements to support scheduled performance of related construction activities.
54. **Schedule of Values** - A schedule allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
55. **Shop Drawings**- All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether or not approved, are not part of the Contract Documents.
56. **Site** – See “Project Site”.
57. **Specifications** - That part of the Contract Documents, whether physically included or included by reference, consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto. The Specifications include, but are not limited to, in the order of application and precedence, the Project Technical Specifications, the Standard Specifications, the Reference Specifications, and the default specifications; where the default specifications, included by reference herein, represent industry standard materials, equipment, systems, and workmanship for the performance or completion of the subject portion of the work in question to a reasonable standard, or as otherwise necessary in its context to the Project, of appearance and function for its intended purposes.
58. **Subcontractor** - An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Contract Work.
59. **Substantial Completion** - The time at which the Contract Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, and as evidenced by the issuance of a Notice of Substantial Completion by the Engineer to the Contractor, the Contract Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Contract Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Contract Work refer to Substantial Completion thereof.
60. **Supplemental Contract Provisions** – That part of the Contract (/Bid) Documents prepared specifically (in most cases – some frequently included provisions are included there for convenience

and emphasis) for the Project, which amends or supplements these General Conditions, the Bid Instructions, or other standard Contract Document.

61. **Supplier** - A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

62. **Technical Data** – Those items expressly identified as Technical Data in the Supplemental Contract Provisions, with respect to either (a) subsurface conditions at the Project Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 29.01, 29.02, and 30.02.

63. **Time for Completion** – Is the Contract Time that represents the number of days allowed, or the date specific, (as the case may be,) for the Contractor to bring the Contract Work, or any subject portion thereof, to Substantial Completion.

64. **Town** – The Town of Bloomfield, typically in the role of Owner, but also in the role of regulatory or enforcement agency or other such functions typical to a municipality, (where the particular role applied to any situation shall be the role most befitting the context of the particular situation,) acting through the Town Manager, or any officials, agents, or representatives of the Town, as may be duly authorized or designated by the Town Manager, the Contract, the Charter of the Town, or any applicable Ordinance or Regulation of the Town, or any other Laws or Regulations, and to the extent of their applicable authority.

65. **Town Project Representative**: An official or employee of the Town designated by the Agreement, the Supplemental Contract Provisions, or by the Town Manager to be the primary representative, (for responsibilities and actions outside of those accorded to the Engineer), of the Owner to the Contractor, to the Engineer, and otherwise with respect to the Contract. See Paragraph 21.04.

66. **Underground Facilities** - All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

67. **Unit Price Work** - Work to be paid for on the basis of an established unit price per unit for any particular Work Item.

68. **Work** - See “Contract Work”.

69. **Work Change Directive** - A written directive to the Contractor issued by the Owner, having been recommended, and acknowledged by the Engineer, ordering an addition, deletion, or revision in the Contract Work in response to time critical matters for which timely incorporation thereof into the Contract is in the interests of the Project or of the Town. A Work Change Directive is not a Change Order and, as such, will not directly change the Contract Price or the Contract Times; but it is evidence that the Owner and the Engineer expect that the changes ordered or documented by a Work Change

Directive warrant a Change Order and will be incorporated in a subsequently issued Change Order following negotiations by the Parties as to its effect, if any, on the Contract Price or Contract Times.

70. **Work Item** – An item of work specifically described in the Schedule of Values/Bid for which a price, either on a per unit basis or a lump sum basis, is provided for therein. The term “Work Item” shall also include any items of work that are added to the Contract via a Change Order. Any use of the terms “**Bid Item**” or “**Pay Item**” within the Contract Documents, or otherwise related to the Contract, shall refer to and mean Work Item.

ARTICLE 2 - TERMINOLOGY

2.01 **Specific Term Interpretation:** The following words or terms are not defined; however, whenever used in the Contract/Bid Documents, or otherwise in connection with the Contract, and as may be limited in extents hereby, and including the singular, plural, or any other clearly intended derivation thereof, they shall have the following meaning.

1. **Asphalt and Bituminous** – The words “asphalt” and “bituminous” mean and refer to the same material and may be used interchangeably throughout the Contract Documents, including when referring to bid items or specifications.
2. **Day** – The word “day” means a calendar day of 24 hours measured from midnight to the following midnight.
3. **Defective** – The word “defective” when used as referring to any portion of the Contract Work, regardless of status, means work that is unsatisfactory, faulty, or deficient in that it:
 - a) Does not conform to the Contract Documents, or
 - b) Does not meet the requirements of any applicable inspection, standard, test, or approval referred to in the Contract Documents
 - c) Has been damaged prior to the Engineer’s issuance of a final certificate of Substantial Completion, (unless responsibility for the protection thereof has been previously assumed by the Owner in accordance with Paragraph 26.11 hereof).
4. **Furnish** – The word “furnish”, when used in connection with obligations of the Contractor, shall mean to supply and deliver subject services, materials, or equipment to the Project Site (or some other specified location) ready for use or installation for the intended purpose(s).
5. **Install** – The word “install,” when used in connection with obligations of the Contractor with respect to Contract Work, shall mean to put into use or place in final position subject services, materials, or equipment complete and ready for the intended use(s).
6. **Construct; perform; provide** – The words “construct”, “perform”, or “provide”, when used in connection with obligations of the Contractor with respect to Contract Work shall mean to furnish, install, and perform subject services, materials, or equipment complete and ready for the intended use(s) or for the intended purpose(s) in the Project.
7. **General work items** – The term “general work items” shall mean Work Items identified in the Schedule of Values that are not directly part of the Project Improvements, but rather are a part of the

Contract Work that act to support or complement the Contract Work as a whole or a substantial aggregate of Work Items as a portion of the whole. Examples of general work items include Mobilization, Site Preparation, Clearing and Grubbing, Maintenance and Protection of Traffic, Sedimentation and Erosion Control, Restoration, Construction Field Office, etc.

8. ***Supervision; superintendence*** – The words “supervision” or “superintendence”, when used to indicate supervision or superintendence by the Contractor, shall mean the Contractor exercising its control and proper oversight of the Contract Work and performing its obligations and responsibilities as set forth by the Contract Documents with respect to the Work.

9. ***Monitor*** – The word “monitor”, when used in relation to actions or efforts by or on behalf of the Engineer or the Owner with respect to Contract Work, shall mean to observe, to review, or to record or gather information regarding (including taking measurements, obtaining samples, performing tests, or noting activities, performance, or events) the Contract Work, and the prosecution thereof by the Contractor, in respect to its apparent compliance with the Contract Documents, in order to assist in evaluating payment requests or other duties or responsibilities of the Engineer, or for other interests of the Owner. “Monitor” shall not mean, or be construed to mean, *i*) a comprehensive, detailed, or absolute examination, evaluation, or scrutiny of the same in respect to its compliance with the Contract Documents, or *ii*) an intent or action to guarantee or ensure compliance of the same with the Contract Documents.

10. ***Unauthorized*** – The word “unauthorized”, when used in relation to Contract Work shall mean any work performed by the Contractor in association with the Project which qualifies as, is considered as, or is designated as unauthorized in accordance with the provisions of the Contract Documents. The Owner reserves the right to accept, make payment for, reject, or to order the Contractor to remove or replace all unauthorized work at the Owner’s sole option. The Contractor shall be liable for any and all expenses associated with the inspection, verification, removal, or replacement of unauthorized work

11. ***Interest of the Town; Town’s interest; etc.*** - The terms the “interest of the Town”, the “Town’s interest”, or any other such term clearly intended to indicate the interest(s) of the Town, shall be interpreted to include the public interest served by the Town in addition to the interest of the Town individually as the Owner of the Project or otherwise as a municipal corporation.

12. ***Town road or public road*** – The terms Town road or public road shall mean all public travel ways within the subject public right-of-way, including the vehicular travel way and/or sidewalks, paths, trails, or other facilities for pedestrian, bicycle, or other forms of non-motorized travel.

13. ***Use of “or”*** - Use of the word “or” shall be interpreted to encompass both the inclusive and exclusive comparison of the associated terms or phrases, (i.e. to be equivalent to the common term “and/or”,) unless such interpretation is inconsistent with the obvious intent of the encompassing provision, or the word “or” is singularly emphasized by using a bold, italicized font, in which case “***or***” is to be interpreted in strictly the exclusive sense. Any use of the term “and/or” does not alter the interpretation of this Paragraph.

14. ***Use of “including”*** - Use of the word “including” shall be interpreted to be non-limiting with respect to its objects thereafter listed; (i.e. to be equivalent to “including, but not limited to”), unless such interpretation is inconsistent with the obvious intent of the encompassing provision. Any use of the phrase “but not limited to”, or any variation thereof intended for similar purpose, in combination with the word “including” does not alter the interpretation of this Paragraph.

2.02 ***Intent of certain terms or adjectives with respect to the Engineer:*** The Contract Documents include the terms “approved”, “approval”, “as allowed,” “as approved”, “as directed” or terms of like

effect or import to authorize an exercise of professional judgment by the Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of the Engineer with respect to the Contract Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Contract Work for compliance with the requirements of and information in the Contract Documents and for conformance with the design concept of the completed Project as a functioning whole, (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to the Engineer any duty or authority to supervise or direct the performance or prosecution of the Contract Work or any duty or authority to undertake responsibility contrary, in any respect, to the provisions of the Contract Documents, nor are any of the same intended to indicate or represent comprehensive or detailed evaluation of the subject matter.

2.03 *Well-known Meaning:* Unless superseded in this Section 1, a Reference Specification, or stated otherwise in the Contract Documents, or unless the application of such meaning as directed hereby is inconsistent with the obvious intent of the encompassing provision, words, terms, phrases or abbreviations used within the Contract Documents, or otherwise in connection with the Contract, which have a well-known technical, construction industry, or trade meaning shall be interpreted in accordance with such well-known meaning.

ARTICLE 3 - ABBREVIATIONS

3.01 The use of abbreviations within the Contract Documents shall be per Sections 1.01.02 and 1.01.03 of Form 819.

SECTION 2 GENERAL ADMINISTRATIVE MATTERS

ARTICLE 4 - PRELIMINARY MATTERS

4.01 ***Supplements:*** As indicated by the title, these General Conditions are general in nature and prepared to be applicable to a variety of types and scopes of municipal construction projects. For virtually all projects where these General Conditions are included in the Contract Documents, the Owner will see fit to extend, amend, or otherwise supplement these General Conditions to fit the particular project with the inclusion of Supplemental Contract Provisions in the Contract Documents; and attention is specifically directed to same. Likewise, the Owner, either directly or through the Engineer, may see fit to further extend, amend, or otherwise supplement these General Conditions subsequent to the Effective Date of the Agreement through the issuance of a Change Order, Work Order, or written Directive. In general, any provision of these General Conditions is subject to any provisions of the Supplemental Contract Provisions, a Change Order, a Work Order, or a written Directive of the Owner or the Engineer that are intended by the language included therein to extend, amend, or further define, and to supersede, the subject provision of these General Conditions. This Paragraph 4.01 is intended to be applied in conjunction with the provisions of Article 8 of these General Conditions, with the provisions of said Article 8 taking precedence in all matters and instances.

4.02 *Town of Bloomfield:*

1. The Town of Bloomfield (i.e. the "Town") is a municipal corporation in Connecticut and the Project is located within the limits of the Town of Bloomfield.

2. As such, the Town of Bloomfield has two separate and distinct roles with respect to the Project: *i)* designated Owner under the Contract, and *ii)* the regulatory and enforcement role of the municipality in which the Project is located.

3. Any reference to the Town of Bloomfield (including the “Town” or the “Owner”) in the context of being the Project owner and as a Party to this Contract within the Contract Documents or otherwise as associated with the Contract shall mean and refer to the Town specifically in the role of owner of the Project, subject to and encompassing the responsibilities, authorities, and limitations set forth in the Contract Documents for the Town as owner of the Project.

4. Actions taken or authorities exerted by officials or employees of, or otherwise by, the Town of Bloomfield in the context of the Town’s regulatory and enforcement role shall be deemed as separate from the role of the Town as owner of the Project and shall not in any way alter any provisions of the Contract Documents, or the interpretation thereof.

5. Other provisions of the Contract Documents, including Paragraphs 1.01-64, 1.01-65, and 2.01-10 of the General Conditions, additionally address matters related to the Town as pertains to the Contract.

4.03 *Documents Furnished to the Contractor:* In conjunction with the Notice to Proceed, The Owner shall furnish to the Contractor at least one printed or hard copy, which copy shall be the Contractor’s master copy which shall be stored indoors at all times and remain unaltered with respect to content and binding, and an electronic copy, in a mutually agreeable ‘snapshot’ format, of all Owner-generated Contract Documents at the time of the Notice to Proceed; and shall make available, at the Contractor’s request, up to 8 additional printed or hard copies of any or all of the subject documents. The Contractor is permitted to transmit or make copies of for transmittal, but not to in any way alter, said electronic copies, or any portion thereof, to entities providing services or materials to the Contractor with respect to the Project as necessary, provided that the Contractor shall be responsible for the completeness of any such transmitted electronic document in respect to the master provided to the Contractor, and shall be responsible to the Owner for the alteration thereof, whether intentional or unintentional, and any consequences resulting therefrom, by or as associated with any recipient thereof from the Contractor. The Owner shall also furnish the Contractor at such time with one complete printed copy each of the Improvement Plans and the Project Technical Specifications for the Contractor’s use in complying with the provisions of Paragraph 11.14. The Contractor’s attention is directed to Article 6 of these General Conditions for additional provisions regarding the Contract Documents.

4.04 *Prices are inclusive:* The Contractor acknowledges and agrees that, as applicable, every Unit Bid or Lump Sum price submitted by the Contractor in its Bid, and every Work Unit price presented in the Schedule of Values, includes and encompasses all plant, labor, on-site supervision, material, supplies, equipment, and other facilities or effort necessary for or incidental to the construction/fulfillment of the subject item/facility/task complete, fully functional, and properly finished, individually or in aggregate, in strict conformance with and as may be required by the Contract Drawings, Specifications, and as otherwise provided in the Contract Documents, and for the use (or uses) and appearance intended by the Town, and including all overhead, expenses, profit, support services, consulting services, transportation, storage, utilities, requirements of Laws or Regulations, or other matters or incidentals associated with any of the same; that any unit or lump sum price established in any Change Order shall include and encompass the same, (subject to any particular provisions of the Change Order to the contrary, and to any successful claim by the Contractor as may be raised against a unilateral Change Order); and that the Contract Price includes and encompasses the same as an aggregate of all of the Work Items or Contract Work contemplated by the Contract Documents to produce a finished product as contemplated by the Contract Documents and the Owner. Notwithstanding the foregoing, the costs, prices, and compensation due the Contractor as

associated with Cost Plus work (i.e. "Method 3", Paragraph 24.02-3), and the inclusions and exclusions associated therewith, shall be as set forth under said Paragraph 24.02-3.

4.05 *Quantities are approximate:* The Parties agree that any quantities of Work that were provided by the Owner in the Bid, any quantities of Work listed in the Schedule of Values, regardless of the source, any quantities of Work provided on the Improvement Plans or elsewhere within the Contract Documents, and any quantities of Work as may be included in any Change Order, and excepting herefrom any quantities of completed Work measured for payment or other purposes, are approximate, estimated solely for convenience and use in establishing the scope of the Project or Work Items, or portions or aggregates thereof, and to assist in determining schedules, in Project administration, and other such Project-related purposes. For Unit Price Work, the Contractor shall be due compensation and be paid for only the actual quantities of Work Items successfully completed in accordance with the Contract Documents, notwithstanding any dimensional or other such information as may be included or provided in the Contract Documents.

4.06 *Project Site Availability:* The Owner shall make the Project Site available to the Contractor in accordance with the applicable requirements, stipulations, and other provisions set forth in the Contract Documents. In particular, attention regarding this matter is directed to Paragraph 1.01-48 and Article 18 of these General Conditions for additional provisions regarding the Project Site, and to the Supplemental Contract Provisions (as may be applicable) for project-specific provisions.

4.07 *Reference Points:* The Owner shall provide surveys to establish reference points for construction which in the Engineer's judgment are necessary to enable the Contractor to proceed with the Work. The Contractor shall be responsible for laying out the Contract Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of the Owner. The Contractor shall report to the Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, or for any other Work-related reason, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.08 *Commencement of Contract Times, Commitment to Fund, & Start of Work:* The Time of Completion, and any other applicable Contract Time, will commence as stated in the Notice to Proceed (NTP), or any other appropriate Contract Time notice as may be applicable for Milestones in addition to Substantial Completion. The Contractor is not authorized to commence any Contract Work, except as otherwise specifically authorized under this Paragraph 4.08, prior to the date specified for the commencement of a relevant Contract Time in the NTP or other such Contract Time notice. No subject Work shall be done at the Project Site prior to the commencement of any relevant Contract Time. The execution of the Contract and subsequent issuance by the Owner of a purchase order for the Contract Work can be considered as a commitment to fund by the Owner for certain Contract activities and procurements, provided the same are specifically approved in writing by the Engineer to occur prior to the NTP. Such approval for activities and procurements will generally be reserved for items that are needed prior to commencing work or early in the scheduled work that have an untimely lead time associated with them; examples include required bonds and insurance, designs, schedules, and material fabrications.

4.09 *Preconstruction Conference:* As deemed fit by the Engineer, one or more preconstruction conferences attended by the Owner, the Engineer, the Contractor, and others as appropriate will be held to establish a working understanding among the participants as to various aspects of the Contract Work and to discuss the schedules referred to in Article 5, procedures for handling Shop Drawings and other submittals, for processing Applications for Payment, and for maintaining required records, and any other Project related matters as may be deemed fit by the attendees. The anticipated number and schedule for

preconstruction conferences, if any, will be included in the Notice of Award. Preconstruction conferences shall be conducted by the Engineer.

ARTICLE 5 - PROJECT SCHEDULES

5.01 *Progress Schedule:* The Progress Schedule shall indicate the times, (number of days or dates, as appropriate,) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents, the critical path or other such means to designate relationships between Schedule elements that may affect progress, and other information as typically included by industry standards or as otherwise appropriate to the scope and nature of the Project. The Progress Schedule shall provide a clear representation of the proposed sequencing and orderly progression of the Work to meet the Time of Completion and any other Milestones. The Progress Schedule shall account for and represent, (where significant,) the timeframes for acquiring permit, submittal, and other approvals as appropriate, and for coordination with, or work or other activities by, utilities and other outside agencies, either as may be identified in or integral to the Contract Documents or as may be typical to similar projects or aspects of the Work and as may affect the progress of the Work. The Contractor shall take notice of, and inquire with, facilities, agencies, businesses, organizations, and other such entities that are located in the vicinity of the Project Site that may typically have operations, events, or other such matters that may affect the progress of the Work, and account for the same in the Progress Schedule. The Progress Schedule shall also anticipate and allow for typical variability and uncertainty with respect to any of the afore-mentioned, (in this whole paragraph), matters, the weather, and any other such factors.

5.02 *Schedule of Submittals:* The Schedule of Submittals shall outline a workable arrangement, including timeframes, for submittal, review, and processing of required submittals to the Engineer and for permit applications or any other applications or submittals to outside agencies necessary to proper completion of the Project. The Schedule of Submittals shall allow liberally appropriate timeframes for processing, corrections, and reviews of the various submittals. It is the responsibility of the Contractor to contact the Engineer to obtain a proper understanding of the anticipated process [from the Engineer's perspective] and the anticipated participants and level of review. Where applications or submittals are made to outside agencies, it is the responsibility of the Contractor to use its knowledge, experience, judgment, and resources to determine appropriate timeframes and other information to be included in its preparation of the Schedule of Submittals.

5.03 *Schedule of Values:* The Schedule of Values shall reasonably and appropriately divide the Contract Work into various Work Items, including units of measurement and estimated quantities based thereon, and assign appropriate values thereto such that the sum of the assigned values of said Work Items equals the Contract Price. Such prices will include an appropriate amount of overhead, profit, and incidentals applicable to each item of Work. The Schedule of Values shall be the basis for determining progress payments due the Contractor and for evaluating progress of the Contract Work. For a Unit Price Bid, the Contractor's submitted Bid shall form the basis for the Schedule of Values, and the Owner or the Engineer shall be responsible for preparing and maintaining the Schedule of Values. For a Lump Sum Bid, the Contractor shall prepare and maintain the Schedule of Values, subject to the review of the Engineer.

5.04 *Contractor Responsible for Schedules:* The Schedule of Values for a Unit Price Bid may only be modified by a valid, executed Change Order, and the provisions of this Paragraph 5.04 do not apply thereto. The Contractor shall be responsible for appropriately preparing, implementing, monitoring, abiding by, and maintaining all Project Schedules required under this Article 5, and shall be responsible for the contents of the same. Where the Contractor determines that any portion of any such Project Schedule will not, or may not, be met or becomes, or imminently may become, incorrect, outdated, unattainable, unnecessary, or otherwise invalid, the Contractor shall notify the Engineer of the same, and consult with the Engineer regarding the possibility or necessity for revising the subject Schedule, in an expeditious manner. If the Contractor or the Engineer determines that a revision of the subject Schedule is warranted, then the Contractor shall, in a timely manner, prepare and submit to the Engineer for review a draft of the revised

Schedule. The requirement of any such revision shall not alter the Contractor's prosecution of the Contract Work in any manner during the preparation or review of the same. Any revision of a Project Schedule in the absence of an applicable valid, executed Change Order shall not, and shall not propose to, alter the Contract Price or Contract Times in any way. The Engineer's option and discretion to allow a revised schedule is notwithstanding any other applicable requirement or provision of these Contract Documents. The Engineer may require the Contractor to provide a written explanation for the failure, or possible failure, to meet a Project Schedule.

5.05 *Review by Engineer:* All Project Schedules required under this Article 5, including any revisions thereof, are subject to the review and approval of the Engineer prior to being implemented or officially revised. Reference Paragraph 9.02 regarding such review and approval by the Engineer.

5.06 *Waiver by the Engineer:* The Engineer shall have the authority and option to waive all or any part of any requirement of this Article 5, or any enforcement associated therewith, as deemed fit or in the Town's interest thereby. Any such waiver, individually or in aggregate with others, shall not have any bearing on the treatment of future schedule submittals or future determinations by the Engineer.

5.07 *Initial Approval of Schedules:* Within 12 days after the issuance of a purchase order by the Owner for the Contract Work, the Contractor shall submit to the Engineer initial drafts of all Schedules required in association with this Article 5 for review. The issuance of the Notice to Proceed may be delayed if any schedule is found to be substantially deficient. Within 30 days after the issuance of the Notice to Proceed, the Contractor shall have made any corrections or adjustments to address any deficiencies noted by the Engineer and resubmit revised drafts of any rejected Schedules to the Engineer for review. No progress payments shall be made to the Contractor until all such required Schedules have been approved by the Engineer.

5.08 *Additional Information:* Reference Article 9 hereof for additional information regarding submittals.

ARTICLE 6 - CONTRACT DOCUMENTS

6.01 *Definition:* The Contract Documents are defined in Paragraph 1.01-16 hereof.

6.02 *Complementary:* The Contract Documents are complementary; what is required by one is as binding as if required by all.

6.03 *Intent:* It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof, as the case may be) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for, at no additional cost to the Owner. Any of the same not specifically included in the items identified in the Schedule of Values shall be considered as incidental to one or more of said items, and price and payment for the same shall be considered to be included in the prices for said items set forth in the Schedule of Values.

6.04 *Conformity:* All work performed and facilities constructed shall be in close conformity with the lines, grades, cross-sections, dimensions, and other requirements, including meeting all specified tolerances, as set forth in the Contract Drawings and Specifications. If, in the opinion of the Engineer, any materials used, or any work performed, or any finished product is not in reasonably close conformance with the Contract Drawings and Specifications and has resulted in an inferior or unsatisfactory product, the work and/or material shall be removed and replaced, or otherwise corrected to the satisfaction of the Engineer, by and at the sole expense of the Contractor.

6.05 ***Interpretations:*** Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Paragraph 22.07.

6.06 ***Amending:*** The Contract Documents may be amended to provide for additions, deletions, or revisions in the Contract Work or to modify the terms and conditions thereof by any of a Change Order, a Work Change Directive, or a formally prepared and executed Amendment document.

6.07 ***Supplementing:*** The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following means:

1. A Field Order.
2. The approval of a submittal of the Contractor by the Engineer; (Subject to the provisions of Paragraph 9.02-8).
3. A written interpretation or clarification of the Engineer.

6.08 ***Reuse of Documents:***

1. The Contractor, or any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with Contractor, shall not:
 - a) Have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any of the same) prepared by or bearing the signature of the Engineer or any consultants of the Town, including electronic media editions; or
 - b) Reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or on any other project or endeavor without the written consent of the Owner, the Engineer, and, as may be applicable, any subject consultant of the Owner.
2. The prohibition of Paragraph 6.08-1 above will survive final payment or termination of the Contract. Nothing herein shall preclude the Contractor from retaining copies of Documents for record purposes.

ARTICLE 7 - REFERENCE STANDARDS AND SPECIFICATIONS

7.01 ***Identification in Supplemental Contract Provisions:*** Specific reference standards and specifications applicable to the Contract are identified in Paragraph 2 of the Supplemental Contract Provisions. This identification is not exhaustive and does not represent the total of reference standards and specifications that are applicable to the Contract or have jurisdiction over or otherwise effect on the Contract Work. Reference standards and specifications may be and are included in the Contract through other provisions of the Contract Documents.

7.02 ***Applicable Version:*** Reference to standards or specifications, including manuals or codes of any technical society, organization, or association (including government agencies), or to Laws or Regulations, whether such reference be specific or by implication, shall mean the version or issuance of the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in

the Contract Documents. Where an applicable Law or Regulation is revised or a new Law or Regulation is established that has governance over any aspect of the Contract Work subsequent thereto, and subject to any applicable grandfather clause as may be included therein, then the new or revised Law or Regulation shall become in effect and shall be fully complied with. The Engineer has the right, as deemed fit thereby, to alter or amend the Contract Documents, in accordance with the applicable provisions thereof, to incorporate all or part of any other reference standard or specification, for which a revised, expanded, or otherwise updated version of the same is issued prior to Substantial Completion. Where the Engineer is considering to incorporate any revised, expanded, or otherwise updated standard or specification, the Engineer shall notify the Contractor of the proposed inclusion at least 20 days prior to effectuating the same; and request in such notification that the Contractor review the proposed inclusion and, within the 20 days, comment in writing to the Engineer on how the same may affect the Contract Work or its prosecution thereof, and any cost or time adjustments the Contractor considers fit and warranted to accommodate the same. Any adjustment of Contract Price or Time actually effectuated in association with any such inclusion that is implemented will be so effectuated in accordance with the applicable provisions for changes in the Work included in the Contract Documents.

7.03 *New or Revised Laws or Regulations – Risk:* In general, the Contractor shall bear the risk for new or revised Laws or Regulations relating to labor, health, safety, erosion and sedimentation control, and other such matters that are of a general, overhead, or cost-of-doing-business nature with respect to the prosecution of work of a similar nature to that proposed under the Contract; and the Contractor shall not be due any additional compensation as a result of the same. Where deemed fit and in the interests of the Town thereby, the Owner and the Engineer may agree to appropriately adjust the Contract Price or Time in situations which may overlap the applicability of the preceding sentence without the same altering or affecting any other similar situation occurring or encountered under the Contract. Where a changed requirement associated with Laws or Regulations is directly and specifically associated with any permit or license specifically obtained for the Project or with any non-general item of work identified in the Schedule of Values, then the Contract Price or Times shall be adjusted via a Change Order as warranted.

7.04 *Limitations:* No provision of any such reference standard, specification, manual or code shall be effective to change the duties or responsibilities of the Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, except where the specific wording or context of the subject reference is clearly specifying a requirement to be complied with, and in any such case, only to the most limited extent as may be applied thereto and subject to the provisions of Article 8. No such provision or instruction shall be effective to assign to the Owner or the Engineer, or any of their consultants, agents, or employees, any duty or authority to supervise or direct the performance of the Contract Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

ARTICLE 8 - DISCREPANCIES IN CONTRACT DOCUMENTS

8.01 *Intended Conflicts:* It is the nature of the formulation of Contract Documents, in the interests of using general conditions and reference specifications and standards, that, as documents that are more specific to the Town or the Project are developed, there may be included therein conflicts with more general documents where such conflicts are intended by the specific language included therein to supersede the subject portions or provisions of the more general documents; (e.g. provisions of the Supplemental Contract Provisions may conflict with and supersede provisions of the General Conditions by intent; and, similarly, provisions of the Project Technical Specifications may conflict with and supersede the provisions of reference specifications or standards by intent; etc.) Where such conflicts appear clearly intended, as described in the preceding sentence, by the Owner or the Engineer in the preparation of the subject documents, and, where any such conflict can be readily resolved by applying the appropriate provisions of

this Article 8, and, where applying any such resolution does not appear to adversely affect the quality, outcome, or other aspect of the Contract Work, or in cases where a subject discrepancy is clearly trivial, then the reporting requirements of the Contractor contained in this Article 8 shall not apply. Note that this waiver of reporting requirements only applies to more specific documents prepared by the Owner or the Engineer; and, specifically does not apply where any Law, code, Regulation, or permit requirement is involved to any degree in the subject discrepancy.

8.02 Contractor's Preliminary Review: Prior to undertaking each part of the Work, the Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. The Contractor shall promptly report in writing to the Engineer any conflict, error, ambiguity, or discrepancy, (all of which may be encompassed hereunder by the terms "discrepancy" or "discrepancies", as the case may be,) which the Contractor may discover and shall obtain a written interpretation or clarification, which may include instructions, from Engineer before proceeding with any Work affected thereby.

8.03 Contractor's Ongoing Review: If, during the performance of the Contract Work, the Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work, or of any standard, specification, manual or code, or of any instruction of any Supplier, the Contractor shall promptly report the same to the Engineer in writing. The Contractor shall not proceed with the Work materially affected thereby (except in an emergency as required by Paragraph 19.06) until a written interpretation or clarification, which may include instructions, is received from the Engineer regarding the same. Attention is directed to Paragraph 23.03 regarding changed conditions.

8.04 Contractor's Liability Limited: The Contractor shall not be liable to the Owner or the Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless the Contractor knew or reasonably should have known thereof.

8.05 Reporting to Have Precedence: Where the Contractor has any question or any uncertainty as to whether reporting a discrepancy known to it is required hereunder or as to the appropriate resolution to any discrepancy as may be attempted in accordance herewith, then the Contractor shall report said discrepancy to the Engineer in accordance herewith in precedence over non-reporting. Under no circumstances shall the Contractor assume a resolution to any discrepancy, except as may be reached through the proper application of the provisions of Paragraph 8.01 above.

8.06 Engineer's Obligation to Notify: Where the Engineer becomes aware of a discrepancy that was not intended by the Engineer or the Owner in the preparation of the Contract Documents, and where the same is deemed by the Engineer to not be trivial, then the Engineer shall notify the Contractor in writing of the same a timely manner, relative to the nature of the discrepancy. Such notification requirement only applies to discrepancies known to the Engineer.

8.07 Good Faith: Neither party may take advantage of any known or obvious error or omission in the Contract Documents to the detriment of the other or the Project.

8.08 Resolution – General: In general, in case of any discrepancy that was not clearly intended by the Owner or the Engineer as set forth in Paragraph 8.01, and being subject to applicable Laws, Regulations, codes, and permit requirements, and taking into consideration any specific interpretations or clarifications of the Engineer with respect thereto, the more stringent requirement shall be considered as governing. For discrepancies with respect to the Contract Work and direct prosecution thereof, the higher performance requirement shall govern in conjunction with the more stringent requirement. The higher performance requirement shall be interpreted to be the equipment, material, device, method of construction, fabrication,

and/or installation, and/or resulting final product that represents the highest quality. In the event of uncertainty between the higher performance requirement and the more stringent requirement, the higher performance requirement shall have precedence. Given numerical dimensions and/or calculated dimensions accurately derived from given numerical dimensions shall govern over dimensions derived from applying a scale or other measuring device to graphical representations or otherwise interpreting a graphical representation without the use of given numerical dimensions. In general, documents of later issuance shall have precedence over equivalent documents of earlier issuance.

8.09 Resolution Continued – Technical Matters: As applied to technical matters involved in the Contract Work or the prosecution thereof, where application of the general clause set forth in Paragraph 8.08 does not result in a clear resolution of the subject discrepancy or is otherwise inconclusive, then the discrepancy shall be resolved by applying the following order of governance of the various identified components of the Contract Documents, listed in order of descending precedence, that may be a part of the discrepancy. In the event that a subject document is not listed, then, subject to not taking precedence over components 1, 2 or 3, more specific documents shall have precedence over less specific documents.

1. Applicable Laws, Regulations, and codes.
2. Environmental Permits, including the regulatory requirements thereof as related to any pending or required application therefor and the contents of any such pending application that have been included therein in an effort to meet any such requirements.
3. Other Governmental Permits, including the regulatory requirements thereof as related to any pending or required application therefor and the contents of any such pending application that have been included therein in an effort to meet any such requirements.
4. Change Orders or Written Change Directives.
5. The Contract Agreement.
6. Contract Provisions or Technical Specifications contained within any Bid Addendum.
7. Project Technical Specifications.
8. Improvement Plans.
9. Supplemental Contract Provisions
10. Town standard specifications and details.
11. General Conditions
12. Bid Instruction and Information
13. Form 819 and any other CTDOT standard specifications and details.
14. Other reference standards or specifications per the provisions of Article 7.

8.10 Resolution Continued– Bid Matters: For discrepancies related to the Bid, where application of the general clause set forth in Paragraph 8.08 does not result in a clear resolution of the subject discrepancy or is otherwise inconclusive, then the discrepancy shall be resolved by applying the following order of governance of the various identified components of the Contract Documents, listed in order of descending precedence, that may be a part of the discrepancy.

1. Applicable Laws, Regulations, and codes.
2. Addenda to the Bid Instructions and Information

3. Invitation to Bid
4. Special Bid Provisions
5. Bid Instructions and Information
6. Technical documents in the order of precedence set forth in Paragraph 8.09.
7. General Conditions.

8.11 ***Resolution Continued – Other Matters:*** For discrepancies related to all other Contractual matters, where application of the general clause set forth in Paragraph 8.08 does not result in a clear resolution of the subject discrepancy or is otherwise inconclusive, then the discrepancy shall be resolved by applying the order of governance set forth in Paragraph 8.09 with the technical components, (components number 7, 8, 10, 13, and 14 removed.

8.12 ***Approved Submittals:*** Although Shop drawings and other Contractor submittals that have been approved by the Engineer are not part of the Contract Documents, they do have meaning to the Contract and conflicts that occur in the same shall be considered with respect to discrepancy resolution if, ***and only if***, any such conflict was properly noticed to the Engineer in accordance with Paragraph 9.01-11 prior to the Engineer's approval of the same.

ARTICLE 9 - SUBMITTALS AND REVIEWS

9.01 *Contractor's Submittals:*

1. The Contract Documents set forth and otherwise allow various required or optional submittals from the Contractor to the Engineer for review and approval, including schedules, Shop Drawings, samples, test reports, substitutes, diagrams, data sheets, and others. Such submittals shall be in accordance with the requirements of any and all applicable provisions of the Contract Documents.
2. If the minimum number of copies to be submitted for any submittal is not stated in the Supplemental Contract Provisions, then the Contractor shall inquire with the Engineer as to the minimum number to submit.
3. All such submittals shall contain sufficient information, detail, and other particulars, and be of appropriate scale and scope, to adequately and appropriately portray and/or communicate its intended purpose. Any submittal which, in the opinion of the Engineer, does not minimally meet this standard may be summarily rejected by the Engineer without formal review; and in such case, the submittal will not be considered as having been officially submitted.
4. Prior to submitting each Shop Drawing, Sample, or other applicable submittal, the Contractor shall have determined and verified:
 - a) All field measurements, quantities, dimensions specified, performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto; and, field measurement documentation shall be included for reference;
 - b) The suitability of all materials, and construction and installation means and methods associated therewith, with respect to intended use, fabrication, shipping, handling, storage, and assembly pertaining to performance of the Contract Work and incorporation of the same as part of the successful completion of the Project as intended by the Contract Documents;

c) All information relative to the Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions incident thereto, necessary or convenient to proper incorporation of the subject items/matters into the Contract Work; and,

d) Shall have reviewed and coordinated each Shop Drawing, Sample, or other submittal with other Shop Drawings, Samples, or other submittals and with the requirements of the Work and the Contract Documents.

5. Where required or otherwise appropriate, a submittal shall be signed, sealed, and dated by a qualified Professional Engineer licensed to practice in the State of Connecticut, and/or other licensed professional as appropriate, and shall be prepared accordingly.

6. Each submittal shall bear or be accompanied by a stamp or written certification, signed and dated by an authorized appropriate representative of the Contractor, stating that said signer has reviewed the subject submittal and determined that the same satisfies the applicable obligations of the Contractor under the Contract Documents.

7. Any reasonable request from the Engineer for additional information to assist in its review of any submittal shall be complied with by the Contractor in a timely manner.

8. The timing for any submittal shall be in conformance with the Schedule of Submittals, if any, and, notwithstanding the foregoing clause, shall be submitted to the Engineer sufficiently, (at minimum 15 days, unless a shorter time period is otherwise specified in the Contract Documents or by the Engineer,) in advance of the proposed use to allow for its review without delaying the Contract Work. Any such minimum lead time for any submittal assumes that the subject submittal will be determined acceptable as submitted; and the Contractor is responsible to take this understanding into account with respect to the timing of submittals. Any delays to the Contract in any respect as a result of revisions, resubmission, or additional review of any submittal being necessary in order to obtain approval of the subject submittal are solely the responsibility of the Contractor.

9. Any suggestions, comments, or conditions resulting from the Engineer's review of any submittal shall be appropriately taken into consideration by the Contractor; with any conditions being incorporated into the corresponding Contract Work, or other aspect of the Project, as appropriate. It is not the intention that any such condition will materially alter the contents of any subject submittal with respect to its function or suitability for its intended purpose. If the Contractor is of the opinion that any such condition does create such an alteration, then the Contractor shall immediately bring this matter to the attention of the Engineer for resolution, and shall not incorporate or act on the subject submittal until such resolution has been determined.

10. The contents of any submittal by the Contractor, and any incorporation in, bearing on, or relation to the Contract Work or the prosecution thereof, of said contents are the responsibility of the Contractor and remain so notwithstanding any review, approval, suggestions, comments, or conditions by the Engineer in relation thereto; and excepting therefrom, on as limited of basis as is practical, any part or portion thereof which may be as specifically and particularly specified in the Contract Documents.

11. The Contractor shall give to the Engineer specific written notice of any variations from the applicable requirements of the Contract Documents presented or represented in the contents of the any submittal. Said notice shall be in the form of an accompanying written communication specifically identifying any variations in the subject submittal and, except where clearly not practical, a **distinct** notated identification (as a variation) of any such variation on the submittal itself.

12. Any resubmittal associated with any submittal as may be necessitated by a rejection from the Engineer or may be otherwise instituted by the Contractor shall be subject to the same requirements and provisions as the original submittal; and, in addition thereto, the Contractor shall direct specific attention in writing to any revisions contained therein in relation to previous submittals for the same matter other than those called for by the Engineer in the review process.

9.02 *Engineer's Review:*

1. Any review of any submittal or other matter by or for the Engineer shall be considered to be less-than-comprehensive, and to be a determination regarding the general and apparent conformance of the subject matter with respect to its scope, size, nature, intent, or purpose in relation to the Project in its entirety and in the subject matter's appropriate part thereof, and with respect to the Contract Drawings and Specifications. Any such review as may be related to items to be incorporated into the Contract Work will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. In addition, any such review is performed solely in the interests of the Town. In addition, any approval from the Engineer in association with any such review shall be considered to be regarding, and limited to, the same.

2. The Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. The Engineer, in his review, may rely on the information contained within any subject submittal to be complete, comprehensive, and accurate to the Contractor's knowledge and to the knowledge of the preparer of the submittal or any subject part thereof, and may rely on the Contractor having met all of his obligations under the Contract with respect to the subject submittal.

4. Upon the submittal by the Contractor of any document for review, the Engineer shall perform, or have performed, a review and provide a response in a timely manner; and the Engineer will be allowed a reasonable time within which to review and evaluate each submittal. The response shall either inform the Contractor in what areas the Engineer finds the subject submittal to be lacking, or shall be an approval; which approval may include suggestions, comments or conditions.

5. The Engineer may utilize any means or resources available to it and as deemed appropriate thereby to assist in its review of any submittal or other matter.

6. The amount of effort or detail undertaken by the Engineer, or its designee, in any such review shall be the amount deemed appropriate by the Engineer to make such determination as called for in (1.) above, and shall not be construed to have bearing on any other matter.

7. Under no circumstances shall any response, declaration, or action of the Engineer, or any representative or agent thereof, be construed to be a comprehensive approval of any of the calculations, details, content, or judgments contained in, made for, or in any way associated with any submittal, or any application, derivative, or constituent part or process thereof, that is the subject of any such review; nor shall the Engineer be deemed in any way responsible for any of the same.

8. The Engineer's review and approval of any submittal shall not relieve the Contractor from responsibility for any variations from the requirements of the Contract Documents unless the Contractor has strictly complied with the requirements of Paragraph 9.01-11 and the Engineer has noted specific approval of any and each such subject variation incorporated in the overall approval of the subject submittal. The Engineer's review and approval shall not relieve the Contractor with responsibility for complying with the requirements of 9.01-4.

9.03 *Unauthorized Work associated with submittals:*

1. Where a submittal is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal shall be considered as Unauthorized Work.

2. Where any variation from the Contract Documents associated with any submittal is incorporated into the Contract Work without proper notice to the Engineer as set forth in 9.01-11, then any associated Work shall be considered unauthorized, notwithstanding any approval of the subject submittal by the Engineer or payment therefor by the Owner.

ARTICLE 10 - ELECTRONIC COMMUNICATIONS, ATTACHMENTS, AND DATA

10.01 ***Advantages:*** The Contract Parties recognize and may utilize, in accordance herewith, the convenience, speed, and often, with respect to data transfers, accuracy advantages of electronic communications, attachments, and data transfers.

10.02 ***Drawbacks:*** The Contract Parties also recognize the potentially significant drawbacks associated with the same, which include possible data or transfer corruption or truncation, possible non-transmittal, and overall verification issues.

10.03 ***Responsibilities:*** It is the responsibility of the receiver of any electronic communication, attachment, or data to reasonably examine the same and note any anomalies, inconsistencies, or questionable aspects of the same to the sender in an attempt to verify the completeness and validity of the same. The responsibility of the completeness and validity of the same, with respect to the electronic nature of its transfer, falls on both Parties. It is the responsibility of the sender to verify: (i) that electronic version of any document is a true and accurate copy of the original (as known to the sender) and (ii) to a reasonable extent, that the subject transmittal was received by the other party. Appropriately acknowledging and considering these drawbacks and responsibilities, the Parties agree:

10.04 ***Electronic Communications:*** Electronic communication via email is valid for routine written communication. (Note: Email attachments are not considered to be electronic communication and are addressed separately below.) Other forms of electronic communication are not valid as any kind of written communication. Email is not valid for Change Orders, Written Change Directives, Amendments, required submittals, Notices of Award, to Proceed, or of Substantial Completion, notices related to final resolution of any Claim, Certificates of any kind, waivers of any Contract Provisions, approval of submittals, or Contract suspension or termination of any kind.

10.05 ***Electronic Attachments:*** Electronic attachments to email may be used to transmit copies of documents for expediency. Such copies are not to be considered as originals, and hard copies of such documents shall be subsequently (or concurrently) transmitted to the receiving party as set forth elsewhere in these Contract Documents, unless the need for any such hard copy transmittal is specifically waived, in writing, by the receiving party. Such waiver is not allowed for any document specifically listed in

Paragraph 10.04 as being not valid for Email communication, or any document where an original is called for or appropriate. Electronic attachments to email may also be used to transmit electronic data.

10.06 **Electronic Data:** In addition to transmittal via email attachment, Contract related electronic data may be transmitted by any other valid electronic means. The receiving party of electronic data agrees to test, examine, and take other steps to verify the integrity of such data (though with no requirement to verify completeness or accuracy of the same) within 60 days of receiving any such data. Following said 60 days of receiving any such data, the receiving party shall be deemed to have accepted any data thus transferred. The sending party shall promptly address any questions or concerns of the receiving party by verifying the integrity of the sent data, correcting any errors or voids, retransmitting as necessary, or any other appropriate steps.

10.07 **Format:** Data and documents transferred electronically shall be in a format agreed upon by both Parties, unless the particular format is set by the Contract Documents or an applicable requirement or standard. The default format for any document is the common Portable Document Format (pdf) standard. The transferring party makes no representations as to long term compatibility, usability, or readability of documents or data thus transferred.

SECTION 3 THE CONTRACTOR

ARTICLE 11 - GENERAL

11.01 **Notice:** While this Section 3 sets forth many of the responsibilities of the Contractor under the Contract, it is not intended to, nor does it, set forth all of such responsibilities. Additional responsibilities of the Contractor are set forth in numerous other provisions of these General Conditions, in the Supplemental Contract Provisions, in other Contract Documents, in Laws, Regulations, codes and permits, and other such locations as may be referenced in the Contract Documents or otherwise applicable. All of the same should be carefully examined in order to determine the full scope and nature of the Contractor's responsibilities with respect to the Contract.

11.02 **Fundamental Duty:** The fundamental duty of the Contractor under the Contract is to prosecute the Contract Work in compliance with any and all of the requirements and conditions of the Contract Documents and to thereby render a completed Project of the functional and aesthetic characteristics and value contemplated by the Contract Documents and, in general, may be typically expected of such work or facilities as an industry standard.

11.03 **Responsibilities Intrinsic and Incidental:** The responsibilities of the Contractor set forth in these General Conditions and in Laws and Regulations are intrinsic and incidental to the Project and the Contract Work as a whole and to the various Work Items as unspecific aggregate portions of the whole. As such, in general, and subject to any particular provisions of the Contract Documents that may specifically arrange for direct payment, the costs for efforts or actions of the Contractor in complying with any such responsibilities are considered to be included in the prices set forth for the various unspecified Work Items set forth in the Bid/Schedule of Values. For purposes of convenience, accounting, or other reasons deemed appropriate by the Owner, the Owner may determine or agree to encompass or include one or more of such responsibilities of the Contractor, or portions thereof, in one or more particular identified Work Items, either in the original Bid/Schedule of Values or in a Change Order, and thereby compensate the Contractor for the same in a more specific manner. Any such encompassment/inclusion shall be treated as an isolated occurrence and not in any way alter the application or interpretation of this Paragraph 11.03 regarding any other matter.

11.04 *Provided Elements:* The Contractor shall, except as otherwise specified in the Contract Documents, provide, appropriately incorporate into the Project, and assume full responsibility for all services, materials, equipment, machinery, tools, appliances, labor, transportation, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other elements and incidentals necessary for the prosecution, performance, testing, start up, and completion of the Contract Work.

11.05 *Laws and Regulations:*

1. The Contractor shall give all notices required by and shall comply with all Laws and Regulations, including permits or licenses issued in accordance therewith, applicable to the performance of the Contract Work. Except where otherwise expressly required by applicable Laws and Regulations, neither the Owner nor the Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
2. If the Contractor performs any Contract Work knowing or having reason to know that it is contrary to Laws or Regulations, including the requirements of any permits or licenses, or otherwise fails to comply with the provisions of 11.05-1 above, the Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be the Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve the Contractor of any obligations under the Contract Documents as related to addressing discovered discrepancies or changed conditions.
3. Article 7 contains additional provisions regarding Laws and Regulations, including provisions regarding new or revised Laws and Regulations.

11.06 *Permits:* Unless otherwise provided in the Supplemental Contract Provisions or by the Engineer in writing, the Contractor shall obtain and pay for all construction related permits and licenses. The Owner shall assist the Contractor, when necessary and as appropriate, in obtaining such permits and licenses. Unless otherwise provided in the Supplemental Contract Provisions or by the Engineer in writing stating that the Town or some other entity shall be solely responsible for any particular aspect of compliance, or where the only reasonable interpretation of the subject provision of any applicable permit or license is that compliance with the same is the sole responsibility of the Owner or some other entity, and provided that any such responsibility of the Owner or other entity is to be interpreted as narrowly as is reasonable, the Contractor shall be responsible for complying in the prosecution of the Contract Work with the requirements of any applicable permit or license. The Contractor shall pay all governmental or utility charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. The Owner shall pay all charges from utility owners for connections for providing permanent service to the Work.

11.07 *Additional Lands or Facilities:* The Contractor shall provide, at its own expense unless otherwise specifically provided for in the Supplemental Contract Provisions, for all additional [to the Project Site] lands or facilities, and including access thereto and maintenance and security thereof, that may be required or convenient for temporary construction facilities, staging, or storage of materials and equipment. Any and all such additional lands or facilities shall be considered under the sole control and responsibility of the Contractor; and the Owner shall not have, and shall not be construed to have, any control, responsibility, or liability with respect thereto whatsoever.

11.08 *Continuing the Work:*

1. The Contractor shall continue to prosecute the Contract Work and adhere to the Progress Schedule during all disputes or disagreements with the Owner or the Engineer. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as may be permitted by Paragraph 27.04-2 or as the Owner and the Contractor may otherwise agree in writing.
2. Where differing site conditions, Hazardous Environmental Conditions, utilities, other contractors, or other matters create a situation or conflict that causes the Contractor to suspend prosecution of any portion of the Contract Work for any significant time with respect to the Contractor's progress on the Contract Work or the Contractor's costs with respect to any delay, then:
 - a) the Contractor and the Engineer shall separately and jointly (and including the Owner in the foregoing, should the Owner desire to participate) evaluate if it may be expedient to the progress of the Contract Work or in the good faith interests of the Owner for the Contractor to relocate any or all of the labor or equipment affected thereby to other Work as may be available to the Contractor to undertake, or to otherwise take reasonable steps or make reasonable adjustments to minimize the effects any such suspension may have on the overall progress of the Contract Work, while such situation or conflict is evaluated and resolved.
 - b) If it is jointly determined thereby that any of the same is expedient to the Project or in the good faith interests of the Owner, or if the Engineer recommends and the Owner unilaterally determines the same and so directs the Contractor in writing, the Contractor shall promptly relocate the labor or equipment, or take such steps or make such adjustments, as is subject to such determination to undertake other Contract Work in the interim.
 - c) When the subject situation or conflict is resolved, or the Owner directs the Contractor to do so in writing, the Contractor shall promptly resume the subject suspended Work, with, in any case where the Contractor has relocated labor or equipment per 11.08-2(b) above, due consideration given to the convenience of the Contractor (with respect to prosecuting the Contract Work) and the interests of the Project as may be applicable to the timing of the Contractor resuming the Work.
 - d) If, in the event of any such directive of the Owner for the Contractor to resume any such suspended work, the Contractor reasonably deems that it is not safe, with respect to any material matter, to so resume the subject Work, then the Contractor shall refuse to do the same and shall promptly notify the Owner and the Engineer in writing of the reasons for such refusal, and what steps or events the Contractor deems must transpire in order for the safe resumption of the subject Work.
 - e) In any such case where the Contractor refuses to resume suspended Work under 11.08-2(d) above, then it shall become the responsibility of the Contractor to diligently monitor and evaluate the subject situation and to resume the subject Work when the Contractor reasonably deems that it is safe to do so. In any such case where the Contractor so refuses to resume suspended Work, if the Owner deems that the Contractor unreasonably delays to resume the Work either when so directed or otherwise when it has become safe to do so, then the Owner may pursue a Claim, or any other applicable interim measure available, with respect thereto as provided for in the Contract Documents.
 - f) Note that the resumption of suspended Work provisions under this Paragraph 11.08-2 are not applicable to any suspension of Work resulting from Hazardous Environmental Conditions.

g) The Contractor shall be due any reasonable costs incurred as associated with any such relocation, steps, or adjustments (subject to the provisions of Paragraph 23.03-5), determined on a Cost Plus basis in accordance with Paragraph 24.02-3 or as otherwise agreed to by the Parties and the Engineer, and a Work Change Directive and/or Change Order for the same shall be issued if so requested by the Contractor.

11.09 *Cooperation with Owner's Representatives:*

1. The Contractor shall keep the Project Field Representative, or, in the absence thereof, the Engineer, generally and appropriately informed of the Contractor's proposed activities with respect to the prosecution of the Contract Work on a regular basis, the default interval of which is weekly, to the satisfaction of the subject Owner's representative.
2. Where any such Owner's representative, or the Contract Documents, makes a specific written requirement for notification prior to the Contractor commencing any particular aspect of the Contract Work, or makes a specific written requirement regarding the necessity of direct observation of any particular aspect of the Work, the Contractor shall comply with the same; and, the Contractor understands and agrees that any work performed in non-compliance with the provisions of this Paragraph shall be considered unauthorized.
3. Where the Contract Documents or any written correspondence from the Engineer or the Contractor requires or provides for full-time field representation on behalf of the Owner, then any Work performed by the Contractor when the Project Field Representative is not present at the Project Site, or any Work performed in such a manner as to give the appearance of hiding or shielding, in any manner, its performance from the observation of the Project Field Representative, may be considered as unauthorized by the Engineer.
4. The Contractor shall provide reasonable accommodation, safety, and assistance to the Owner's representatives, which for the purposes of this paragraph includes persons on Site on behalf of the Owner for purposes of taking measurements, collecting samples, or conducting tests, for their observation of Contract Work, including brief halts to one or more operations, uncovering of work, moving of equipment, materials, or other facilities, otherwise creating access, whether visual or physical, to aspects of the Work, or assisting in the taking of measurements.
5. Where a Project Field Representative is being used, the Contractor shall properly respect the same in all matters, including the Representative's role as a means of informal cooperation and communication between the Engineer and the Contractor.

11.10 *Delegation of Professional Design Services:*

1. The Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Contract Work or unless such services are required to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable Laws or Regulations.
2. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Engineer will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals

related to the Contract Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

3. The Owner and the Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and the Engineer have specified to the Contractor appropriate performance and design criteria that such services must satisfy.

4. Any review and approval of any submittal pursuant to this Paragraph 11.10 shall be in accordance with the provisions of Paragraph 9.02.

5. The Contractor shall not be responsible for the adequacy of the design or performance criteria set forth by the Contract Documents, to the extent of the same.

11.11 Requirements Regarding Underground Facilities: The Contractor is reminded that there exists requirements of State Laws and Regulations regarding excavations as related to existing and installed Underground Facilities, including the requirement to contact Connecticut Call Before You Dig, the State's designated central clearinghouse, to request location mark-outs of existing Underground Facilities sufficiently prior to commencing any particular excavation at the Project Site, and to incorporate appropriate warning measures into the installation of Underground Facilities. It is the sole responsibility of the Contractor to be familiar with and to comply with such requirements.

11.12 Erosion and Sedimentation Control: The Contractor is reminded that, in addition to any requirements therefor as may be included in the Improvement Plans, Technical Specifications, Supplemental Contract Provisions, or elsewhere within the Contract Documents, there exists requirements of State and local Laws and Regulations regarding erosion and sedimentation control as related to construction activities and sites, including requirements to obtain permits. Except as otherwise specifically provided for in the Contract Documents, it is the sole responsibility of the Contractor to be familiar with and to comply with such requirements.

11.13 Loading structures or improvements: The Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Contract Work, or existing Improvement, or any adjacent property to stresses or pressures that will endanger it.

11.14 Plans and Specifications at the Project Site: The Contractor is responsible to have at least one complete, bound set of each the Improvement Plans, the Project Technical Specifications, and Form 819 readily available at or near the Project Site for reference during project meetings at the Site, or otherwise for the Engineer, the Owner, or any applicable representatives thereof; and the Contractor shall make such Plans or Specifications available to the same promptly upon request.

11.15 Sales and Use Taxes: The Contractor shall comply with CGS Chapter 219 pertaining to tangible personal property or services rendered that may be subject to sales tax. The Contractor is responsible for determining its tax liability. The Contractor on its behalf and on behalf of its Affiliates (as defined therein) shall comply with the provisions of CGS Section 12-411b. The Town is exempt from Connecticut sales and use taxes on labor, materials, and equipment incorporated into the Work. The Contractor is responsible to inform all Subcontractors, Suppliers, or other such entity of this exemption and shall not pay such taxes on any such items. The CT Department of Revenue Services provides additional information and forms regarding exempt purchases. The Town will provide support to the Contractor on this matter as is requested and reasonable.

ARTICLE 12 - PROJECT SUPERVISION

12.01 ***Supervision:*** The Contractor shall supervise, inspect, direct, and control the Contract Work, and those performing the Work, competently and efficiently, devoting such attention and applying such skills and expertise thereto as may be necessary to prosecute the Work in accordance with the Contract Documents. The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction and other aspects of prosecuting the Contract Work. The Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. The designation of a qualified and competent Project Superintendent, as set forth below, is integral to the overall Project supervision by the Contractor.

12.02 ***Project Superintendent:***

1. The Contractor shall assign and, at all times during the occurrence of Project activities, have present at the Project Site a competent representative thoroughly experienced in the type of work being performed, who shall be termed the "Project Superintendent". The Project Superintendent shall have authority to act on behalf of the Contractor. All communication given to or received from the Project Superintendent shall be binding on the Contractor.
2. If the Contractor so chooses, one or more alternates to act as representative in place of the Project Superintendent in his/her absence may be designated. Any such alternate, or combination thereof acting at any given time, shall, in the absence of the Project Superintendent, as does the Project Superintendent, have similar qualifications with respect to the work being supervised thereby and equal authority to act as the Contractor's agent and all references to the Project Superintendent herein apply likewise to any alternate when acting in such capacity. It is solely the responsibility of the Contractor to ensure that the Engineer has been properly notified when the Project Superintendent will be absent from the Project Site and who shall be acting as an alternate, and to what capacity, during such absence; and to ensure that a proper submittal has been made to the Engineer regarding any such alternate. The Engineer will work with the Contractor in any case of an emergency situation with respect to the Project Superintendent; however, the Contractor remains responsible to ensure that there is proper supervision for the prosecution of Contract Work at all times.
3. The Project Superintendent and any alternate are subject to the review of the Engineer. The name and qualifications of the proposed Project Superintendent shall be submitted to the Engineer prior to the commencement of Contract Work; the name and qualifications of any proposed alternate shall be submitted to the Engineer for review at least 4 days prior to the subject alternate acting in such capacity. Upon the passage of 4 days from any such submittal, the Project Superintendent or subject alternate shall be considered acceptable to the Engineer, subject to any issued or future reasonable objection of the Engineer, on the basis of qualifications, conduct, or reputation. If, after discussing such reasonable objection with the Contractor, which discussion the Contractor shall promptly arrange following notice of such objection, the Engineer persists in such objection, the Engineer may direct the Contractor to replace the subject individual from the subject role, and the Contractor shall comply with the same.
4. The Project Superintendent shall have the appropriate training and knowledge to be considered a "competent person" under the OSHA standards, regulations, instructions, and/or other guidelines applicable for, as a minimum, excavations and confined spaces.
5. The Project Superintendent is required to have an email account that he has reasonable ready access to at the Project Site that is designated to the Engineer (by providing the Engineer with the

subject email address) as available for use for written communications (including those from the Owner) transmitted via email. The Project Superintendent shall be responsible for monitoring such email account during working hours for communications from the Engineer regularly at [not necessarily standard] intervals of not to exceed 3.5 hours. The Contractor is responsible to make necessary arrangements, potentially including providing alternate email addresses (and appropriate notice if necessary) to the Engineer, to insure that any such email transmissions are received by the Contractor in a timely manner in the event that the Project Superintendent is absent from the Project Site, or otherwise unable to appropriately monitor his email account, for more than 3.5 hours; and the Engineer shall comply with all reasonable requests from the Contractor for the Engineer's coordination in assisting any such arrangements (e.g. such as sending messages to more than one email address or using an alternate email address for designated periods, etc.).

6. The Project Superintendent shall not be replaced by the Contractor without at least 4 days prior notice, including the name and qualifications of the proposed replacement, to the Engineer.

7. Any Work performed while the Project Superintendent is absent from the Project Site may be considered unauthorized due to lack of superintendence at the judgment of the Engineer based on the scope and nature of the subject Work.

ARTICLE 13 - LABOR, WORKING HOURS, MATERIALS, & SUBSTITUTES

13.01 ***Competent Personnel:*** The Contractor shall provide sufficient, competent, and suitably qualified personnel to survey, lay out, and perform all aspects of the Contract Work as required by the Contract Documents.

13.02 ***Discipline and Order:*** The Contractor shall at all times maintain good discipline and order at the Project Site. All personnel at the Project Site on behalf of the Contractor shall remain temperate, orderly, courteous and respectful to the public and representatives of the Owner, the Engineer, or any other entity having business at the Project Site, and approach their duties with proper care.

13.03 ***Normal Working Hours:*** Unless otherwise designated in the Supplemental Contract Provisions, or otherwise specifically approved in writing by the Engineer, the normal working hours at the Project Site shall occur between 7:00 a.m. and 5:00 p.m. on any given day and shall not exceed 40 hours, excluding normal lunch breaks, in any given week. When the Project Site is adjacent to residential uses, no loud activities, including starting or running equipment or loud talk, shall occur before 7:00 a.m.

13.04 ***Normal Workdays:*** Unless otherwise designated in the Supplemental Contract Provisions, or otherwise specifically approved in writing by the Engineer, the normal workdays for Work at the Project Site shall be Monday through Friday, and excepting therefrom any day that is designated by the Town as being a holiday for its employees. A list of such holidays for any given year may be obtained, by request, from the Engineer or the Owner's representative.

13.05 ***Work Outside of Normal Working Hours or Workdays:*** Except as otherwise specifically allowed in the Contract Documents: All Work at the Project Site shall be during the normal working hours or workdays (i.e. normal working times) established for the Project. The Contractor shall not perform or allow Work at the Site outside of such normal working times without the written consent of the Owner, given after consultation with the Engineer. Where the Contractor proposes Work at the Site outside of such normal working times, then the Contractor shall notify the Owner and the Engineer of its intent to do so, the nature of the associated Work, and the reasons/advantages for such proposal, and ensure that the

Engineer has received said notification, as soon as is practical after its determination to do so, but not less than 48 hours prior to the final normal work hour before such Work is planned to occur, in order to allow the Engineer proper time to make arrangements for representation, as deemed fit thereby, in the event such Work timing is allowed. The Owner shall not unreasonably withhold consent for any such proposal that is properly noticed and reasonable; with the understanding that any potential effect or situation that may run counter to the interests of the Town (taking into consideration good faith to the Project and the Contract) that may arise shall be deemed to be justifiable reason to withhold consent. The Contractor shall be responsible for any costs, liabilities, accommodations, adjustments, precautions, or any other such matter as may be necessary or warranted as particularly associated with performing Work outside of normal working times at its own expense, and shall not endeavor to pass any of the same on to the Owner or the Engineer. Where the Owner or the Engineer incur any personnel expenses (including overtime), or any other added expense of any nature, as a result of the Contractor performing Work outside of the normal working times or the efforts of the Owner or the Engineer to perform its duties and responsibilities with respect to the same, then the Contractor shall be liable to the Owner for such expenses. The Owner shall present the Contractor with a detailed invoice for any such expenses, and the Contractor shall reimburse the Owner for the same in a timely manner; or the parties may agree that such expenses may be deducted from monies due to the Contractor. In the event the Contractor fails to provide any such properly invoiced reimbursement in a timely manner, then the Owner shall have the right to deduct the same from any subsequent progress payment, or final payment, owed to the Contractor.

13.06 *Materials or Equipment to be Incorporated into the Work:*

1. All materials or equipment incorporated into the Contract Work shall be as specified and/or be of good quality, new, and appropriate for the use or function intended.
2. All special warranties or guarantees as may be required by the Contract Documents or otherwise be associated with any materials or equipment incorporated into the Contract Work shall run to the benefit of the Town or the intended owner of the same, as the case may be.
3. If required by the Engineer, the Contractor shall furnish satisfactory evidence (including reports of any required tests) as to the source, kind, or quality of any said materials or equipment to be incorporated into the Contract Work.
4. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Manufacturer, Supplier, or other such applicable entity, except as otherwise may be provided in the Contract Documents.

13.07 *Substitute Items:*

1. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by “no substitution” or other like wording clearly indicating that no substitute items will be considered or allowed, other items of material or equipment may be proposed by the Contractor as substitute items and submitted to the Engineer for review under the circumstances described below. An “Equal” item is a special class of substitute item as set forth in Paragraph 13.08.
2. The provisions of Article 9, as may be altered, extended, or supplemented by the provisions of this Paragraph 13.07, shall apply to the submittal, review, and approval of proposed substitute items.

3. The Contractor shall prepare, at its sole expense, and submit to the Engineer for review a written application for a proposed substitute item of material or equipment that Contractor proposes to furnish or use. Such application shall include sufficient information to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of substitute items will not be accepted from anyone other than the Contractor. The application:

- a) Shall certify that the proposed substitute item will, with respect to the item it is proposed to replace, **i**) perform adequately the functions and achieve the results intended; **ii**) be similar, and not inferior to the detriment of the Project or the Town, in manufacture, construction, quality, durability, and/or substance; and **iii**) be suited to the same use. And, the Contractor shall be responsible for the same.
- b) Shall state **i**) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time; **ii**) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents to adapt the design to the proposed substitute item; and **iii**) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
- c) Shall identify **i**) all variations of the proposed substitute item from that specified; and **ii**) the available engineering, sales, maintenance, repair, and replacement services for the proposed substitute item.
- d) Shall include technical and other data to support the proposition that the proposed substitute item is essentially equivalent to the item it is proposed to replace.
- e) And, shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

4. The same process and requirements as set forth for substitute items (to the extent applicable) shall be applicable for substitute methods, means, or procedures of construction where the same may be explicitly specified in the Contract Documents.

5. The Owner may, at its discretion, require the Contractor to furnish, at the Contractor's expense, a special performance guarantee or other surety with respect to any substitute.

6. No proposed substitute item shall be purchased, brought to the Project Site, or incorporated into the Work prior to its approval by the Engineer.

7. Contractor shall comply, at its own expense, with any reasonable request of the Engineer for additional information to assist the Engineer in conducting its review of a proposed substitute item.

8. The Owner may, at its discretion, and through properly detailed invoice, require reimbursement from the Contractor for any expenses incurred in association with the review of any proposed substitute item, notwithstanding approval thereof, and for any revisions in the Contract Documents necessitated by any approval thereof. It is the Contractor's responsibility to enquire of the Owner prior to or at submittal regarding such reimbursement, if it is significant thereto.

9. The Engineer, by its discretion and through its review, shall be the sole determiner of approval of any proposed substitute item. Such review shall consider, amongst other things, **(i)** if the information

submitted to or otherwise gathered by the Engineer appears to support the certifications, statements, claims, and requirements, whether direct or implied, made in or associated with the submittal, and (ii) if the overall balance of the relative advantages and drawbacks of the proposed substitute is favorable to the interests of the Project and the Town.

13.08 *Equal Items:*

1. An Equal item is a substitute item, having been proposed by the Contractor and approved by the Engineer specifically as an Equal item where provision for the same is specifically made in the specifications therefor through the inclusion of the words “or equal” (and, thereby, the Owner and the Engineer have indicated no particular preference for the item specified and the proposing of an Equal item therefor in accordance herewith is particularly welcome and invited), that is considered as being the functional equal of the item it is proposed to replace.
2. A substitute item shall be considered an Equal item if in the exercise of reasonable judgment it is determined by the Engineer, with respect to the item it is proposed to replace, to i) be at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics, ii) reliably perform equally well the function and achieve the results imposed by the design concept with respect to the subject proposed role or part in the Project and to the completed Project as a functioning whole, iii) has an equally proven record of performance and availability of responsive service, and iv) will substantially conform to the applicable detailed requirements of the Contract Documents; and, due to such equivalence, v) does not warrant or justify any increase in Contract Price or Contract Times.
3. The Contractor, by its specific designation in the subject application of an item being proposed as an Equal item, implicitly certifies that the Contractor has determined, with the understanding that such determination is notwithstanding the bearing or effect of any determination or action of the Engineer with respect to the subject application, that the subject proposed Equal item meets the criteria set forth in 13.08-2; and the Contractor accepts thereby responsibility for the same.
4. The following provisions of Paragraph 13.07 shall be applicable to Equal items as a special class of substitute items:
 - a) Paragraph 13.07-2;
 - b) The preamble to Paragraph 13.07-3, and Paragraph 13.07-3(d);
 - c) Paragraph 13.07-6 and 13.07-7;
 - d) Paragraph 13.07-9, excluding clause (ii) thereof.

13.09 *Patent Fees and Royalties:*

1. The Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Contract Work or the incorporation in the Contract Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of the Owner or the Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the Owner in the Contract Documents.
2. To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner and the Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to

any infringement of patent rights or copyrights incident to the use in the performance of the Contract Work or resulting from the incorporation in the Contract Work of any invention, design, process, product, or device not specified in the Contract Documents.

ARTICLE 14 - SUBCONTRACTORS AND SUPPLIERS

14.01 ***Contractor Responsible:*** The Contractor shall be fully responsible to the Owner and/or the Engineer, to the extent allowed by law, for all acts, conduct, and omissions of any Subcontractors, Suppliers, or other such entity performing or furnishing Work for the Project on behalf of the Contractor, during any time that any such Subcontractor, Supplier, or other entity may be at the Project Site, in the process of performing or furnishing Contract Work, or otherwise as associated with the Project, just as the Contractor is responsible for the Contractor's own acts, conduct, and omissions. The Contractor is also responsible for scheduling and coordinating the efforts of any such Subcontractor, Supplier, or other such entity with respect to the Contract Work.

14.02 ***Reasonable Objection:*** The Contractor shall not employ any Subcontractor, Supplier, or other entity, whether initially or as a replacement, against which the Owner may have reasonable objection. The Contractor shall not be required to employ any Subcontractor, Supplier, or other entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

14.03 ***Replacement Due to Reasonable Objection:*** Where the Contractor replaces any Subcontractor, Supplier, or other such entity as a result of a reasonable objection from the Owner, and **i)** the objection is not due to non-compliance with a Contract provision or to the performance, acts, conduct, or omissions of the subject entity in relation to the Project, or any documented ill-reputation of the subject entity, **ii)** the Contractor has no financial or other beneficial interest in the replacement entity or process, **iii)** the Contractor has provided to the Engineer and the Owner documented quotes from at least two entities (other than the originally proposed entity) qualified to provide the subject materials/services and is proposing to use the less expensive option, and, **iv)** the Contractor has provided the Owner with a reasonable estimate of all additional costs it will be seeking to include in any subsequent Change Order as associated with the subject replacement prior to entering into any subcontract with any subject replacement entity, and the Owner shall have the opportunity to reconsider its reasonable objection based on the same, then any reasonable, direct [with respect to the replacement entity], and appropriately documented costs incurred by the Contractor, with respect to the performance or furnishing of the subject Contract Work, shall be added to the Contract Price via a Change Order. And, subject to the same foregoing conditions, if any such replacement legitimately causes delays to the Contractor in its progress, as a whole, towards completing the Project, or meeting any Contractual milestone thereof, then, subject to appropriate evidence thereof being submitted by the Contractor and approved by the Engineer, the appropriate Contract Times shall be adjusted via Change Order to account for such delays, with the total aggregate adjustment for any given replacement being capped at 30 days.

14.04 ***List:*** Notwithstanding any requirements for any acceptance as may be required under 14.05 below, the Contractor shall create and maintain an up-to-date list of all Subcontractors, Suppliers, and other such entities engaged or proposed thereby to perform or furnish Contract Work to any degree and in any respect. Such list shall include, as a minimum, the name and address of any such entity and the scope and dates (post occurrence) of services supplied or to be supplied. Copies of such list, as updated and current, shall be supplied to the Owner or the Engineer in a timely manner upon request.

14.05 *Acceptance May Be Required:* Where required by the Supplemental Contract Provisions, or otherwise by the Contract Documents or, with reason, by the Engineer, the Contractor shall provide to the Engineer, to the extent requested or required, the name, address, Project role, Project value thereof based on the Schedule of Values, and other relevant information of any (and any number thereof) Subcontractor, Supplier, or other such entity as may be identified by the subject requirement and in the timeframe identified in such requirement or in the Schedule of Submittals, for timely acceptance by the Owner. The Owner's acceptance (either in writing or by failing to make written objection thereto within **(i)** seven days for a submittal containing three or less entities, or **(ii)** fourteen days for a submittal (or submittals) containing more than three entities) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. The Contractor shall submit an acceptable replacement for any rejected Subcontractor, Supplier, or other individual or entity in a timely manner. No acceptance by the Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of the Owner or the Engineer to reject defective Work. No Subcontractor, Supplier, or other such entity that is the subject of any such requirement for submittal shall perform or furnish Contract Work as associated with such requirement prior to the subject submittal being submitted to the Engineer, or formal approval by the Engineer where the same is called for.

14.06 *Communication:* The Contractor shall require all Subcontractors, Suppliers, and other such entities to direct all formal or substantial communications with the Engineer through the Contractor; and the Engineer shall direct all formal or substantial communications with any of the same through the Contractor. Excepting herefrom communications related to an emergency situation when an appropriate representative of the Contractor is not available at the subject location in a timely manner.

14.07 *Division of Work:* The divisions or sections of the Contract Work as may be included or implied in the Contract Documents are not intended to control the Contractor in dividing the Work among Subcontractors, Suppliers, or other such entities, or in delineating the Work to be performed by any specific trade; Any use of the same by the Contractor as associated with any such dividing or delineating is of the Contractor's own accord.

14.08 *Sub-Agreement:* All Work performed for the Contractor by a Subcontractor, Supplier, or other such entity will be pursuant to an appropriate agreement between Contractor and said entity which specifically binds the Subcontractor, Supplier, or other such entity to the applicable terms and conditions of the Contract Documents for the benefit of the Owner and Engineer. In addition, any such agreement shall include a provision compliant with CGS Sec. 49-41a(a)(2).

14.09 *No Contractual Relationship:* Nothing in the Contract Documents shall create for the benefit of any Subcontractor, Supplier, or other such entity any contractual relationship between any Subcontractor, Supplier, or other such entity and the Owner or the Engineer.

14.10 *No Obligation:* Nothing in the Contract Documents shall create any obligation on the part of the Owner or the Engineer to pay or see to the payment of any moneys due any Subcontractor, Supplier, or other such entity in relation to the Project except as may otherwise be required by Law or Regulation.

ARTICLE 15 - MINIMUM WORK BY THE CONTRACTOR

15.01 **General:** The Supplemental Contract Provisions or a Bid Addendum may specify a minimum percent of the Contract Work, not including general Work items, for which the Contractor shall be responsible and required to perform using its own organization, (i.e. not through a Subcontractor.)

15.02 **Method of Determination:** The percent of Work performed by the Contractor's own organization shall be determined on a dollar-amount basis using the unit amounts set forth for the various Work Items in the initially approved Schedule of Values, which, for a Unit Bid Project shall be the Unit Prices set forth on the Effective Date of the Agreement.

15.03 **Change Orders:** Any Change Orders that may be issued subsequent to the issuance of the Notice to Proceed which may alter the quantities or Work Items shall not affect the percent of Work determination calculated per Paragraph 15.02.

ARTICLE 16 - SHOP DRAWINGS, SAMPLES, AND TEST REPORTS

16.01 **General:** The Contractor shall submit Shop Drawings, Samples and test reports to the Engineer in accordance with the Schedule of Submittals (Paragraph 5.02 hereof), this Article 16, or as otherwise required by the Contract Documents. The preparation, submittal and review of any Shop Drawing, Sample, or test report as covered by this Article 16 shall be in accordance with the provisions of Article 9.

16.02 **Shop Drawings:** The data shown on any Shop Drawing is to be specific and complete with respect to quantities, dimensions, specified performance, design criteria, materials, and similar data in order to demonstrate to the Engineer the services, materials, and equipment the Contractor proposes to provide and to enable the Engineer to review the information for the limited purposes required by Paragraph 9.02.

16.03 **Samples:** Sample submittals shall be in the number as specified in the Specifications and shall clearly identify each Sample as to, as may be relevant, the material, intended specification or use, Supplier, supply location, Supplier identification information, and other pertinent data, including data as may be additionally required by the Engineer to enable the Engineer to review the information for the limited purposes required by Paragraph 9.02.

16.04 **Test Reports:** Where required or allowed, test reports prepared by an independent, qualified testing entity for tests performed thereby on Samples either collected directly by the subject testing entity or provided by the Contractor, as appropriate, shall/may be submitted. In addition to and notwithstanding any other requirements set forth hereby, such reports shall be in a format and include the data as is industry standard for the type of material being tested, the purpose of the testing, and the type of tests performed. Such reports shall include all of the data that would otherwise be required to be accompany direct Sample submittals, and pertinent data regarding the testing procedures, including, as appropriate, name, nature, purpose, and limits. Such reports shall clearly present the results of the subject testing and relate those results to the specification criteria that is the purpose for the testing. Such reports shall also present the name, location, and contact information of the testing entity, the name of the person performing or supervising the testing, the name of the person performing the sampling or the source of the sample, the chain of possession, if applicable, and the relevant dates for any of the same.

16.05 *Prior Work Unauthorized:* Where Shop Drawing or Sample is required by the Contract Documents, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be considered unauthorized and at the sole expense and responsibility of Contractor.

ARTICLE 17 - RECORD DOCUMENTS

17.01 *General:* The Contractor shall keep, organize, and maintain complete records of all correspondence, reports, drawings, inspections, and other documented or otherwise pertinent data related to the Contract. Throughout the Contract time, the Contractor shall forward to the Engineer copies of all such information as may be reasonably pertinent to the Engineer's administration of the Project and that the Contractor does not reasonably judge the Engineer to possess. The Contractor shall also establish and maintain fiscal control and accounting procedures that assure proper accounting for all funds paid by the Town to the Contractor under the Contract Agreement and as are appropriate to any funding source for Contract Work. The Contractor shall maintain all such records throughout the Contract time and for a minimum of three full years following termination or expiration. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all records until all Claims or audit findings have been resolved. At any time, while the Contractor is charged with maintaining such records, during normal business hours, and as often as may be deemed necessary, the Contractor shall make available to representatives or agents for the Town or any other governmental funding or regulatory agency as may have authority or vested interest in such matters, for examination, all records with respect to all matters covered by the Contract Documents; and shall promptly provide copies of any records as may be requested regardless of association with any such examination; and the Contractor shall fully cooperate with any audit or inspection being performed on behalf of any of the same. The Owner shall make all notifications of any audit or inspection in writing with at least 24 hours notice. The Contractor may invoice the Town, at a reasonable rate, mutually agreed to, for copying costs for: 1) any copies requested following Final Payment or Contract termination, 2) duplicates of copies already provided, or 3) otherwise for copies not required to be provided in accordance with the second sentence of this Paragraph or in association with any audit. The Contractor shall incorporate this entire Paragraph verbatim into any subcontract or other agreement that it enters into with any party in relation to this Contract.

17.02 *As Built Records of Construction:*

1. ***Purpose:*** The purpose, expectation, and requirement for As-Built Record Map is to accurately present the as-built record information in a clear and unconfusing manner so as to allow the reader to readily 1) locate, interpret, evaluate, and comprehend the facilities, improvements, and work completed, and 2) identify and quantify deviations of the as-built product from the intended design.
2. ***General Requirements:*** The Contractor is responsible for taking field measurements and for gathering all other data necessary for the proper preparation of the As-Built Record Map and for such proper preparation of the same. The existence of accurate as-built information is important to proper maintenance and stewardship of the facilities and improvements throughout their useful life; as such, the preparation and submittal of a proper As-Built Record Map conforming to the requirements set forth in this Paragraph 17.02 is essential to the overall completion of the Contract Work. The As-Built Record Map shall be prepared based on field survey information in compliance with all applicable provisions of the "Minimum Standards for Accuracy, Content, and Certification for Surveys and Maps" as set forth in Sections 20-300b-1 to 20-300b-20 inclusive of the Regulations of Connecticut State Agencies, and shall comply with accuracy classes A-2 & T-2 thereof. The As-Built Record Map shall be appropriately certified, signed, and sealed by a Registered Land Surveyor. Said map shall show the final constructed positions of all facilities and other improvements constructed, improved, or otherwise altered as a result of the Contract Work, in addition to, and in relation to, existing improvements and

facilities not altered by the Contract Work. A complying As-Built Record Map must be delivered to and approved by the Engineer as a prerequisite to Final Payment becoming due.

3. **Content:** The As-Built Record Map may be prepared as an entirely new map, or may be prepared 'on top' of, [for lack of a better term,] clean copies, or accurate facsimiles, of the Project Improvement Plans. Clearly printed or stamped on each sheet in a large bold or filled font in an open area near the title block shall be the words "As-Built Record Map" with the date the map was prepared appearing below. In essence, the information required to be shown on an As-Built Record Map is the same information as shown on the Improvement Plans, updated to reflect the actual locations, elevations, dimensions, materials, configurations, etc. resulting from construction. Where applicable when there is a discrepancy between the design and as-built information, both the design and as-built information shall be presented, with the design information being crossed out with a single thin, but distinguishable, line, or other appropriate means of designating it as being superseded without rendering the information as unreadable or uninterpretable. In such cases, the as-built information shall be shown nearby its associated design information in a consistent and readily distinguishable, (use of a bold, italic font, for instance,) manner; or otherwise presented in a clear and readily interpretable manner, (e.g. a table, etc.) Where the scope or nature of discrepancy is such that the preceding approach is not practicable or will not meet the stated purpose of this requirement as set forth in 17.02-1, the as-built information shall be presented by either 1) detailing the as-built information of the subject area in an open area on the same sheet or on another sheet with proper identification, (e.g. clouding and crossing out,) and referencing of the information superseded, or 2) creating a whole new sheet, to effectively replace the sheet with the information to be superseded, presenting the as-built information with discrepancies clearly identified, (e.g. clouding or crossing out); in such case, the superseded design sheet is to be clearly identified as such and attached to the end of the as-built record set.

4. **On-going Data Gathering:** The gathering of data for the As-Built Record Map shall be timely and on-going throughout the prosecution of Contract Work, and shall be conducted under the direction and supervision of the Registered Land Surveyor who has been retained to certify, sign, and seal said Map. An up-to-date, (updated not less than weekly,) record of discrepancies from the Improvement Plans obtained by such gathering of data, appropriately recorded on a set of the Improvement Plans, shall be kept by the Project Superintendent at the Project Site at all times when Contract Work is being prosecuted thereat. Said up-to-date record of discrepancies shall be expediently made available, at the Project Site, to the Engineer for review upon request. Written verification from the subject Registered Land Surveyor that the appropriate data gathering measures are being conducted in a timely manner as Work progresses shall be provided to the Engineer in an expedient manner upon written request.

ARTICLE 18 - PROJECT SITE

18.01 **Control:** The Contractor shall have and be responsible for control of the Project Site with respect to the Contract Work, commencing when the Contractor has significantly mobilized to the Site or has commenced any other aspect of the Contract Work at the Project Site, and continuing until the issuance of the Notice of Substantial Completion.

18.02 **General Limitation:** The Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Project Site or other areas permitted by the Contract Documents or by Laws and Regulations; and the Contractor shall not unreasonably encumber the Project Site or other areas with construction or other equipment or facilities, or otherwise due to construction operations, or otherwise encumber the same contrary to Laws and Regulations or the provisions of the Contract Documents.

18.03 *Specific Limitations:* Where any provision of the Supplemental Contract Provisions, an Addendum, or other Contract Document, or a written directive of the Owner shall in any way restrict, limit, or otherwise specify the availability of the Project Site, or other relevant areas, to the Contractor, or the Contractor's operations with respect thereto, then the Contractor shall abide with the same. Except as may be associated with an existing or potential emergency situation, or in the exercise of rights reserved by the Owner in the following sentence, any such restriction, limitation, etc. that is proposed to be enacted subsequent to the Effective Date of the Agreement shall be negotiated between the Contractor and the Owner, with the issuance of a Change Order if appropriate, provided that the Contractor shall not unreasonably deny or delay cooperation with any reasonable request for accommodation hereunder. The Owner reserves the right, where the Owner determines that any such restriction, limitation, etc. proposed subsequent to the Effective Date of the Agreement has an overriding public or municipal interest and that negotiations, regardless of the current status thereof, are not likely to reach an agreement in a timely manner in respect to the matter at hand, to order the Contractor, via a written directive, to comply with the subject restriction, limitation, etc. Where such an order has been issued by the Owner, the Parties shall attempt to determine and finalize any compensation that may be due to the Contractor for accommodating and complying with said order, if any, through negotiations and a subsequent Change Order.

18.04 *Documentation of Existing Conditions:*

1. The Contractor is responsible, prior to commencing any relevant construction activities, to appropriately document the conditions of existing structures, facilities, and other improvements, vegetation, and areas within and adjacent to the Project Site that may be affected by Contract Work in order to facilitate proper restoration thereof and to appropriately address and defend any claims that may arise in connection therewith. Means for such documentation may include video, photographs, recorded narratives, measured or approximate drawings or sketches, or written notes, as the Contractor sees fit.
2. The Engineer may, in the interests of the Town, prior to, or in a timely manner directly following the commencement of, any particular relevant construction activities, require the Contractor to verify in writing that it has complied with the requirements of this Paragraph 18.04 with respect to relevant existing conditions; and the Contractor shall comply with the same in an expedient manner. Similarly, the Engineer may require the Contractor to present to the Engineer for review any such documentation, or to provide to the Engineer copies of the same, and the Contractor shall comply with the same.
3. Where the Engineer determines the subject documentation to be lacking and deems it appropriate, the Owner may issue a Work Order to the Contractor to gather and provide additional documentation. The cost of such additional site documentation shall be shared equally between the Owner and the Contractor, as it may benefit both, if the subject documentation is not specifically required by the Contract Documents.
4. The Contractor is responsible to generally monitor on an on-going basis for activities and occurrences that might alter any such existing conditions, and to generally monitor said existing conditions themselves, subsequent to the Contractor's documentation thereof for any signs of alteration which are not the responsibility of Contract Work, and to further document and report to the Engineer any of the same as may occur.
5. The Supplemental Contract Provisions may specify, in the interests of the Town, particular steps or activities to be undertaken by the Contractor regarding the documentation of existing conditions, and, if so specified, the Contractor shall, as a minimum, comply with the same, but is free to perform additional documentation as it sees fit, as the Owner makes no warranties as to the appropriateness or completeness of any such required documentation for the purposes of the Contractor. Likewise, the

Contractor makes no warranties as to the appropriateness or completeness of any such documentation it gathers of its own accord to the purposes of the Owner or the Engineer.

6. Any of the Owner, the Contractor, or the Engineer shall have the right to use any such documentation of existing conditions as may be gathered by any of the others in relation to the Project as may be in its interests in addressing or defending a claim or other such matter as may be related to such existing conditions; and, upon request, any of the three stated parties shall inform the other of, and make available to the other for review or copies thereof, any documentation of existing conditions at or adjacent to the Project Site obtained in association with the Project as it may possess.

18.05 *Maintenance:*

1. The Contractor shall maintain the Project Site in a reasonably clean, neat, and orderly state, with special attention to any time when the Contractor is not actively performing Work at the Site, (e.g. nights, weekends, etc.)

2. The Contractor shall regularly:

a) remove and properly dispose of, or take actions to compel any identified responsible party therefore to remove, any accumulated debris, scraps, or discarded, excess, waste, or unwanted items of any kind, whether or not the same were generated by the Contractor,

b) sweep or use other means to remove accumulated earth, construction, or other such materials as a result of Project activities from paved surfaces in or adjacent to the Project Site which may at any relevant time be open to use by the public or adjacent residents or businesses,

c) take appropriate measures to control the formation and windborne transport of dust from the Project Site,

d) arrange stored materials to an orderly and neat state,

e) remove any construction tools or equipment from places of completed immediate Work to places of active, or imminently active, Work or to appropriate storage locations, and

f) restore any existing Improvements, features, items, or areas that may have been damaged, marred, or otherwise adversely affected by or in the course of the Contractor's prosecution of the Contract Work to, as a minimum, a reasonable and acceptable temporary condition; the same being subject to the provisions of Paragraph 18.07 prior to Substantial Completion.

3. The Contractor shall promptly address any negative impacts on adjacent properties of a similar cause or nature and in a similar manner as set forth in Paragraph 18.05-2 above, except that the Contractor shall not store any materials, equipment, or tools on any adjacent property unless appropriate written permission for the same has been appropriately obtained by the Contractor, and except that permanent restoration for any damage shall be made, to the satisfaction of the subject owner (as is reasonable), in an expedient and timely manner.

4. Such maintenance actions shall be taken on an as needed basis, and, as a minimum, so as to attain an appropriate clean, neat, and orderly state of the Site at the end of each workday.

5. The removal and disposal of any materials or items shall conform to applicable Laws and Regulations.

18.06 *Snow Removal and Treatment of Icy Surfaces:* At all times subsequent to the Contractor commencing Contract Work at the Project Site and up to the issuance of the Notice of Substantial Completion, except where there are provisions for a winter shutdown period in the Supplemental Contract Provisions or otherwise within the Contract Documents, or otherwise as may be specifically agreed to in writing by the Owner, and in either case, any such exception is limited to the specific dates, time periods, or other parameters set forth therein, the Contractor shall be responsible for the removal of snow and the treatment of icy surfaces on all public streets, roads, drives, sidewalks, or other public vehicular or pedestrian accessways within the Project Site so as to render the same safe and acceptably passable for any traffic as may be anticipated to desire to legally use the same.

18.07 *Final Cleaning and Restoration:* Prior to Substantial Completion of the Contract Work, and as necessary as a result of any Work after Substantial Completion, the Contractor shall appropriately clean the Project Site, the Contract Work, and any affected improvements, facilities, or areas adjacent thereto, including the removal of all tools, equipment and excess materials, and render the same to appropriate aesthetic condition and ready for utilization by the Town, the public, or its owner. Any existing Improvements, features, items, or areas that may have been damaged, marred, or otherwise adversely affected by or in the course of the Contractor's prosecution of the Contract Work, and not designated for alteration, (and this caveat to apply only to the extent of any such designated alteration,) as part of the Contract Work, shall be properly restored, or replaced, to an aesthetic and functional condition at least equal to, in the opinion of the Engineer, its existing condition prior to the commencement of Contract Work.

18.08 *Damage to Property:* The Contractor shall assume full responsibility for any damage to any property or area, (including any structure, facility, vehicle, equipment, landscaping, improvement, or feature), or to the owner or occupant thereof, within the Project Site if the same is not designated in the Contract Documents for alteration (and this caveat to apply only to the extent of any such designated alteration) or in any case adjacent to the Project Site, resulting from the performance of the Contract Work. Should any claim be made by any such owner or occupant because of the performance of the Contract Work, the Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

18.09 *Contractor's Indemnification - Property:* To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Town and the Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant as designated in Paragraph 18.08 above against the Owner, the Engineer, or any other party indemnified hereunder to the extent caused by or based upon the Contractor's performance of the Contract Work.

18.10 *Access Considerations:*

1. The Contractor shall conduct its work at all times and use all practical means available to minimize the interference to traffic, both the vehicular and pedestrian, and the inconvenience and discomfort of adjacent residents and property owners and the general public. Reasonable pedestrian access shall be maintained to all adjacent or abutting properties, buildings, and facilities at all times. Emergency access to all structures and facilities shall be maintained at all times; and shall be accommodated and provided for to all locations as needed. Except as otherwise provided in the Supplemental Contract Provisions, vehicular access, as may be restricted by the prosecution of the contract work, will be maintained at all times to all adjacent or abutting properties, except when necessary construction precludes such access for reasonable periods of time. In the event that Contract

Work cause, or likely will cause, vehicular access to any property, structure, or facility to be interrupted for more than a reasonable time, the Contractor shall construct, or make other arrangements for, reasonably equivalent access to the same.

2. The Contractor shall at all times keep adjacent property owners, residents, and tenants appropriately informed as to how, when, and for what anticipated duration prosecution of the Work may affect access to their properties. The Contractor shall specifically notify, in a timely manner, the same in any event where any such access is anticipated to be effectively closed; and the Contractor shall, to the extent practicable, coordinate any such closure with the same. The Contractor shall endeavor to accommodate, as is practical, special access requests of the same.

3. In the maintenance and protection of traffic, the Contractor shall abide by, in order of preference, subject to any applicable Laws or Regulations, and as applicable: (i) the rules, regulations, and directions of the Bloomfield Police Department or any other such law enforcement entity as may have jurisdiction, (ii) the rules, regulations, and directions of the CT DOT as may be applicable to any State Route, (iii) any directives of the Engineer, (iv) the applicable provisions of the Contract Documents, and (v) as a reference, the applicable provisions of the most recent edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD), and any supplements thereto, as published by the Federal Highway Administration of the U.S. Department of Transportation.

4. The Contractor is hereby notified that the Bloomfield Police Department may require the presence of one or more uniformed traffic officers, or, notwithstanding any requirements for the same as may be otherwise provided for in relation to the Contract Work, the presence of qualified private traffic control personnel, for the purpose of safety and traffic control at any location where Contract Work may affect a public street and the flow of traffic thereon. The Contractor is responsible for: (i) contacting the Bloomfield Police Department sufficiently prior to commencing any work within or which may affect a public street to inform them of such activity and allow the Police to make a determination regarding requirements and to provide personnel if necessary, and (ii) paying all costs as may be associated with any requirements of the Bloomfield Police Department as associated with this Paragraph. Unless the Engineer determines, and so states to the Contractor in writing, the situation that gave rise to the Police Department requiring one or more uniformed traffic officers was unnecessary (with respect to the Contract Work as contemplated by the Contract Documents) or could have reasonably been addressed by the Contractor without causing additional expense to the Owner for such traffic officer(s), the Contractor shall be appropriately reimbursed, with no markup whatsoever, for the direct costs to the Bloomfield Police Department incurred by the Contractor for such traffic officer(s), either as currently included in the Schedule of Values or via a Change Order.

5. The Contractor shall supply, maintain, and incorporate into its prosecution of the Contract Work such barricades, warning lights, directional, informational, warning, detour, construction, and other signage, or any other traffic control or related measures or safety precautions as may be required, necessary, or prudent for the protection and safety of person, property, and Work and/or as may be required, necessary, or prudent to the maintenance of traffic flows and access in clear and convenient means (as is practical).

6. ***Public Roads:***

a) Notwithstanding any other Contract Provision, the Contractor shall not, except in the case of an emergency per Paragraph 19.06, close to normal pedestrian or vehicular traffic any section of public road except: (i) in the case of such particular closure being contemplated in the Contract Documents (including any Change Order), upon written notice to the Engineer of such pending closure, or (ii) with the written permission of the Engineer.

- b) The Contractor shall keep any and all portions of any public road impacted by any activities of the Contractor in prosecuting the Contract Work that remain open to public travel, and including any temporary bypass facilities being used for public travel, free from defects as a result of Contractor activities and in a reasonably safe condition for such public travel, via any mode intended or allowed prior to the commencement of Contract Work, at all times. Where the Contractor as a result of its activities has caused a defect in a Town road, the Contractor shall promptly remedy such defect such that it no longer in any way affects public travel. Those areas where the Contractor is conducting Contract Work and the Contractor is not keeping in a reasonably safe condition for such travel shall be properly barricaded, signed, monitored or otherwise implemented with traffic control to reasonably prevent such travel within the subject areas, subject to the provisions of Paragraph 18.10-6(a) above.
- c) The Contractor shall as promptly as is practical comply with any Field Order or Work Change Directive issued by the Engineer with respect to any defects or any matters related to maintenance and protection of traffic on any portion of a Town road within the Project Site that is open to public travel.

ARTICLE 19 - SAFETY AND PROTECTION

19.01 *Contractor Responsible:*

- 1. The Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Contract Work. (Such responsibility is not intended to relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.) The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - a) All persons on the Project Site or who may be affected by the Contract Work;
 - b) All the Contract Work and materials and equipment to be incorporated therein, whether in storage on or off the Project Site; and,
 - c) Other property at the Project Site or adjacent thereto. See Article 18 for additional provisions regarding the protection, restoration, and liabilities regarding property at or adjacent to the Project Site.
- 2. The Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify the owners of adjacent property and of Underground Facilities and other utility owners, in addition to the Owner, when prosecution of the Contract Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

19.02 *Contractor to Remedy:* All damage, injury, or loss to any property referred to in Paragraph 19.01-1 or 19.01-2 caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Contract Work, or anyone for whose acts any of them may be liable, shall be remedied by the Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of

the Owner or the Engineer, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). See Article 18 for additional provisions regarding the same.

19.03 *Responsibilities to Continue:* The Contractor's duties and responsibilities for safety and for protection shall continue until such time as all the Contract Work is completed and the Engineer has issued a notice to the Owner and the Contractor in accordance with Paragraph 26.13-3 that the Work is acceptable for final payment (except as otherwise expressly provided in connection with Substantial Completion or final payment).

19.04 *Project Site Safety:*

1. Unless expressly waived in the Supplemental Contract Provisions, the Contractor shall designate a qualified and experienced safety representative at the Project Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.
2. The Contractor shall inform the Owner and the Engineer of any specific requirements of the Contractor's safety program with which the Owner's and Engineer's employees and representatives must comply with while at the site.

19.05 *Hazard Communication Programs:* The Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Project Site, and the Engineer or the Owner as may be appropriate or requested, in accordance with Laws or Regulations.

19.06 *Emergencies:* In emergencies affecting the safety or protection of persons or the Contract Work or property at the Project Site or adjacent thereto, the Contractor is obligated to act to prevent threatened damage, injury, or loss. The Contractor shall give the Engineer prompt written notice if the Contractor believes that any significant changes in the Contract Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If the Engineer determines that a change in the Contract Documents is required because of the action taken by the Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

ARTICLE 20 - BONDS, INSURANCE, WARRANTY AND INDEMNIFICATION

20.01 *Bonds:*

1. The Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of the Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 26.15, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. The Contractor shall also furnish such other bonds as are required by the Contract Documents.

2. All bonds shall be in the form prescribed in the Supplemental Contract Provisions, or as otherwise approved by the Owner, except as provided otherwise by Laws or Regulations, and shall be

executed by such sureties as are named in the current list of “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury, and is duly licensed therefor in Connecticut. All bonds signed by an agent or an attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority shall show that it is effective on the date the subject individual signed the bond.

3. If the surety on any bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business in Connecticut is terminated or it ceases to meet the requirements of Paragraph 20.01-2, the Contractor shall promptly notify the Owner and the Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements of this Paragraph 20.01.

4. In accordance with the requirements of CGS Sec. 49-41a(a)(1), the Contractor shall, within 30 days of any payment to the Contractor from the Owner, pay any amounts due any Subcontractor or Supplier, whether for labor performed or materials furnished, when the labor or materials have been included in a requisition submitted by the contractor and payment therefor is included in the subject payment to the Contractor.

5. If the Contractor fails to obtain a required bond, the Owner may exclude the Contractor from the Project Site and exercise the Owner’s termination rights under Article 27.

20.02 *Insurance:* The Contractor shall provide insurance coverages in strict accordance with the applicable provisions of the Supplemental Contract Provisions.

20.03 *Contractor’s General Warranty and Guarantee:*

1. The Contractor warrants and guarantees to the Owner that all Work will be in accordance with the Contract Documents and will not be defective. The Engineer shall be entitled to rely on representation of the Contractor’s warranty and guarantee.

2. The Contractor’s warranty and guarantee hereunder excludes defects or damage caused by:

a) Abuse, modification, or improper maintenance or operation by persons other than the Contractor, Subcontractors, Suppliers, or any other individual or entity for whom the Contractor is responsible; or

b) Normal wear and tear under normal usage.

3. The Contractor’s obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of the Contractor’s obligation to perform the Work in accordance with the Contract Documents:

- a) Observation by the Engineer;
- b) Recommendation by the Engineer or payment by the Owner of any progress or final payment;
- c) The issuance of a Certificate of Substantial Completion by the Engineer or any payment related thereto by the Owner;
- d) Use or occupancy of the Work, or any part thereof, by the Owner;
- e) Any review or approval of a Shop Drawing, Sample, or other submittal by the Engineer;

- f) Any issuance of a notice of acceptability, in any form, by the Engineer;
- g) Any inspection, test, acceptance, or approval by others; or
- h) Any correction of defective Work by the Owner.

4. Written notice by the Owner of a defect or failure in the Contract Work, or the reasonable possibility thereof, may be issued at any time while the term of the warranty security remains in effect.

5. The Owner may reasonably require the Contractor to prepare, at the Contractor's sole expense, and submit to the Owner for approval shop drawings, calculations, reports, or any other such submittal as the Owner deems appropriate regarding the evaluation or correction of any defect or failure in the Contract Work, or the reasonable possibility thereof, of which the Owner has become aware. In the event of any such requirement from the Owner, the approval of any such submittals by the Owner shall be a prerequisite to the Contractor commencing any corrective work that is not of an urgent nature to protect person or property.

6. In the event that any professional, independent evaluation or study required, requested, or otherwise agreed to by the Owner, with respect to any defect or failure in the Contract Work, or the reasonable possibility thereof, determines that the Contractor is not in any way responsible for the subject defect or failure, and said evaluation or study is not refuted by a subsequent professional, independent evaluation or study, then the Owner shall share the reasonable costs of such evaluation or study equally with the Contractor.

7. The Owner may call all or any portion of the warranty security at any time, and as many times, as deemed fit thereby, while said security remains in force in the event of any defect or failure in the Contract Work, or the reasonable possibility thereof, for which the Contractor has not appropriately corrected, addressed, or continued to take reasonable and appropriate steps towards the resolution thereof, in a timely manner upon the Contractor becoming aware of the same. The proceeds of any such calling of the warranty security by the Owner may be used for any reasonable purpose associated with the Owner's efforts to evaluate, correct, or otherwise address the same. The Owner shall, upon written request from the Contractor or the security provider, provide the subject requestor with an appropriate accounting of the use of any such called security funds.

8. In the event that the Owner initiates any legal action against the Contractor in any court having legal jurisdiction thereover arising as a result of or relating to any defect or failure, or aggregate thereof, in the Contract Work, then the Owner may call the total sum of any remaining warranty security funds, and said funds shall become forfeit to the Owner to use, or offset its costs, in any manner deemed fit thereby in association with such legal action, any related legal action, or the evaluation, correction, or other addressing of any defect or failure, or the possibility thereof, in the Contract Work.

20.04 General Indemnification:

1. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of the Contractor under the Contract or otherwise, the Contractor shall defend, indemnify, and hold harmless the Owner and the Engineer, and the officers, employees, directors, partners, agents, and consultants of each or any of them, from and against all claims, costs, losses, and damages (including the fees and charges of attorneys, engineers, or other professionals, or other costs or expenses) arising out of or relating to the performance of the Contract Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death sustained by person or persons or to injury to or destruction of tangible property (other than the Work itself), including the loss of use

resulting therefrom but only to the extent caused by any negligent act or omission of the Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

2. The existence of insurance or any other security, regardless of the nature, holder, coverage, insured, or beneficiary thereof, or of any amount or type of Worker's Compensation, disability, or other employee benefit paid or potentially payable shall in no way limit the scope of the indemnification obligations of the Contractor under Paragraph 20.04-1.

3. The indemnification obligations of the Contractor under Paragraph 20.04-1 shall not extend to the liability of the Engineer, or the officers, employees, directors, partners, agents, and consultants of the Engineer, arising out of:

- a) The preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or,
- b) Giving directions or instructions, or failing to give the same;

and, where any of the same is the primary cause of the subject injury or damage.

4. Where there exists any doubt or lack of clarity as to the applicability of Paragraph 20.04-1, or to its extent, then the assumption shall be that said Paragraph does apply and shall be enforced until such time, event, and only to the extent as said Paragraph has been clearly demonstrated or understood to not apply. In any such occurrence, the Contractor shall be reimbursed all reasonable and justified costs and expenses incurred thereby solely and directly in the defense or indemnification of entities protected under said Paragraph 20.04-1 by the beneficiary thereof.

SECTION 4 THE OWNER & THE ENGINEER

ARTICLE 21 - OWNER'S RESPONSIBILITIES

21.01 **Note:** While this Article 21 sets forth some of the responsibilities of the Owner under the Contract, it is not intended to, nor does it, set forth all of such responsibilities. Additional responsibilities of the Owner may be set forth in numerous other provisions of these General Conditions, in the Supplemental Contract Provisions, in other Contract Documents, and in Laws, Regulations, codes and permits, and other such locations as may be referenced in the Contract Documents or otherwise applicable. All of the same should be carefully examined in order to determine the full scope and nature of the Owner's responsibilities with respect to the Contract.

21.02 **Communications to the Contractor:** Except as otherwise provided in the Contract Documents, the Owner shall issue all communications to the Contractor through the Engineer.

21.03 **Replacement of the Engineer:** In case of termination of the employment of the Engineer, the Owner shall appoint an engineer, to whom the Contractor makes no reasonable objection, and whose status under the Contract Documents shall be that of the former Engineer.

21.04 **Project Representative:** The Owner shall designate an official or employee of the Owner to be the Project Representative on behalf of the Owner. The Project Representative shall be the primary representative (for responsibilities and actions outside of those accorded to the Engineer) of the Owner to

the Contractor, to the Engineer, and otherwise with respect to the Contract Work, and shall be authorized to act on behalf of the Owner in all matters with respect to the Contract except execution of the Contract or any amendment thereto, execution of any Change Order that would cause the Contract Price to exceed its original amount by greater than ten percent, termination of the Contract, the execution of any document, directive, or action that would serve to add to or otherwise alter the responsibilities of the Owner under the Contract, or to enact a resolution to a dispute that has moved so as to involve a resolution arbiter outside of the Contractor, Owner, and Engineer.

21.05 *Furnish Data:* The Owner shall promptly furnish data and information as required thereof by the Contract Documents.

21.06 *Pay When Due:* The Owner shall make payments to the Contractor when they are due as provided in Paragraphs 26.06 and 26.13-5.

21.07 *Safety Programs:*

1. While at the Project Site, the Owner's employees and representatives shall comply with the specific applicable requirements of the Contractor's safety programs of which the Owner has been informed.
2. The Owner shall inform the Contractor of any applicable safety programs or protocols of the Owner which may be applicable to the Contractor with respect to the Contractor's prosecution of the Contract Work at the Project Site, and provide the Contractor with written copies of the same.

21.08 *Limitations on the Owner's Responsibilities:* The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, the Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Contract Work. The Owner will not be responsible for the Contractor's failure to perform the Contract Work in accordance with the Contract Documents.

ARTICLE 22 - ROLE OF THE ENGINEER

22.01 *Note:* While this Article 22 sets forth some of the duties and responsibilities of the Engineer under the Contract, it is not intended to, nor does it, set forth all of such duties and responsibilities. Additional duties and responsibilities of the Engineer may be set forth in numerous other provisions of these General Conditions, in the Supplemental Contract Provisions, in other Contract Documents, and in Laws, Regulations, codes and permits, and other such locations as may be referenced in the Contract Documents or otherwise applicable. All of the same should be carefully examined in order to determine the full scope and nature of the Engineer's duties and responsibilities with respect to the Contract.

22.02 *Owner's Representative:* The Engineer will be the Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of the Engineer as the Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of the Owner and the Engineer. The Engineer is responsible to keep the Owner informed of the progress of Contract Work and of significant events and issues, as the Engineer may be aware, to the satisfaction of the Owner. The Engineer will endeavor to guard the Owner against defective or otherwise non-conforming Work. The Project Manager, as defined in Paragraph 1.01-46, shall be the Engineer's primary representative for the Project.

22.03 *Visits to the Site:* The Engineer will make visits to the Project Site at intervals appropriate to the various stages of construction as the Engineer so deems in order to monitor as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Contract Work. Based on information obtained during such visits and monitoring, the Engineer, for the benefit of the Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. The Engineer is not responsible to, and will not be required to, make exhaustive or continuous inspections at the Project Site to check the quality or quantity of the Contract Work. The Engineer's efforts will be directed toward providing for the Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, the Engineer will keep the Owner informed of the progress of the Contract Work and will endeavor to guard the Owner against defective Work.

22.04 *Authorized Variations in the Contract Work:* The Engineer is authorized to issue Field Orders as defined by Paragraph 1.01-27, and in accordance therewith. Any such Field Order duly issued by the Engineer will be binding on the Owner and also on the Contractor. If either of the Parties is of the opinion that any such Field Order materially alters the Contract Work so as to justify a Change Order, then the same may request one of the Engineer per Paragraph 23.04-2; and, any such request shall be made in a timely manner with respect to the subject Work.

22.05 *Rejecting Defective Work:* The Engineer will have authority to reject Contract Work which the Engineer believes to be defective, or that the Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. The Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 31.03-1.

22.06 *Determinations of Work Completed:* The Engineer will determine the actual quantities and classifications of Work performed and successfully completed by the Contractor using the Schedule of Values as a base. The Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). The Engineer's written decision thereon will be final and binding (except as modified by the Engineer to reflect changed factual conditions or more accurate data) upon the Owner and the Contractor, subject to the provisions of Article 25.

22.07 *Decisions on the Requirements of the Contract Documents:*

1. The Engineer will be the initial interpreter of the requirements of the Contract Documents with respect to Contract Work and judge of the acceptability of the Contract Work thereunder. All matters in question and other matters between the Owner and the Contractor arising prior to the date final payment is due relating to the acceptability of the Contract Work or the interpretation of the requirements of the Contract Documents pertaining to the performance of the Contract Work will be referred initially to the Engineer in writing within 30 days of the event giving rise to the question.
2. The Engineer will, with reasonable promptness, render a preliminary decision in writing on any question or issue referred to the Engineer. The Engineer may request additional information from either Party to assist in making any such decision, and the Parties shall promptly comply with any such request as is reasonable. The Contractor or the Owner shall notify the Engineer and the other Party in writing within 30 days of the date of any such preliminary decision if the notifying party has an issue with a preliminary decision. In the event that neither party has sent such written notification of issue within said 30-day period, then the preliminary decision of the Engineer shall become final, and any right to make a Claim on the subject matter under the Contract shall have been waived by the Owner and the Contractor by virtue of their not taking issue with the decision of the Engineer in a timely

manner as afforded to them hereunder. Where such written notification of issue has been accordingly sent by at least one of the Parties, the Engineer shall consider the input of the Parties and may take whatever steps or use whatever means deemed appropriate by the Engineer in order to reach a final decision on the subject matter in a timely manner, considering the nature of the subject matter and the issues at hand. Where the Engineer or either Party requests to meet on any such matter, then the Engineer shall, if the request is deemed reasonable thereby, arrange such meeting and both Parties shall reasonably accommodate such arrangements in a prompt manner. When the Engineer has given both Parties reasonable and appropriate opportunity to present and support their position on the subject matter and has considered the information at hand as deemed fit thereby, then the Engineer shall issue in writing a final decision on the matter.

3. When functioning as interpreter and judge per this Paragraph 22.07 or Paragraph 22.08 below, the Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

4. Where the Engineer determines that the Engineer lacks the proper authority, is not reasonably able, in a timely manner, to avail itself of the proper knowledge, expertise, or information, or it is otherwise inappropriate for the Engineer to render a decision on a matter as requested, then the Engineer will promptly, upon such determination, inform the Owner and the Contractor in writing of its determination to decline to render a decision on the subject matter. The Claim Notification Period with respect to any matter for which the Engineer so declines to render a decision shall commence on the date that both the Owner and the Contractor have been notified of the same.

22.08 *Final Decisions of the Engineer – Dispute:* Any final decision or determination of the Engineer per the Contract Documents shall be the final decision on the subject matter and be binding on the Owner and the Contractor subject to the Claims process set forth in Article 25 hereof and subject to the provisions of this paragraph, provided that the Engineer may elect, at his own discretion, to, within 30 days of any subject final decision/ determination and at the request of both the Contractor and the Owner (in an attempt to avoid initiating the Claims process), void the subject final decision/determination to receive additional input on the matter and issue a revised final decision/determination on the matter in a timely manner. (Note: in requesting such reconsideration, both the Contractor and the Owner grant to the Engineer sole discretion in determining what constitutes a ‘timely manner’ for purposes of such reconsideration.) Where a Claim is made in accordance with the provisions of said Article 25 regarding any final decision or determination of the Engineer, then the date of the commencement of the Claim Notification Period for the event giving rise to the Claim for such purposes shall be the date of the Engineer’s final decision.

22.09 *Project Field Representative:* If so called for by the Contract Documents or where the Owner and the Engineer otherwise agree, one or more Project Field Representative(s) may be furnished by the Engineer on behalf of the Owner. The general role of the Project Field Representative shall be as defined in Paragraph 1.01-45. A more particular description of the role of the Project Field Representative may be given in the Supplemental Contract Provisions. Except for monitoring the Contract Work, subject to any pertinent provisions of the Supplemental Contract Provisions, the Project Field Representative shall not have or assume any authorities or responsibilities of the Engineer. Any Project Field Representative shall not, and shall not be interpreted to:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment;
2. Exceed any limitations of the Engineer’s authority as set forth in the Contract Documents;
3. Undertake any of the responsibilities of the Contractor, as set forth in the Contract Documents or otherwise; or,

4. Accept Shop Drawings, Samples, or any other submittal from anyone other than the Contractor.

22.10 *Limitations on the Engineer's Authority and Responsibilities:*

1. Neither the Engineer's authority or responsibility under this Article 22 or under any other provision of the Contract Documents nor any decision made by the Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by the Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by the Engineer to the Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

2. The Engineer will not supervise, direct, control, or have authority over or be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with Laws and Regulations applicable to the performance of the Contract Work. The Engineer will not be responsible for the Contractor's failure to perform the Contract Work in accordance with the Contract Documents.

3. The Engineer will not be responsible for the acts or omissions of the Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Contract Work.

4. The Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 26.13-1 will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

5. The limitations upon authority and responsibilities set forth in this Paragraph 22.10 shall also apply to the Project Field Representative(s), if any, and assistants, consultants, subconsultants, or subcontractors of the Engineer, if any.

22.11 *Compliance with Safety Program:* While at the Project Site, the Engineer's employees and representatives shall comply with the specific applicable requirements of the Contractor's safety programs of which the Engineer has been informed.

22.12 *Email Account:* The Engineer is required to designate to the Contractor (by providing the Contractor with the subject email address) an email account that shall be regularly monitored by the Engineer during working hours, at [not necessarily standard] intervals of not to exceed 3.5 hours, for use for written communications transmitted via email. The Engineer is responsible to make necessary arrangements, potentially including providing alternate email addresses to the Contractor, to insure that any such email transmissions are received by the Engineer in a timely manner; and the Contractor shall comply with all reasonable requests from the Engineer for the Contractor's coordination in assisting any such arrangements (e.g. such as sending messages to more than one email address or using an alternate email address for designated periods, etc.).

SECTION 5 CHANGES, PAYMENTS, CLAIMS, DISPUTES & COMPLETION

ARTICLE 23 - CHANGES IN THE WORK

23.01 ***Authorized Changes in the Contract Work:*** The Owner may, at any time or from time to time, and either unilaterally or with the negotiated agreement of the Contractor, order additions, deletions, or revisions in the Contract Work, without invalidating the Contract and without notice to any surety, by a Change Order or a Work Change Directive in accordance with the applicable provisions of the Contract Documents. Upon receipt of any such Change Order or Work Change Directive, the Contractor shall proceed to incorporate the subject changes in the Contract Work in a timely manner; and such Work shall be performed under the applicable provisions of the Contract Documents, (except as otherwise specifically provided).

23.02 ***Unauthorized Changes in the Contract Work:*** The Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required or authorized by the Contract Documents, except in the case of an emergency as provided in Paragraph 19.06 or in the case of uncovering Work as provided in Paragraph 31.03.

23.03 ***Unanticipated or Changed Conditions:***

1. Where any of the Owner, the Contractor, or the Engineer encounters or otherwise becomes aware of any condition, occurrence, event, or any other situation, excepting herefrom any situation involving Hazardous Environmental Conditions (which situation is covered under Article 30), of or relating to the Contract Work or the Project that will or reasonably may affect the Contract Work or require a change in the Contract Documents then such entity shall proceed to notify, in writing, the other two of the same in a timely manner so as to minimize any possible effect on or disruption to the Work or the prosecution thereof, and/or to allow for timely documentation and review of the subject situation by both Parties and the Engineer. Attention is directed to Article 29 for additional provisions regarding differing subsurface or physical conditions and Underground Facilities.
2. Upon becoming aware of any such situation, the Contractor shall promptly evaluate the effect any subject situation may have on any Work the Contractor is currently prosecuting and any effect that any Work the Contractor is currently prosecuting may have on any Improvements, existing or associated with the Contract Work, or other matters as may be associated with the subject situation. If the Contractor determines that continuing to prosecute any portion of the Work will have, or reasonably may have, any negative effect on any of the foregoing, then the Contractor shall promptly suspend the subject portion of the Work, (except in the case of emergencies per Paragraph 19.06), or if so directed by the Engineer shall do the same. Where the Contractor has so suspended Contract Work of its own accord, the Contractor shall, in addition to and notwithstanding any other applicable notice requirements, promptly email the Engineer notice of the situation and endeavor to notify the Engineer of the situation verbally, in person (if the Engineer is so available) or by telephone, leaving a voice message if direct contact is not made. Where any Contract Work is so suspended, the provisions of Paragraph 11.08-2 shall govern such suspension and the resumption of the subject Work, notwithstanding any effects any resolution of any subject issue under the provisions of this Paragraph 23.03 may have on any such resumption of Work.

3. Upon the receipt of, or issuing, any such notification, the Engineer shall, in a timely manner with respect to the nature of the situation and the prosecution of the Work and with the full cooperation of the Parties and in consultation therewith as deemed fit by the Engineer, review the pertinent

circumstances surrounding the subject situation and the overall effects the subject situation will, or is likely to, have on the Contract Work and the Contractor's prosecution thereof. The Engineer shall determine the necessity of the Owner's obtaining additional exploration, testing, or other information with respect thereto. Upon completing its review, the Engineer shall inform the Parties in writing the Engineer's findings and conclusions, which conclusions shall include the Engineer's opinion as to what the appropriate resolution to the subject situation is and what extent, if any, changes to the Contract Price or Contract Times are warranted by such resolution. The Engineer may seek whatever additional information from whatever source, take whatever steps, and use whatever means as may be known, available, or deemed appropriate thereby in the process.

4. Upon receipt of the Engineer's said written conclusion, the Owner shall within ten days inform the Contractor and the Engineer in writing of the Owner's determination on whether or not to issue a Change Order in respect to the subject situation. If it is the Owner's determination to issue a Change Order, then the appropriate process shall proceed per Paragraph 23.04. If it is the Owner's determination not to issue a Change Order, then such non-issuance by the Owner shall be documented by delivery to the Contractor by Verified Written Notification, and the date of receipt of the same by the Contractor shall be the commencement of the Claim Notification Period regarding the subject matter.

5. All of the foregoing of this Paragraph 23.03 is subject to: No adjustment in Contract Price or Contract Time shall be warranted if:

- a) The potential benefiting Party knew of the existence of, or future existence of, such situation before or at the time the same executed the Contract Agreement, or any Amendment thereto if applicable (and to the degree applicable), or, in the case where a negotiated Change Order may be applicable (and to the degree applicable), in the case of the Owner, signed the Change Order or, in the case of the Contractor, received the Change Order and failed to promptly notify the other Party and the Engineer; or,
- b) In the case of differing subsurface or physical condition, the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, study, or exploration of the Project Site and contiguous areas required by the Bid Documents to be conducted by or for the Contractor prior to the Contractor's submitting a Bid or executing the Contract Agreement; or,
- c) The potential beneficiary thereof failed to provide proper notification per Paragraph 23.03-1.

23.04 *Change Orders –Effectuation:*

1. Except for the case of any unilateral Change Order as set forth in Paragraph 23.05 below, a Change Order shall take effect upon its execution by both Parties and the acknowledgement thereon, via signature, of the Engineer. The date any subject Change Order goes into effect shall be the date of the commencement of the Claim Notification Period with respect to any specific event or matter covered by or contained in such Change Order.

2. Either Party may, in writing to the Engineer, request a Change Order or the Engineer may initiate negotiations between the Parties for a Change Order, provided that the Engineer shall reject as untimely any such request for a Change Order, or applicable portion thereof, which is submitted more than 30 days subsequent to the event that gave rise to the subject Change Order, or applicable portion thereof, unless the Engineer receives in writing a timely statement from the non-requesting party that the acceptance of the same does not run counter to the interests of the non-requesting Party. In any case where the Engineer so rejects a request for a Change Order, or applicable portion thereof, the Party

making the request may avail the Claims Process only with respect to such decision by the Engineer to reject the request, as the Claim Notification Period for the subject event of the rejection shall have expired by definition. (The foregoing is supplemented by the provisions for a unilateral Change Order as set forth below.) In general, Change Orders are intended to be negotiated equitable amendments to the Contract executed prior to any work associated with a subject Change Order being undertaken. However, the Parties acknowledge and recognize that there may be instances where allowing time for the negotiation process generally anticipated for a Change Order to play out is not in the best interests of the Project per the intent of the Contract. Therefore, these General Conditions provide for Work Change Directives and/or unilateral Change Orders which may be implemented by the Owner and Engineer as deemed fit thereby in accordance with the Contract Documents in order to address such instances in a timely manner. The Contract provides the processes by which an equitable resolution for any Work Change Directive or unilateral Change Order with respect to amending the Contract Price or Contract Times is to be achieved.

23.05 *Unilateral Change Orders:*

1. Where the Owner and the Engineer deem that a change in the Contract Work is in the best interests of the Project, or the Owner deems that a change is in the best interests of the public, and the Engineer judges that an agreement with the Contractor on the matter has not or is likely not to be reached in a timely manner, and the Engineer judges that the subject change, as proposed, does not run counter to the intent or scope of the Project as contemplated by the Contract Documents and is, based on the current information known to the Engineer, equitable to the Contractor, then a unilateral Change Order may be issued and, pending delivery to the Contractor per 23.05-2, effectuated simply by its execution by the Owner and the acknowledgement thereon via signature by the Engineer.
2. In the event of such issuance of a unilateral Change Order by the Owner, the Contractor, acting by the Project Superintendent or any other known responsible representative, with respect to the Project, or officer of the Contractor, may be presented an original of the subject Change Order in person and asked to sign an acknowledgement of receipt of the subject Change Order by the Engineer, or the Engineer may send an original of the Change Order to the Contractor via Certified Mail to the address set forth in the Agreement. The signing of any such acknowledgement of receipt of a unilateral Change Order shall not mean, imply, or be construed to mean or imply agreement with or acceptance of, in any way, the terms of the subject unilateral Change Order by the Contractor.
3. Such a unilateral Change Order shall go into effect upon such presentation by the Engineer, regardless of whether or not the receiving person signs the acknowledgement of receipt of the same when presented, subject to subsequent proper written documentation of such presentation by the Engineer in the event of non-acknowledgement, or when the Change Order is *attempted to be delivered* to the contractor via Certified Mail, per the forgoing Paragraph 23.05-2, whichever is earlier. Where acknowledgement of receipt is not obtained by the Engineer upon presentation, then the Engineer shall follow up with sending an Original, or a copy of an Original with an appropriate cover letter if another Original is not available, of the subject Change Order to the Contractor via Certified Mail.
4. Where a unilateral Change Order has been issued by the Owner in accordance with this provision 23.05 or 24.02-4, then the Parties and the Engineer shall endeavor to reach an agreement on acceptable final terms on the subject changes to the Contract Work. Where any such agreement is reached, and the terms of such agreement differs from those of the subject Change Order as originally unilaterally issued, then a subsequent bilateral Change Order shall be issued that references the subject original Change Order and brings into effect the agreed changes.

5. In the event that either Party deems that any such negotiation regarding a unilateral Change Order, or negotiations regarding a proposed bilateral Change Order, has reached impasse, either due to the proceedings of the negotiations or to the unreasonable inaction of the other party, then, subsequent to having informed the Engineer in writing of such determination, having afforded the Engineer a reasonable time to respond to such notification, and having seriously considered any written response from the Engineer on the matter, and only then, the subject Party may notify the other Party and the Engineer in writing that due to such perceived impasse that the subject Party will not pursue negotiations on the matter at the current juncture any further (i.e. notification of perceived impasse).

6. In the case that either Party issues a notification of perceived impasse per Paragraph 23.05-5, then either Party shall have the right to initiate a Claim regarding the subject Change Order per Article 25 hereof. The date of said notification of perceived impasse shall be the date of the commencement of the Claim Notification Period for any subject event. The Party making the Claim may notify, in specific and appropriate wording, the Engineer and the other Party of its Claim, and thereby initiate the Claim, within a notification of perceived impasse issued thereby.

7. The contents of any yet-to-be issued Change Order may be altered by the Engineer as deemed fit thereby as may be in the interests of the Project to move appropriate parts of the subject Change Order forward and limit the scope of any disputed matters.

23.06 *Change Orders – Content:* A Change Order shall state or include:

1. The changes made to the Contract;
2. The reason(s) for the subject changes;
3. The amount the Contract Price is adjusted thereby;
4. The amount any Contract Times are adjusted thereby;
5. Appropriate adjustments to any applicable Schedules; and
6. Supporting information as deemed appropriate by the Engineer.

23.07 *Work Change Directive:* A Work Change Directive is defined in Paragraph 1.01-69 hereof. Where a Work Change Directive has been issued and issuance of the associated negotiated Change Order is not likely to occur in a timely manner relative to compensation to the Contractor for reasonably warranted due Contract Price adjustments for already completed Work associated therewith, then:

1. The Engineer may prepare and the Owner issue a unilateral Change Order to provide for estimated compensation to be paid to the Contractor while the settlement of the final compensation is being resolved; or,
2. The Contractor may demand, in writing to the Engineer and the Owner, that a unilateral Change Order [for the same purposes as set forth in (1) above] be prepared and issued; in which case the Engineer shall within 15 days of receipt of such demand prepare such unilateral Change Order, and the Owner shall within 20 days of receipt of such demand issue such unilateral Change Order.

ARTICLE 24 - CHANGES IN CONTRACT PRICE & CONTRACT TIME

24.01 ***Effectuation:*** Changes in Contract Price or Contract Times can only be effectuated via a Change Order, including as may be associated with Work performed in accordance with a Work Change Directive, or via the binding resolution of a Claim.

24.02 ***Determination of Adjustment of Contract Price:*** The value of any Contract Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. **Method 1** - Where the Work involved is covered by unit prices contained in the Schedule of Values, by application of such unit prices to the quantities of the Work Items involved, subject to:
 - a) The provisions of Paragraphs 1.01-67, 4.04, 4.05, 5.03, and 22.06;
 - b) The circumstances surrounding the construction or other material aspect of one or more particular subject items of Work in the proposed Change Order are substantially different as those associated, in the aggregate, to the apparent corresponding Work Items in the current Schedule of Values, in the judgment of the Engineer. Under such circumstances, the adjustment of Contract Price shall be determined by one of the other (below-) listed methods.
2. **Method 2** - Otherwise, where determination Method 1 (above) does not apply, the Parties, and including the Engineer, shall endeavor, in good faith and in a timely manner, to negotiate a fair and equitable adjustment of Contract Price as appropriate, considering the various relevant and applicable circumstances, facts, documentation, and other information as may be on hand or otherwise available to, and brought into the negotiations by, any of the same.
3. **Method 3** - Where determination Method 1 (above) does not apply, and where so agreed by the Parties and the Engineer, or where Method 2 (above) has, in the judgment of the Engineer, reached impasse or the Engineer further judges that this method is appropriate, or as may be directed by a unilateral Change Order duly issued by the Owner, and subject to its applicability, the subject adjustment of Contract Price may be determined on a "Cost Plus" basis; where such Cost Plus basis shall be in accordance with the current specifications, standards, procedures and practices for such determination promulgated or used by the Connecticut Department of Transportation, the specifications for which are set forth in Form 819. In the event that the Contractor is unfamiliar with the CT DOT's methods for Cost Plus determinations, the Contractor should enquire of the same to the Engineer.
4. **Method 4** - Where Methods 1 or 2 (above) are not applicable or appropriate, for any reason including the judgment of the Engineer per Paragraph 24.02-6 , and where Method 3 has determined to be non-productive or inappropriate in accordance with said Paragraph 24.02-6 by the Engineer, then the Engineer may and shall, in the interests of the Project, and accompanied by written notification to the Parties of the same, prepare a Unilateral Change Order as appropriate in accordance with Paragraph 23.05, and which the Owner shall be obligated to execute. Such a step by the Engineer shall initiate the final process for addressing such matter, which shall then be resolved in accordance with the applicable provisions of Article 23 and other applicable claim resolution provisions of these Contract Documents.
5. The Parties acknowledge that the Cost Plus method of price determination:
 - a) Creates an environment that can tend, to some variable degree, to alter the motivations and incentives of the Contractor away from efficiency;

b) Creates an additional burden, to some variable degree, on the Engineer (as well as the Contractor) with respect to monitoring and administrative effort which, in the case of the Engineer, will either mean additional expense to the Town or reduction in the base services provided; and either of these scenarios tend to run counter to the public interest; and,

c) Can typically be contentious.

6. Therefore, in any situation where Method 2 (above) has, in the judgment of the Engineer, reached impasse, the Engineer may, considering the circumstances and factors, judge that Method 3 (above) is not in the best interests of the Project or of the public, and, as a result, is not appropriate to the subject matter. In such case, the Engineer shall make a determination in accordance with Method 4 (above).

24.03 *Determination of Adjustment of Contract Times:* The determination of the appropriate adjustment in Contract Times that may be warranted under any situation shall be in accordance with, in order of precedence, Method 2 followed by Method 4 as set forth in Paragraph 24.02, as rendered applicable to Contract Times in lieu of Contract Price.

24.04 *Delays:*

1. Where the Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contractor is entitled to an equitable extension of the Contract Times where such adjustment is essential to the Contractor's ability to complete the Work within the Contract Times, and in accordance with the provisions of Article 23, Article 25, and this Article 24. Delays beyond the control of the Contractor shall include acts or neglect by the Owner, acts or neglect of utility owners or other contractors who may be performing work at the Project Site, fires, floods, earthquakes, epidemics, significantly abnormal weather conditions, or acts of God.

2. Except where the subject delay is caused solely by the neglect or wrongful act of the Owner or the Engineer, an equitable adjustment in Contract Times shall be the sole and exclusive remedy for any such delay.

3. Where such a delay is caused solely by the neglect or wrongful act of the Owner or the Engineer, then the Contractor shall be entitled to an equitable adjustment in both Contract Price and Contract Times in accordance with the provisions of Article 23, Article 25, and this Article 24.

4. The Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of the Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of the Contractor.

5. The Town, the Engineer, and the related entities of or to each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by the Contractor on or in connection with any other project or anticipated project, or with any matter outside of or not directly associated with this Project.

24.05 *Notification to Surety:* If notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond, the giving of any such notice will be the Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change, unless such adjustment for any particular change is explicitly waived in writing by the Owner.

ARTICLE 25 - CLAIMS

25.01 *Claim Process - Applicability:*

1. Claims and the Claim Process are defined in Paragraphs 1.01-11 and 1.01-13 of these General Conditions. The invocation and application of the Claims Process as set forth in this Article 25 is a condition precedent to the valid invocation of the Dispute Resolution Process, as set forth in Article 28 hereof, for all matters for which the Claims process is applicable per Paragraphs 1.01-11 and 25.01-2 (below). A request for a Change Order, per Paragraph 23.04-2, and the application of the Change Order process as a result thereof, as set forth in Articles 23 and 24 hereof, is a condition precedent to the valid invocation of the Claim Process for all matters for which a Change Order is applicable and appropriate under the provisions of the Contract Documents.
2. In the case that either Party is of the opinion that an event has occurred with respect to the Contract Work, or otherwise with respect to the Contract, except for actual Termination of the Contract per Article 27 hereof (and including all matters as may be directly related to any such Termination of the Contract), that has not been or is not being addressed in accordance with the applicable provisions of the Contract to the detriment of the subject Party, then the prescribed means, with due consideration to the provisions of Paragraph 22.07, of seeking remedy in such case and for such event is through the issuance of a Notice of Claim, in strict accordance with the requirements for notification set forth in Paragraph 25.02 below, and the resulting Claim Process, as set forth in this Article 25. The Claims Process is part of the overall endeavor to administer the Contract in a just and equitable manner. The Parties understand that a Claim process typically can be arduous and contentious, and that, in the interest and spirit of cooperation and expediency, the Contract makes available in Paragraph 22.07 hereof the process of requesting and obtaining a decision from the Engineer prior to issuing a Notice of Claim for matters related to the Contract Work; which decision process allows for the opportunity for both Parties to be heard on the subject matter and for the Parties to conduct discussions/negotiations on the matter. While it is suggested that the Party seeking remedy will take advantage of such decision process as may be reasonable prior to issuing a Notice of Claim regarding the subject matter; neither the availability nor use of any such alternate means of remedy set forth in the Contract shall be used or deemed to in any way preclude, alter, or waive the right of a Party to seek remedy via the Claim process as set forth in this Article 25. (Note: The available remedy regarding the actual Termination of the Contract bypasses the Claim process directly to the Dispute Resolution Process set forth in Article 28 hereof.)

25.02 *Notice of Claim:*

1. A Claim, and the Claim Process, is initiated by the issuance of a written Notice of Claim by the Party seeking remedy to the other Party, delivered via Certified Mail to the notification addresses set forth for each within the Contract, with copy provided to the Engineer for informational purposes, within the Claim Notification Period as defined by Paragraph 25.03.
2. A Notice of Claim shall include:
 - a) An identification and brief description (and such description may be general) of the event or events giving rise to the Claim;
 - b) The notice may identify any relevant Contract events known to the Claimant which may affect the magnitude of the remedy sought that have occurred subsequent to the original event(s);

- c) The date, or dates, of the subject event or events;
- d) The date, or dates, of the commencement of the Claim Notification Period for any subject event that may differ, per the Contract, from the actual date of the subject event, and the reason, per the Contract for such non-default date of commencement.
- e) The type of remedy, (e.g. “increase in Contract Price”, “increase in Time for Phase 1”, etc.), which may be sought for each subject event. A magnitude of remedy sought is not required at this stage.

3. Any Notice of Claim issued subsequent to the expiration of such Claim notification period for the subject event will not be valid and, correspondingly, the subject Claim shall also be rendered invalid by lack of timely notification per the requirements of Paragraph 25.03.

4. The Claim Notification Period for any event may not be extended.

5. Upon the expiration of the Claim Notification Period for any event, the Parties shall have forfeited any rights they may have under this Contract to make any Claim with respect to the subject event that is not directly related to, relevant to, and within the scope of an already Noticed Claim.

6. Nothing herein is intended to prohibit the receiving Party of an invalid Notice of Claim from seeking to address the subject Claim to any extent deemed thereby to be in its interests; and such addressing of an invalid Claim shall be and remain solely at the pleasure of said receiving Party thereof, and may be withdrawn thereby at any time.

7. The Dispute Resolution Process, i.e. litigation or arbitration, is not available under this Contract for any invalid Claim.

25.03 *Claim Notification Period:* A Claim Notification Period has a duration of 30 days directly subsequent to its commencement date. By default, and unless otherwise specifically provided for by the Contract Documents, the commencement date for the Claim Notification Period for an event is the day on which the subject event occurs, first occurs, or commences to occur. Paragraphs 22.07-4, 22.08, 23.03-4, and 23.04-1 hereof contain provisions regarding the commencement date of the Claim Notification Period for circumstances relative to those paragraphs. Where a Change Order is knowingly being, or is expected to be, developed (as documented in writing), and 1) some aspect of the resulting Change Order is in dispute, then the date of commencement of the Claim Notification Period for all matters covered by the subject Change Order shall be the date of issuance of the subject Change Order, or 2) written notification is issued by one of the Parties or the Engineer that the subject Change Order is no longer being pursued thereby, (in general or via the then underway process,) then the date of commencement of the Claim Notification Period for all events that were directly the subject of the said potential Change Order being or expected to be developed shall be the date that such written notification per this sentence is delivered to the receiving Party.

25.04 *Responsibilities of the Claimant:*

1. The responsibility to substantiate a Claim shall rest with the party making the Claim.
2. Within 60 days from the issuance of a valid Notice of Claim associated with a particular Claim, the claimant shall submit to the non-claimant Party a package of written documents that constitutes the entirety of the explanation, documentation, and substantiation of the Claim as contemplated by the claimant and known to the claimant at such time. Such submittal package shall include:

- a) A reiteration of items a, b, and c of the requirements for the Notice of Claim as set forth in Paragraph 25.02.
- b) A more detailed description/presentation of the facts, factors, dates, happenings, occurrences, actions, and other information relevant to the understanding of the subject event(s) and the substantiation of the same as warranting an adjustment in Contract Price, Times , or other Contractual matter.
- c) A detailed and specific presentation of the magnitude and extent of any adjustment of a Contractual matter being sought, and appropriate and complete documentation substantiating the same. As a default, Claims for adjustment in Contract Price shall be substantiated by the Cost Plus method (Method 3) as set forth in Paragraph 24.02 - 3. The Parties may agree to allow or use some other method, to any extent.
- d) A signed written statement from the claimant stating that, to the best of the claimant's knowledge, **(i)** the adjustments presented in the enclosing/accompanying submittal package represents the entire adjustment being sought by the claimant, and to which it believes it is entitled, with respect to any and all of the subject events; **(ii)** the subject Claim is made in good faith; and, **(iii)** the supporting information and data are accurate and complete.
- e) Any additional supporting documentation deemed fit by the claimant.

3. The claimant may request of the other Party in writing, within such 60-day period, an extension of such 60-day period for submittal of certain particular documentation, substantiation, or other supporting information relevant to the subject Claim which may not reasonably be obtained, compiled, or developed within such 60-day timeframe; such request shall identify the specific time period requested for the extension.

4. The non-claimant Party shall not unreasonably withhold approval of any first request, as associated with any particular Claim, for such extension, though the non-claimant Party has the authority to adjust the length of any granted extension as deemed fit thereby, notwithstanding the requested extension.

5. The claimant agrees to reasonably schedule, prepare, review, accommodate, attend, and participate, in good faith, in meetings, correspondence, and other matters requested, arranged, or otherwise necessary or appropriate to furthering the process towards resolution with respect to any Claim.

25.05 *Responsibilities of the Non-Claimant:*

- 1. The non-claimant Party shall review the Claim thoroughly, giving full consideration to its merits, in a timely manner.
- 2. Within 90 days after the receipt of the package of written documentation from the claimant, per Paragraph 25.04-2, presenting the claimant's substantiation for the subject Claim, the non-claimant shall respond to the claimant in writing regarding the same. Such response shall assert one or more unilateral resolutions to the subject Claim per the provisions of Paragraph 25.07 below, or shall request negotiations and further exchange of information regarding all of the non-resolved matters of the subject claim, providing explanation and information regarding the non-claimant's current position regarding the same.

3. The non-claimant may request of the claimant in writing, within such 90-day period, an extension of such 90-day period for such response; such request shall identify the reason for such request and the specific time period requested for the extension.

4. The claimant shall not unreasonably withhold approval of any first request, as associated with any particular Claim, for such extension, though the claimant has the authority to adjust the length of any granted extension as deemed fit thereby, notwithstanding the requested extension.

5. The non-claimant agrees to reasonably schedule, prepare, review, accommodate, attend, and participate, in good faith, in meetings, correspondence, and other matters requested, arranged, or otherwise necessary or appropriate to furthering the process towards resolution with respect to any Claim.

25.06 *Availability of Mediation:*

1. At any time after initiation of a Claim, the Parties may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay time related matters of the subject Claim Process.

2. If the Parties agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim Process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim Process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. The Owner and the Contractor shall each pay one-half of the mediator's fees and costs.

25.07 *Claim Resolution:* A claim may be finally resolved for purposes of the Claim Process by one or a combination of the following means:

1. Unilateral granting of all or part of the subject Claim by the non-claimant Party issued in writing to the claimant Party;

2. Unilateral denial of all or part of the subject Claim by the non-claimant Party issued in writing to the claimant Party;

3. A negotiated settlement of all or part of the subject Claim is agreed to in writing by the Parties and made an amendment to the Contract thereby;

4. All or that part of the subject Claim not previously resolved per (1), (2), or (3) above are denied by default under the provisions of Paragraph 25.08 below.

25.08 *Notice of Final Resolution:*

1. Either Party may, in good faith, provide the other Party a Notice of Final Resolution regarding a subject Claim, which notice shall be in writing and shall notify the other Party that, in the issuer's determination, all matters regarding the subject Claim are considered thereby to be resolved through the means set forth under Paragraph 25.07 above; and that the issuing Party thereby considers the subject Claim to be fully and finally resolved for purposes of the Claim Process as set forth in in this Article 25.

2. Within 10 days of receipt of any such Notice of Final Resolution, the receiving Party shall, in writing, either:

- a) Agree with the assertion of final resolution; or,
- b) Dispute the assertion of final resolution, providing a detailed explanation of what matters with respect to the subject Claim that the receiving Party does not consider to be resolved; which disputing of said assertion shall automatically void said assertion.

3. Failure of the receiving Party to respond to any such Notice of Final Resolution per 25.08.2 above shall be deemed to be an agreement on the part of the receiving Party with the assertion of final resolution. Agreement of the receiving Party with the assertion of final resolution, by either means set forth herein, shall:

- a) Render any matters or parts of the subject Claim that may subsequently be determined to not have been previously resolved by the Parties to be denied by default; and,
- b) Effectuate such final resolution for purposes of the invoking of the Dispute Resolution Process under Article 28.

4. Subsequent to 90 days after the receipt of the package of written documentation from the claimant by the non-claimant, per Paragraph 25.04-2, presenting the claimant's substantiation for the subject Claim, provided that such deadline may be extended by mutual written agreement of the Parties, either Party may, in good faith, notify the other Party in writing that the issuing Party considers progress on towards the resolution of the subject Claim to have irreparably stalled and that all matters regarding the subject Claim that have not previously been finally resolved per the provisions of Paragraph 25.07 are henceforth considered to be denied by default due to the inaction or inability of the Parties to resolve such matters. Such notice shall also serve as a Notice of Final Resolution that is considered effectuated for purposes of the invoking of the Dispute Resolution Process under Article 28 upon the receipt of such notice by the non-issuing Party.

5. A negotiated settlement that resolves all remaining outstanding matters or parts of a subject Claim shall also be considered a Notice of Final Resolution if (i) such settlement clearly states that it is intended to resolve all such outstanding matters or (ii) such settlement is the result of successful mediation per Paragraph 25.06. As such a negotiated settlement is by its nature an agreement of the Parties with respect to the subject Claim, the Dispute Resolution Process is not available to the Parties with respect thereto.

25.09 *Availability of the Dispute Resolution Process:*

1. Upon effectuation of any Notice of Final Resolution of any Claim per the provisions of Paragraph 25.08 above, the Dispute Resolution Process as set forth in Article 28 hereof becomes available to the claimant Party with respect to any part of the subject Claim (including all thereof) that was denied by any means other than within a negotiated settlement per Paragraphs 25.07-3 or 25.08-5, provided that the claimant Party must invoke said Dispute Resolution Process in accordance with the provisions of said Article 28 within 30 days following such effectuation of the subject Notice of Final Resolution.

2. Subsequent to 30 days following said effectuation of any Notice of Final Resolution of any Claim, said Dispute Resolution Process shall no longer be available to be invoked with respect to any denial included in such Claim; nor shall said Dispute Resolution Process be available with respect to any granted part of a Claim nor any part of a Claim resolved by negotiated settlement.

25.10 *Final and Binding Results:*

1. The results of the Claim Process with respect to any subject Claim, or part thereof, shall become binding and final with respect to all matters related to the Contract:
 - a) For parts of the subject Claim that were unilaterally granted by the non-claimant, upon issuance of the subject approval by the non-claimant;
 - b) For parts of the subject Claim that were resolved by negotiated settlement, upon execution of the subject settlement and its incorporation into the Contract Documents by Amendment; and,
 - c) For parts of the subject Claim that were denied and for which the Dispute Resolution Process was not invoked in a timely manner with respect thereto, upon the Dispute Resolution Process ceasing to be available to the claimant with respect thereto.
2. Upon any such results of the Claim Process so becoming binding and final, the same shall be documented within the Contract Documents in a timely manner by means of preparation and issuance of a Change Order where appropriate, or otherwise by other appropriate means.

25.11 *The Engineer's Role:*

1. The Owner shall be responsible to keep the Engineer informed, where the Engineer's role under the Contract Documents remains relevant, of any proceedings with respect to any Claim Process that are related to the Contract Work and for which a Change Order may be forthcoming.
2. The Engineer shall comply in a timely manner with any reasonable request from the Contractor, through the Owner, for copies of Project information in the possession of the Engineer which is not confidential, in the opinion of the Engineer or the Owner, to the relationship of the Engineer and the Owner with respect to the Project and have not previously been provided to the Contractor.
3. The Owner may bring the Engineer into any Claim negotiations as the Owner's representative and professional familiar with the prosecution of the Contract Work and other Contract matters.

ARTICLE 26 - PROGRESS PAYMENTS AND PROJECT COMPLETION

26.01 *Frequency:* At approximate regular intervals, with the default being monthly, agreed upon by the Parties and the Engineer, or as may be otherwise specified in the Contract Documents, the Contractor shall, in accordance with the provisions of this Article 26, prepare and submit to the Engineer an Application for Payment.

26.02 *Form of Application:* The Schedule of Values shall be the basis for all Applications for Payment, and the form of the Applications for Payment shall appropriately reflect this. The form of Applications for payment shall be based on a form provided by the Engineer to the Contractor, or shall be in a form that has been previously submitted to and found acceptable by the Engineer.

26.03 *Application Certificates:*

1. Each Application for Payment shall contain a signed and dated certificate from the Contractor stating that the quantities of Contract Work set forth on the subject Application for Payment, to the best of the Contractor's knowledge, accurately represent the amounts of Contract Work *i)* completed by the Contractor in accordance with the Contract Documents during the stated payment period and for which the Contractor is seeking payment at this time and *ii)* previously included in an Application for Payment from the Contractor but not paid for and for which the Contractor is again seeking payment.
2. Beginning with the third Application for Payment, each Application shall include a certificate from the Contractor stating that all previous progress payments received by the Contractor (at least 15 days prior to the date the subject Application for Payment is submitted to the Engineer) on account of the Contract Work have been appropriately applied on account to discharge the Contractor's legitimate obligations as may be/have been associated with Work included in previous Applications for Payment.

26.04 *Application – Supporting or supplemental information:*

1. Each Application for payment shall include the following supporting or supplemental information, provided that (c) (as applicable) is optional and aspects of (b) may be addressed in accordance with 26.04-2 below:
 - a) Completed forms or other reporting required by Laws or Regulations;
 - b) As may be required by the Contract Documents;
 - c) Itemized identification of Work completed during the subject payment period but not included for payment, including a general reason therefor.
 - d) As requested by the Engineer or as deemed appropriate by the Contractor to substantiate or support the request for payment for any completed Contract Work included therein.
2. Where allowed and as may be applicable, and as is acceptable to the Engineer, supporting or supplemental information required by Laws or Regulations or by the Contract Documents may be submitted on an alternate schedule.
3. Regardless of the particular timing or interval for when due, the timely submittal (in relation to the Owner's associated obligations) of information by the Contractor to the Owner (or some other entity on behalf of the Owner) as may be required by Laws or Regulations for which the Owner has some responsibility regarding the collection, timely submittal, or administration thereof and has been made a requirement by the Contract Documents, and the frequency associated with the Owner's obligations is based on the passage of time or on the Contractor's progress on Contract Work, or has otherwise been specified in the Contract Documents, is a condition precedent to full payment being due the Contractor on any subsequent Application for Payment; and whenever any such submittals for information are past due by reason of nonsubmittal or of nonconformance of any portion of a submittal, the Owner may withhold payment from any subsequent progress payment in a reasonable amount to endeavor to compel compliance for such submittals or information from the Contractor, notwithstanding any other legitimate retainage, deduction, or other withholding as may be applied. Any such withholding amount from a particular progress payment should be set so as to not significantly, under typical circumstances, interfere with the Contractor's ability to pay amounts due on account in association with the subject Work.

4. The actual progress payments made shall be based on the recommendation of the Engineer per Paragraph 26.05, and not on the corresponding Application for Payment from the Contractor. The Application for Payment is prepared and required as a convenience and a means for the Parties and the Engineer to:

- a) Document the opinion of the Contractor with respect to the Contract Work completed, and correspondingly the amount due, at subject points in time;
- b) Serve as a reference and an aid to the Engineer in the review and recommendation process, thereby, amongst other things, helping to speed up the process and to avoid errors or omissions;
- c) To identify and document, in a timely and structured manner, any discrepancies that may exist between the Contractor and the Engineer with respect to the status of the Contract Work;
- d) To document and track any such discrepancies which have not been resolved; and
- e) To identify, document, and track, in a timely and structured manner, any Contract Work that has been completed, or reported to be so, by the Contractor but not included in a request for, or made, progress payment for any reason, which may include as a result of a Work Change Directive for which the corresponding Change Order is pending.

26.05 *Review and Recommendation by the Engineer:*

1. The Engineer will, within 15 days after receipt of each Application for Payment, review the subject Application and either:

- a) Indicate in writing a recommendation of payment, for all or any portion of the amount requested in the subject Application (with allowance for any applicable retainage per Paragraph 26.07), and present the Application to Owner for payment; or,
- b) Return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the corrections as deemed fit thereby and resubmit the Application; and any such resubmittal shall be treated as a new Application.

2. In any case where the Engineer recommends payment for only a portion of the amount requested in a subject Application:

- a) The Engineer shall provide in writing to the Owner and the Contractor his reasoning, itemized as appropriate, for refusal to recommend payment on those applicable portions.
- b) Subsequently (to (a) above), the Contractor may make corrections, adjustments, or otherwise resolve the subject issues with the Engineer and at any time thereafter submit for payment for any or all of the subject refused payment items/amounts either as part of a future regular Application for Payment, or as a special Application for Payment, provided that no more than one special Application for Payment is permitted in the interim between any two regular Applications for Payment. Any special Application for Payment shall be processed in accordance with the provisions of this Article 26.

3. The Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Project Site of the executed Contract Work as an experienced and qualified design professional and on Engineer's

review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a) The Contract Work has progressed to the point indicated;
- b) The quality of the Contract Work is generally in accordance with the Contract Documents (subject to an evaluation of the Contract Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work as may be conducted by the Engineer, and to any other qualifications stated in the recommendation); and,
- c) The conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Contract Work.

4. By recommending any such payment, the Engineer will not thereby be deemed to have represented that:

- a) Inspections made to check the quality or the quantity of the Contract Work as it has been performed have been exhaustive, extended to every aspect of the Contract Work in progress, or involved detailed inspections of the Contract Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or,
- b) That there may not be other matters or issues between the Parties that might entitle the Contractor to be paid additionally by the Owner or entitle the Owner to withhold payment to the Contractor.

5. The Engineer may refuse to recommend payment for any Contract Work associated in a subject Application for Payment if, in the opinion of the Engineer, it would be incorrect to make such recommendation therefor.

6. The Engineer may recommend reductions in payment (set-offs), thereby revising or revoking portions of previously made payments to the Contractor to an appropriate extent due to subsequently available or discovered evidence or otherwise, necessary in the Engineer's opinion to protect the Owner from loss because:

- a) The Contract Work is defective, or completed Contract Work has been damaged, requiring correction or replacement;
- b) The Contract Price has been reduced by Change Orders;
- c) The Owner has been required or elected to correct defective Contract Work or complete Contract Work in accordance with Paragraphs 26.15, 27.02-3(c), or 31.07;
- d) The Owner has been required to remove or remediate a Hazardous Environmental Condition for which the Contractor is responsible; or,
- e) The Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

7. Neither the Engineer's monitoring and review of the Contractor's Work for the purposes of recommending payments nor the Engineer's recommendation of any payment, including final payment, will impose responsibility on the Engineer:

- a) Beyond or above those set forth in Article 22, and including the limitations set forth in Paragraph 22.10 thereof;
- b) To make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price; or,
- c) To determine that title to any of the Contract Work, materials, or equipment has passed to Owner free and clear of any liens.

26.06 **Payment Becomes Due:** **Forty Five** days after presentation of an Application of Payment to the Owner with the Engineer's recommendation, the amount recommended on any such Application will (subject to the provisions of Paragraphs 26.07 and 26.08) become due; and, when due, will be promptly paid by the Owner to the Contractor.

26.07 **Retainage:** Unless otherwise provided for in the Supplemental Contract Provisions or the Contract Agreement, or subsequent written arrangement by the Parties:

1. The Owner may withhold, at its sole discretion, and subject to other provisions of this Paragraph 26.07, up to 5% of progress payments (as allowed by law) due to the Contractor as a security for timely and attentive performance of the Contract Work.
2. The Owner shall keep the Engineer and the Contractor apprised in writing, in a timely manner, of the current rate of retainage being applied to progress payments; and the Engineer shall account for current retainage and track cumulative retainage on each recommendation for progress payment therefrom.
3. Upon the Contractor successfully completing Work and within 30 days of the Engineer approving progress payments in an amount greater than 50% of the Contract Price (and if the current retainage exceeds 2.5%), then Engineer shall perform a written evaluation and recommendation, to be provided to both the Owner and the Contractor, of the performance of the Contractor to date and may, based on such evaluation, recommend therein to the Owner the reduction of the retainage to an amount of not less than 2.5% for future progress payments and to be applied retroactively to payments made. In the event that the recommendation of the Engineer is for no reduction, or for a reduction to a rate greater than 2.5%, then the Engineer shall clearly substantiate the reasons for such recommendation within the evaluation.
4. Upon receipt of the Engineer's said evaluation and recommendation thereby, the Owner shall not unreasonably act counter to said recommendation with respect to retainage, and shall (subject to other provisions herein) make an appropriate reduction in the progress payment retainage (if a reduction is recommended). In the event the Owner elects to reduce the retainage by an amount less than that recommended by the Engineer, then the Owner shall provide the substantiating reason(s) therefore in the written notice required per 26.07-2.
5. Subsequent to receipt by the Owner of the Engineer's said evaluation and recommendation per 26.07-3, any reduction in the progress payment retainage rate to a rate greater than or equal to 2.5% shall be applied retroactively to payments previously made; and the same shall become due the Contractor and paid thereto with the next subsequent progress payment.

6. The Owner may elect to reduce the retainage rate at any time without reason. Except as provided for in 26.07-5, the Owner is only obligated to apply any such reduction to future progress payments, and is not obligated to apply the same retroactively.

7. At any time, if the current retainage rate is less than 5%, the Owner may elect, with reason, to increase the retainage for future progress payments (subject to other provisions of this Paragraph 26.07) to any amount up to 5%. The substantiating reason(s) for any such increase must be stated in the written notice required per Paragraph 26.07-2. Any such increase may not be applied retroactively to payments previously made.

26.08 *Other Reduction in Payment by the Owner:*

1. In addition to, an notwithstanding, any retainage per the provisions of Paragraph 26.07 and any reductions in payment (set-offs) recommended by the Engineer under the provisions of Paragraph 26.05-6, except for any redundancies with respect thereto, the Owner is entitled to impose a set-off against payment based on any of the following:

- a) Claims have been made against the Owner on account of the Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
- b) The Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
- c) The Contractor has failed to provide and maintain required bonds or insurance;
- d) The Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
- e) The Owner has incurred extra charges or engineering costs related to excessive submittal reviews, evaluations of proposed substitutes, failed tests or inspections, or return visits to manufacturing or assembly facilities;
- f) The Work is defective, requiring correction or replacement;
- g) The Owner has been required or elected to correct defective Work in accordance with Paragraph 31.07, or has accepted defective Work pursuant to Paragraph 31.05;
- h) The Contract Price has been reduced by Change Orders;
- i) Liquidated damages have accrued as a result of the Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
- j) An event that would constitute a default by the Contractor and therefore justify a termination for cause has occurred;
- k) Liens have been filed in connection with the Work, except where the Contractor has delivered a specific bond satisfactory to the Owner to secure the satisfaction and discharge of such Liens; or,

- 1) There are other items entitling the Owner to a set-off against the amount recommended.
2. If the Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of the Engineer, the Owner will give the Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. The Owner shall promptly pay the Contractor the amount so withheld, or any adjustment thereto agreed to by the Owner and the Contractor, if the Contractor remedies the reasons for such action. The reduction imposed shall be binding on the Contractor unless it duly requests a Change Order contesting the reduction.
3. If it is subsequently determined that the Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 26.06.

26.09 *Contractor's Warranty of Title:* The Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to the Owner free and clear of (i) all Liens and other title defects, and (ii) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment for the same by the Owner.

26.10 *Substantial Completion:*

1. When the Contractor considers the entire Contract Work ready for its intended use, the Contractor shall notify the Owner and the Engineer in writing that the entire Contract Work is substantially complete and request that the Engineer issue a certificate of Substantial Completion. The Contractor shall at the same time submit to the Engineer and the Owner an initial draft of the punch list items to be completed or corrected before final payment.
2. Promptly after the Contractor's notification, the Owner, the Contractor, and the Engineer shall make an inspection of the Contract Work to determine the status of completion. If the Engineer does not consider the Contract Work substantially complete, the Engineer will notify the Contractor and the Owner in writing giving the reasons therefor.
3. If the Engineer considers the Contract Work substantially complete, the Engineer will deliver to the Owner, with a copy being furnished to the Contractor, a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a punch list of items to be completed or corrected before final payment. The Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to the Engineer as to any provisions of the certificate or attached punch list. If, after considering such objections, the Engineer concludes that the Contract Work is not substantially complete, the Engineer will within fourteen days after submission of the preliminary certificate to the Owner notify the Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If the Owner does not object to the provisions of the certificate, or if despite consideration of the Owner's objections the Engineer concludes that the Work is substantially complete, then the Engineer will, within said 14 days, execute and deliver to the Owner and the Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from the Owner.
4. At the time of delivery of the preliminary certificate of Substantial Completion, the Owner and the Contractor will confer regarding the Owner's use or occupancy of the Work following Substantial Completion. Unless the Owner and the Contractor agree otherwise in writing, the Owner shall bear

responsibility for security, operation, protection of the Work, property insurance, and maintenance upon Owner's use or occupancy of the Work.

5. After Substantial Completion the Contractor shall promptly begin work on the punch list of items, as circumstances, including weather, may allow, to be completed or corrected prior to final payment. In appropriate cases the Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

26.11 *Partial Utilization:*

1. Prior to Substantial Completion of all the Work, the Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which the Owner, the Engineer, and the Contractor agree constitutes a separately functioning and usable part of the Work that can be used by the Owner for its intended purpose without significant interference with the Contractor's performance of the remainder of the Work, subject to the following conditions:

- a) At any time, the Owner may request in writing that the Contractor permit the Owner to use or occupy any such part of the Work that the Owner believes to be substantially complete. If and when the Contractor agrees that such part of the Work is substantially complete, the Contractor, the Owner, and the Engineer will follow the procedures of Paragraph 26.10 for that part of the Work.
- b) At any time, the Contractor may notify the Owner and the Engineer in writing that the Contractor considers any such part of the Work substantially complete and request the Engineer to issue a certificate of Substantial Completion for that part of the Work.
- c) Within a reasonable time after either such request, the Owner, the Contractor, and the Engineer shall make an inspection of that part of the Work to determine its status of completion. If the Engineer does not consider that part of the Work to be substantially complete, the Engineer will notify the Owner and the Contractor in writing giving the reasons therefor. If the Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 26.10 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

26.12 *Final Inspection:* Upon written notice from the Contractor that the entire Work or an agreed portion thereof is complete, the Engineer will promptly make a final inspection with the Owner and the Contractor and will notify the Contractor in writing of all particulars in which this inspection reveals that the subject Work is incomplete or defective. The Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies. Additional Final Inspections shall be conducted as deemed appropriate by the Engineer.

26.13 *Final Payment:*

1. After the Contractor has, in the opinion of the Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Article 17), and other documents, the Contractor may make application for final payment following the procedure for progress payments.

2. In addition to the requirements set forth for progress payments, the final Application for Payment shall be accompanied (except as previously submitted) by:

- a) All documentation as may otherwise be required by the Contract Documents;
- b) Consent of the surety, if any, to final payment;
- c) Satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to the Owner free and clear of any Liens or other title defects, or will so pass upon final payment; and,
- d) A list of all Claims against the Owner that the Contractor believes are unsettled.

3. If on the basis of the Engineer's observation of the Contract Work during construction and final inspection, and the Engineer's review of the final Application for Payment and accompanying documentation, the Engineer is satisfied that the Work has been completed and the Contractor's other obligations under the Contract Documents have been fulfilled, the Engineer will, within fifteen days after receipt of the final Application for Payment, indicate in writing the Engineer's recommendation of payment and present the Application for Payment to the Owner for payment. At the same time the Engineer will also give written notice to the Owner and the Contractor that the Contract Work is acceptable subject to the provisions of Paragraph 26.15. Otherwise, the Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

4. The Contract Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

5. Thirty days after the presentation to the Owner of the final Application for Payment and accompanying documentation, the amount recommended by the Engineer, less any sum Owner is entitled to set off against the Engineer's recommendation, including set-offs allowed under the provisions of Paragraph 26.08-1 with respect to progress payments, will become due and will be paid by the Owner to the Contractor, except that final payment shall not become due until the Contractor has supplied the Owner with a valid instrument of warranty security in accordance with Paragraph 26.16 if so required by the Owner.

26.14 *Waiver of Claims:* The making and acceptance of final payment will constitute:

1. A waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Contract Work appearing after final inspection pursuant to Paragraph 26.12, or as may be associated with the Contractor's general warranty and guarantee as set forth in Paragraph 20.03, or as may be associated with the Contractor's indemnifications as set forth in Paragraph 20.04, as all such indemnification obligations of the Contractor as arise from said Paragraph 20.04 are to survive final payment, or from any other continuing obligations of the Contractor under the Contract Documents; and,
2. A waiver of all Claims by the Contractor against the Owner other than any Claims listed in the Contractor's Application for Final Payment as believed by the Contractor as being unsettled in accordance with Paragraph 26.13-2(d).

26.15 *Correction Period:*

1. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or

by any specific provision of the Contract Documents), herein designated as the “Correction Period”, any Contract Work is found to be defective, or if the repair of any damages to the Project Site, adjacent areas that the Contractor has arranged to use through construction easements or otherwise affected, and other adjacent areas used by the Contractor as permitted by Laws and Regulations, is found to be defective, then the Contractor shall promptly, without cost to the Owner and in accordance with the Owner’s written instructions:

- a) Correct such defective Contract Work;
- b) If any defective Work has been rejected by the Owner, remove it from the Project Site and replace it with Work that is not defective;
- c) Correct the defective repairs to the Project Site or such other adjacent areas; and,
- d) Satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

2. If the Contractor does not promptly comply with the terms of the Owner’s written instructions, or in an emergency where delay would cause serious risk of loss or damage, the Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. The Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

3. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Contract Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

4. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

5. The Contractor’s obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

26.16 *Warranty Security:* Prior to issuance of Final Payment by the Owner, the Contractor shall, unless otherwise waived or altered in writing by the Owner, post with the Owner a warranty security which shall be subject to the following terms:

1. The security shall be in an amount no less than the larger of:
 - a) 5% of the full Contract amount up to \$25,000; or,
 - b) 2.5% of the full Contract amount.
2. The term of the Warranty Security shall cover the entire Correction Period as set forth in Paragraph 25.15 above.

3. The Warranty Security shall serve to protect the Owner, in addition to (jointly or severally) other remedies available per the Contract Documents or Laws and Regulations, during the Correction Period against loss as a result of defective work.

4. The Warranty Security shall be in one of the following forms:

- a) Cash security;
- b) Letter of credit from an institution and in a form acceptable to the Owner;
- c) Security bond in a form acceptable to the Owner and issued by a surety meeting the requirements set forth in Provision 20.01-2 hereof; or,
- d) Other form approved in writing by the Owner.

5. Where the Contractor submits a request for final payment and, prior to the Owner approving such final payment in accordance with the Contract Documents, the Contractor fails or neglects to provide the Warranty Security as designated above, the Owner has the authority and right to hold as such Warranty Security any retainage or other monies due to the Contractor as part of the final payment.

6. The Contractor may at any reasonable time, subject to the terms of this Provision 26.01, convert such Warranty Security to a different acceptable form of security hereunder; and, upon receipt of such acceptable replacement security, the Owner shall, in a timely manner, release the previously held security.

ARTICLE 27 - SUSPENSION OF WORK AND TERMINATION

27.01 *Owner May Suspend Work:* At any time and without cause, the Owner may suspend the Contract Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to the Contractor and the Engineer which will fix the date on which the Contract Work will be resumed. The Contractor shall resume the Contract Work on the date so fixed. Upon request for the same, and if so warranted, the Contractor shall be granted an extension of the Contract Times directly attributable to any such suspension in accordance with applicable provisions of the Contract Documents. The provisions of this Paragraph 27.01 are subject to any provisions in the Supplemental Contract Provisions for winter shutdown, or other such matter where an anticipated or potential suspension is addressed thereby and may be taken into account by the Contractor prior to submitting a Bid.

27.02 *Owner May Terminate for Cause:*

1. The occurrence of any one or more of the following events will constitute default by the Contractor and justify termination for cause:

- a) The Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule as set forth in Article 5.)
- b) The Contractor's disregard of Laws or Regulations of any public body having jurisdiction, including the requirements of any permits issued and in effect under any such Laws or Regulations as may be applicable to the Contract Work or the Contractor's prosecution thereof;

- c) The Contractor's disregard of the authority of the Owner or the Engineer; or,
- d) The Contractor's violation in any material way of any provisions of the Contract Documents.

2. If one or more of the events identified in Paragraph 27.02-1 occur, then after giving the Contractor and surety ten days written notice that the Owner considers the Contractor in material default of the Contract and the Owner is considering termination of the Contract, the Owner may proceed to give the Contractor and surety notice that the Contract is terminated and enforce the rights available to the Owner under any applicable performance bond.

3. Subject to the terms and operation of any applicable performance bond, if the Owner has terminated the Contract for cause, the Owner may:

- a) Exclude the Contractor from the Project Site and take possession of the Contract Work;
- b) Incorporate in the Contract Work all materials and equipment stored at the Project Site or for which the Owner has paid the Contractor but which are stored elsewhere; and,
- c) Complete the Contract Work as the Owner may deem expedient.

4. The Owner may not proceed with termination of the Contract under Paragraph 27.02-2 if the Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

5. If the Owner proceeds, to any extent, as provide in Paragraph 27.02-2, the Contractor shall not be entitled to receive any further payment until the Contract Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by the Owner arising out of or relating to completing the Contract Work, such excess will be paid to the Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, the Contractor shall pay the difference to the Owner. Such claims, costs, losses, and damages incurred by the Owner will be reviewed by the Engineer as to their reasonableness and, when so approved by the Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, the Owner shall not be required to obtain the lowest price for any Work performed thereby.

6. Where the Contractor's services have been so terminated by the Owner, the termination will not affect any rights or remedies of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due the Contractor by the Owner will not release the Contractor from liability.

7. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 20.01, the termination procedures of that bond shall supersede the provisions of Paragraphs 27.02-2 and 27.02-3.

27.03 The Owner May Terminate for Convenience:

1. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

- a) Completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
- b) Expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and,
- c) Other reasonable expenses directly attributable to termination, including costs incurred.

2. The Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

27.04 *Contractor May Stop Work or Terminate:*

1. If, through no act or fault of the Contractor, (i) the Work is suspended for more than 90 consecutive days by the Owner or as may be under an order of court or other public authority, subject to any provisions in the Supplemental Contract Provisions for winter shutdown, or other such matter where an anticipated or potential suspension is addressed within the Contract Documents, or (ii) the Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) the Owner fails for 30 days to pay the Contractor any sum finally determined to be due, then the Contractor may, upon seven days written notice to the Owner and the Engineer, and provided the Owner or the Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from the Owner payment on the same terms as provided in Paragraph 27.03.
2. In lieu of terminating the Contract and without prejudice to any other right or remedy, if the Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or the Owner has failed for 30 days to pay Contractor any sum finally determined to be due, the Contractor may, seven days after written notice to the Owner and the Engineer, stop the Work until payment is made of all such amounts due the Contractor, including interest thereon. The provisions of this Paragraph 27.04-2 are not intended to preclude the Contractor from seeking an adjustment in Contract Price or Contract Times via a Change Order or subsequently making a Claim per Article 25 for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 28 - FINAL DISPUTE RESOLUTION PROCESS

28.01 *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the Dispute Resolution Process as set forth in the provisions of this Article:

1. A timely appeal and invocation of this final Dispute Resolution Process regarding a denial with respect to a Claim, as per the provisions of Article 25 and Paragraph 28.02 below; or,
2. A timely invocation of this final Dispute Resolution Process, as per the provisions of Paragraph 28.02 below, regarding disputes between Owner and Contractor concerning Contract matters as related to Contract Termination or as may arise after final payment has been made.

28.02 *Invocation of the final Dispute Resolution Process:* The final Dispute Resolution Process as set forth in this Article may be validly invoked by the invoking Party notifying the other Party in writing of its intent to seek relief under this final Dispute Resolution Process in a timely manner:

1. With respect to matters covered by 28.01.1 above, as set forth in the Provisions of said Article 25; or,
2. With respect to matters related to Contract Termination, a “timely manner” means such notice must be issued by the non-terminating Party and received by the terminating Party within 30 days subsequent to the termination of the Contract; or,
3. With respect to a dispute which arises after final payment has been made, a “timely manner” means that such notice must be issued by the issuing Party and received by the receiving Party within 30 days subsequent to the day on which the subject disputed event occurs, first occurs, or commences to occur.

28.03 ***Final Resolution of Disputes:*** For any dispute subject to resolution under this Article, the Owner or the Contractor may:

1. If an alternate final dispute resolution process is provided for in the Supplemental Contract Provisions, elect in writing to invoke such alternate final resolution process as provided for therein; or,
2. Agree in writing with the other Party to submit the subject dispute to another dispute resolution process for final resolution; or,
3. If no other dispute resolution process is invoked under Paragraphs 28.03-1 or 28.03-2 above, give written notice to the other Party of the intent to submit the subject dispute to the Connecticut Superior Court – Hartford Judicial District for final resolution.

28.04 ***Claims Process a Condition Precedent:*** In any event or instance where the Claims process as set forth in Article 25 is applicable, then invocation of the full Claims process as provided for under said Article 25 is a condition precedent to the invocation of any final dispute resolution under this Article 28.

SECTION 6 OTHER PROJECT AND CONTRACT MATTERS

ARTICLE 29 - EXISTING CONDITIONS

29.01 ***Existing Subsurface and Physical Conditions:***

1. ***Field Measurements:*** The Contractor shall take all field measurements necessary to assure proper fit of the finished work, and shall assume full responsibility for the accuracy of such measurements.
2. ***Reports and Drawings:*** The Supplemental Contract Provisions may identify (as applicable):
 - a) Those reports known to the Owner of explorations and tests of subsurface conditions at or contiguous to the Project Site;
 - b) Those drawings known to the Owner of physical conditions relating to existing surface or subsurface structures at the Project Site (except Underground Facilities); and,
 - c) Technical Data contained in such reports and drawings.

3. *Reliance by the Contractor on Technical Data Authorized:* The Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplemental Contract Provisions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then the Contractor may rely upon the accuracy of the Technical Data (as defined in Paragraph 1.01-62) contained in any geotechnical or environmental report prepared for the Project and made available to the Contractor. Except for such reliance on Technical Data, the Contractor may not rely upon or make any claim against the Owner or the Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

- a) The completeness of such reports and drawings for the Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by the Contractor, and safety precautions and programs incident thereto; or
- b) Other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- c) Any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

29.02 *Differing Subsurface or Physical Conditions:*

1. *Notice:* If the Contractor believes that any subsurface or physical condition at or contiguous to the Project Site that is uncovered or revealed either:

- a) Is of such a nature as to establish that any Technical Data on which the Contractor is entitled to rely as provided in Paragraph 29.01 is materially inaccurate; or
- b) Is of such a nature as to require a change in the Contract Documents; or
- c) Differs materially from that shown or indicated in the Contract Documents; or
- d) Is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

Then the Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Contract Work in connection therewith (except in an emergency as required by Paragraph 19.06), promptly notify the Engineer by whatever means is available and effective, and subsequently, in a timely manner, the Owner and the Engineer in writing, about such condition. The Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so. The provisions of Paragraph 23.03, as supplemented by Paragraph 11.08-2, shall govern such Work suspension (if any), the Engineer's review, the resumption of Work, any adjustment in Contract Price or Contract Time, and all related matters as provided for therein, provided that, in any case covered by this Paragraph 29.02, it is a condition precedent to the Contractor being due any adjustment in Contract Price or Contract Time that the subject subsurface or physical condition must have met any one or more of the categories set forth in (a) through (d) of this Paragraph above.

29.03 *Underground Facilities:*

1. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Project Site is based on information and data furnished to the Owner or the Engineer by the owners of such Underground Facilities, including the Owner, or by others. Unless it is otherwise expressly provided in the Supplemental Contract Provisions:

- a) The Owner and the Engineer shall not be responsible for the accuracy or completeness of any such information or data; and
- b) The cost of all of the following will be included in the Contract Price, and the Contractor shall have full responsibility for: (i) reviewing and checking all such information and data; (ii) locating all Underground Facilities shown or indicated in the Contract Documents; (iii) coordination of the Work with the owners of such Underground Facilities, including the Owner, during construction; and, (iv) the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Contractor's prosecution of the Contract Work.

2. *Not Shown or Indicated:*

- a) If the Contractor believes that an Underground Facility that is uncovered or revealed at or adjacent to the Project Site was not shown or indicated, or not shown or indicated with reasonable accuracy, in the Contract Documents, then the Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 19.06), identify the owner of such Underground Facility and, in addition to notifying the Engineer per the provisions of 23.03.2, give written notice to that owner and to the Owner and the Engineer.
- b) The provisions of Paragraph 23.03, as supplemented by Paragraph 11.08-2, shall govern such Work suspension, the Engineer's review, the resumption of Work, any Change Order as a result of the situation, including any adjustment in Contract Price or Contract Time, and all related matters as provided for therein, further provided that, in any case covered by this Paragraph 29.03:
- c) The Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in the Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - i) The Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - ii) With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be made on such unit price basis;
 - iii) The Contractor gave all notices as required under this Paragraph 29.03, or under Paragraphs 23.03 or 11.08-2, the foregoing notwithstanding any adjustments in any such equitable adjustment that may be warranted due to other failings of the Contractor to comply with any of the provisions of the Contract Documents with respect to the subject situation.

ARTICLE 30 - HAZARDOUS ENVIRONMENTAL CONDITIONS

30.01 ***Reports and Drawings:*** If the Engineer utilized any reports or drawings relating to a Hazardous Environmental Condition identified at the Project Site in the preparation of the Contract Documents, then the same shall be identified within the Supplemental Contract Provisions.

30.02 ***Limited Reliance by Contractor on Technical Data Authorized:*** The “technical data” from such reports or drawings which the Engineer utilized in the preparation of the Contract Documents, if any, will be identified in the Supplemental Contract Provisions. The Contractor may rely upon the general accuracy of such identified “technical data”, but such reports and drawings are not Contract Documents. Except for such reliance on such identified “technical data,” the Contractor may not rely upon or make any claim against the Owner or the Engineer with respect to:

1. The completeness of such reports and drawings for the Contractor’s purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
2. Other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
3. Any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions or information.

30.03 ***Contractor’s Responsibilities for Hazardous Environmental Conditions:*** The Contractor shall be responsible for a Hazardous Environmental Condition created with any materials or substances brought to the Project Site by the Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible. The Contractor shall not be responsible for removing or remediating any other Hazardous Environmental Condition encountered uncovered or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Contract Work.

30.04 ***Encountering a Hazardous Environmental Condition:*** If the Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Contract Work, or if the Contractor or anyone for whom the Contractor is responsible creates a Hazardous Environmental Condition, the Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) suspend all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 19.06); and (iii) notify the Owner and the Engineer by whatever means may be available and effective (and promptly thereafter confirm such notice in writing). The Owner shall promptly consult with the Engineer concerning the necessity for the Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Where the Contractor has so suspended Contract Work, then the provisions of Paragraph 11.08-2 shall govern the possible relocation of affected labor or equipment to undertake Contract Work elsewhere on the Project Site, (however such Paragraph 11.08-2 shall not govern regarding resumption of the suspended Work, which is addressed in 30.05 below).

30.05 ***Resumption of Suspended Work:*** The Contractor shall not resume Contract Work in connection with such condition or in any affected area until after the Owner has obtained any required permits related thereto and delivered to the Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely.

30.06 **Removal from Project:** If after receipt of such written notice the Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, or if it is otherwise determined by the Owner to be in the interests of the Project or of the Owner, then the Owner may order the portion of the Contract Work that is in the area affected by such condition, and any additional Contract Work for which it is reasonable in the interests of the Project or of the Owner as may be associated with the subject portion of the Contract Work, to be deleted from the Contract Work. The Owner may have such deleted portion(s) of the Work performed by Owner's own forces or others at any time in accordance with Article 32.

30.07 **Contract Changes:** If the Parties cannot agree as to the entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or other change in the Contract Documents, as related to any matter covered by this Article 30, and therefor are not able to issue a bilateral Change Order with respect thereto, then (i) the Engineer shall prepare and the Owner shall execute a unilateral Change Order in accordance with the provisions of Article 23 with respect to the same (if warranted), and subsequent treatment as related to such Change Order shall be as set forth in Articles 23, 24, 25, and 28.

30.08 **Indemnifications With Respect to Hazardous Environmental Conditions:**

1. To the fullest extent permitted by Laws and Regulations, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, and the Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Contract Work, and (ii) was not created or exacerbated, to the extent exacerbated, by the Contractor or by anyone for whom the Contractor is responsible. Nothing in this Paragraph 30.08-1 shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

2. To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner and the Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created or exacerbated, to the extent exacerbated, by the Contractor or by anyone for whom the Contractor is responsible. Nothing in this Paragraph 30.08-2 shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

30.09 **Provisions Not Applicable:** The Provisions of Article 29 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Project Site.

ARTICLE 31 - TESTS; INSPECTIONS; DEFECTIVE WORK

31.01 **Access to Work:** The Owner, the Engineer, their consultants and other representatives and personnel of the Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Project Site and the Contract Work at reasonable times for their

observation, inspecting, and testing. The Contractor shall provide them proper and safe conditions for such access and advise them of the Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

31.02 *Tests and Inspections:*

1. The Contractor shall give the Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
2. The Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 31.03.
3. If Laws or Regulations of any public body having jurisdiction require any Contract Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, the Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish the Engineer the required certificates of inspection or approval.
4. If the Contract Documents require the Work (or part thereof) to be approved by the Owner, the Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
5. The Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required:
 - a) By the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to the Owner;
 - b) To attain the Owner's or the Engineer's acceptance of materials or equipment to be incorporated into the Work;
 - c) By manufacturers of equipment furnished under the Contract Documents;
 - d) For testing, adjusting, and balancing of equipment to be incorporated in the Work; and,
 - e) For acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

6. Uncovering Work to accommodate inspections, tests, or approvals as provided in Paragraph 31.02-5 shall be at the Contractor's expense unless the Contractor has given the Engineer timely notice of the Contractor's intention to cover the same and the Engineer has not acted with reasonable promptness in response to such notice

7. If any Contract Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of the Engineer, the Contractor shall, if requested by the Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless

the Contractor had given the Engineer timely notice of the Contractor's intention to cover the same and the Engineer had not acted with reasonable promptness in response to such notice.

31.03 *Uncovering Work:*

1. The Engineer has the authority to require special inspection or testing of any Contract Work, whether or not such Work is fabricated, installed, or completed.
2. If any Contract Work is covered contrary to the written request of the Engineer, it must, if requested by the Engineer, be uncovered for the Engineer's observation and the covering replaced at the Contractor's expense.
3. If the Engineer considers it necessary or advisable that covered Contract Work be observed by the Engineer or inspected or tested by others, the Contractor, at the Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
 - a) If it is found that the uncovered Work is defective, the Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and the Owner shall be entitled to an appropriate decrease in the Contract Price; and the Owner may request a Change Order for such decrease per Paragraph 23.04.
 - b) If, the uncovered Work is not found to be defective, the Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction; and the Contractor may request a Change Order for the same per Paragraph 23.04-2.

31.04 *Defective Work:*

1. *Contractor's Obligation* - It is the Contractor's obligation to assure that the Contract Work is not defective.
2. *Engineer's Authority* – The Engineer has the authority to determine whether Contract Work is defective and to reject defective Work.
3. *Notice of Defects* – Timely notice of all defective Contract Work of which the Owner or the Engineer has actual knowledge will be given to the Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Paragraph 31.04.
4. *Correction or Removal and Replacement* - Promptly after receipt of notice thereof, the Contractor shall correct all defective Contract Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by the Engineer, remove it from the Project, and replace it with Work that is not defective. The Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others). When correcting defective Contract Work the Contractor shall take no action that would void or otherwise impair the Owner's special warranty and guarantee, if any, on said Contract Work.

5. *Costs and Damages* – In addition to its correction, removal, and replacement obligations with respect to defective Work, the Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines or penalties levied against the Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work or existing improvements of others resulting from defective Work. The Owner, may impose a reasonable set-off per Paragraph 26.08 against payments due to the Contractor at any time subsequent to the Owner incurring any such expenses as a result of defective Work prior to final payment, and, at final payment, if the Owner and the Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work not yet accounted for, then the Owner may impose a reasonable set-off per Paragraph 26.13-5 against the final payment to the Contractor to insure against anticipated future expenses as a result thereof.

31.05 ***Acceptance of Defective Work:*** If, instead of requiring correction or removal and replacement of defective Contract Work, the Owner prefers to accept it, the Owner may, at the Owner's sole discretion, do so. The Contractor shall pay all costs, losses, and damages (including all fees and charges of engineers, architects, attorneys, and other professionals) attributable to the Owner's evaluation of and determination to accept such defective Work (such costs to be approved by the Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by the Contractor. Such costs, losses and damages shall be subject to the provisions of Paragraph 31.04-5 above regarding the imposition of set-offs by the Owner.

31.06 ***Owner May Stop the Work:*** If the Contract Work is defective, or the Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Contract Work in such a way that the completed Work will conform to the Contract Documents, the Owner may order the Contractor to stop the Contract Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Owner to stop the Contract Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of, any of them.

31.07 ***Owner May Correct Defective Work:***

1. If the Contractor fails within a reasonable time after written notice from the Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer or the Owner, or if the Contractor fails to perform the Work in accordance with the Contract Documents, or if the Contractor fails to comply with any other provision of the Contract Documents, the Owner may, after seven days written notice to the Contractor, correct or remedy any such deficiency.

2. In exercising the rights and remedies under this Paragraph 31.07, the Owner shall proceed expeditiously. In connection with such corrective or remedial action, the Owner may exclude the Contractor from all or part of the Project Site, take possession of all or part of the Contract Work and suspend the Contractor's services related thereto, and incorporate in the Contract Work all materials and equipment stored at the Project Site or for which the Owner has paid the Contractor but which are stored elsewhere. The Contractor shall allow the Owner, the Owner's representatives, agents and employees, the Owner's other contractors, and the Engineer and the Engineer's consultant's access to the Project Site to enable the Owner to exercise the rights and remedies under this Paragraph 31.07.

3. All claims, costs, losses, and damages (including all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by the Owner in exercising the rights and remedies under this Paragraph 31.07 will be charged against the Contractor, and a Change Order will be issued incorporating the necessary

revisions in the Contract Documents with respect to the Contract Work; and the Owner shall be entitled to an appropriate decrease in the Contract Price. If the Parties are unable to agree as to the amount of the adjustment, the Owner may issue a unilateral Change Order to cover the same, or, post-final payment, may directly avail the Dispute Resolution Process as set forth in Article 28 in order to be made whole in respect thereto. Such claims, costs, losses and damages will include all costs of repair, or replacement of work or existing improvements of others destroyed or damaged by correction, removal, or replacement of the Contractor's defective Work.

4. The Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 31.07.

ARTICLE 32 - OTHER WORK AT THE PROJECT SITE

32.01 *Other Work:*

1. In addition to and apart from the Contract Work, the Owner, utility companies, or, in the case of a public road, contractors or others working on behalf of private entities, including adjacent property owners, residents, or tenants may perform other work at or adjacent to the Project Site. Any such other work on behalf of the Owner may be performed by Owner's employees, through contracts between the Owner and third parties, or by a utility company as requested by the Owner (though utility companies may also perform work at or adjacent to the Project Site at their own behest).

2. If the Owner performs other work at or adjacent to the Project Site with the Owner's employees, or through contracts for such other work, then the Owner shall give the Contractor written notice thereof prior to starting any such other work. If the Owner has advance information regarding the start or continuation of any utility or private work at or adjacent to the Project Site, Owner shall provide such information to Contractor.

3. The Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, or the Owner, if the Owner is performing other work with Owner's employees, proper and safe access to the Project Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. The Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. The Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that the Contractor may cut or alter others' work with the written consent of the Engineer and the others whose work will be affected.

4. If the execution or results of any part of the Contractor's Work depends upon work performed by others under this Article 32, the Contractor shall inspect such other work and promptly report to the Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of the Contractor's Work. The Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with the Contractor's Work except for latent defects and deficiencies in such other work.

32.02 *Coordination:*

1. If the Owner intends to contract with others for the performance of other work at or adjacent to the Project Site, to perform other work at or adjacent to the Project Site with the Owner's employees, or

to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplemental Contract Provisions or provided to Contractor prior to the start of any such other work:

- a) The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
- b) An itemization of the specific matters to be covered by such authority and responsibility; and,
- c) The extent of such authority and responsibilities.

2. Unless otherwise provided in the Supplemental Contract Provisions or in writing from the Owner to the Contractor, the Owner shall have sole authority and responsibility for such coordination.

32.03 *Legal Relationships:*

1. If, in the course of performing other work at or adjacent to the Project Site for the Owner, the Owner's employees, any other contractor working for the Owner, or any utility owner causes damage to the Contract Work or to the property of the Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Contract Work, through actions or inaction, then the Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. The Contractor must submit any Change Order proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to the Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on the Contractor assigning to the Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. The Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to the Contractor's ability to complete the Contract Work within the Contract Times.

2. The Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of the Owner, any other contractor, or any utility owner performing other work at or adjacent to the Project Site. If the Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then the Owner may impose a set-off against payments due to the Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against the Contractor with respect to the breach of the obligations set forth in this paragraph.

3. When the Owner is performing other work at or adjacent to the Project Site with the Owner's employees, the Contractor shall be liable to the Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by the Owner as a result of the Contractor's failure to take reasonable and customary measures with respect to the Owner's other work. In response to such damage, delay, disruption, or interference, the Owner may impose a set-off against payments due to the Contractor.

4. If the Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Project Site, through the Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of the Contractor's actions, inactions, or negligence in performance of the Contract Work at or adjacent to the Project Site is made by any such other contractor or utility owner against the Contractor, the Owner, or the Engineer, then the Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim

by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless the Owner and the Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 33 - MISCELLANEOUS

33.01 ***Giving Notice:*** Wherever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. Delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or,
2. Delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

33.02 ***Cumulative Remedies:*** The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

33.03 ***Computation of Times:*** When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

33.04 ***Freedom of Information:*** All materials associated with a public bid or this Contract are subject to the terms of the Connecticut Freedom of Information Act (“FOIA”) and all corresponding regulations, rules, and interpretations. The Owner will afford due regard to a written request from the Contractor for the protection of the Contractor’s [substantiated] proprietary or confidential information specifically identified therein. However, the Owner has the unencumbered right to comply with all such applicable requirements, especially as may apply to access to, disbursement of, and use of documents or other information produced or distributed under this Agreement. Where the Contractor indicates that certain documentation is submitted in confidence in accordance with the provisions of Paragraph 33.05, below, the Owner will first review the Contractor’s claim for consistency with the FOIA; and, if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, e.g., CGS §1-210(b)(5)(A-B). The Owner, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is sought pursuant to a FOIA request. Should the Owner withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with Owner in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the Owner have any liability for the disclosure of any documents or information in its possession which the Owner believes are required to be disclosed pursuant to the FOIA or other law. To the extent

that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply and the conflicting provision or part shall not be given effect.

33.05 *Confidential Information of the Contractor:* Requests for the protection of confidential or proprietary information of the Contractor shall be made in writing in to the Engineer or the Owner as may be applicable. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such, which identification should include clearly marking the subject content as “CONFIDENTIAL”. Convincing explanation and rationale sufficient to justify each exemption consistent with the FOIA must accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA.

33.06 *Survival of Obligations:* All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Contract Work or termination or completion of the Contract or termination of the services of the Contractor.

33.07 *Controlling Law:* The Contract shall be governed by, and construed in accordance with, the Laws of the State of Connecticut.

33.08 *Headings:* Section, article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

TOWN OF BLOOMFIELD, CONNECTICUT

SUPPLEMENTAL CONTRACT PROVISIONS

FOR

**McMahon Wintonbury Library
Children's Garden, Site and Parking
Improvements**

Town Bid # 1165

Issued: December 2025

SUPPLEMENTAL CONTRACT PROVISIONS

McMahon Wintonbury Library Children's Garden, Site and Parking Improvements

Public Bid # 1165 Bloomfield, Connecticut

The following provisions amend or supplement the General Conditions or other standard Contract Documents for the Town of Bloomfield project entitled "McMahon Wintonbury Library Children's Garden, Site and Parking Improvements", Town Bid # 1165.

1. **Town Bid Number:** The Project has been assigned Town Bid # 1165; all formal correspondence with respect to the Bid or the Contract should reference said Bid # 1165.
2. **Reference Standards and Specifications:** The following listed publications, as may be amended, are identified reference standards and specifications per Article 7 of the General Conditions:
 - 2.1. Division I, Part 1 (General Requirements and Covenants), Divisions II (Construction Details) and III (Materials Section) of Form 819 with Supplements dated July 2025, as defined in Paragraph 1.01-28 of the General Conditions. An electronic version of this reference document may be obtained from the CTDOT website at: https://portal.ct.gov/dot/business/manuals?language=en_US.
 - 2.2. The 2023 Connecticut Guidelines for Soil Erosion and Sediment Control (also may be referred to as the "CT E&S Guidelines") as published by the Connecticut Department of Energy and Environmental Protection.
 - 2.3. The Manual on Uniform Traffic Control Devices (MUTCD), as published by the Federal Highway Administration.
3. **Base Technical Specifications:** Divisions II (Construction Details) and III (Materials Section) of Form 819, as supplemented through the date of this Bid, and as referenced in Paragraph 2.1 above, serve as the base technical specifications for the Project; and the same are included in the Contract Documents by reference. Provisions of these Divisions of Form 819 may be modified, extended, or superseded by provisions of the Technical Special Provisions (a.k.a. the "Project Technical Specifications"), issued Change Orders, or other such project-specific provisions. Attention is directed to Article 8 of the General Conditions regarding discrepancies in the Contract Documents and the resolution of conflicts therein. Form 819 may also be referred to as the "Standard Specifications" within the Technical Special Provisions; and any reference to the "Standard Specifications" within the Technical Special Provisions shall mean Form 819.
4. **Contractor Insurance Requirements:** The Contractor shall be required to furnish a Certificate of Insurance evidencing the following insurance coverage prior to the execution of the Agreement. Failure

to maintain insurance coverage as required and to name the Town of Bloomfield, Bloomfield Public Libraries, and the State of Connecticut as an Additional Insureds will be grounds for termination of the Contract.

- 4.1. Comprehensive General Liability, including Contractual Liability, Products/Completed Operations Insurance, as applicable, with limits not less than \$1,000,000 for all damages because of bodily injury sustained by each person as the result of any occurrence and \$2,000,000 bodily injury aggregate per policy year and limits of \$1,000,000 for all property damage sustained by each person as a result of any one occurrence and \$2,000,000 property damage aggregate per policy year or a combined single limit of \$2,000,000. All, if any, deductibles are the sole responsibility of the Contractor to pay and/or indemnify.
- 4.2. Automobile Liability Insurance, including non-owned and hired vehicles, in the same limits as indicated in Section 4.1, above.
- 4.3. Workers' Compensation Insurance at the Connecticut statutory limit including Employers' Liability with limits of \$100,000 each accident, \$500,000 for each disease/policy limit, and \$100,000 for disease for each employee.
- 4.4. Excess Liability Umbrella Form over sections 5.1, 5.2, and 5.3-Employers' Liability with limits up to \$2,000,000.
- 4.5. In addition:
 - 4.5.1. The insurance requirements shall apply to all subcontractors and/or subconsultants.
 - 4.5.2. All policy forms shall be on the occurrence form. Exceptions must be authorized by the Town's Risk Manager.
 - 4.5.3. Acceptable evidence of coverage will be on the ACORD form or a form with the same format.
 - 4.5.4. All renewal certificates shall be furnished at least 10 days prior to policy expiration.
 - 4.5.5. Each certificate shall contain a 30-day notice of cancellation.
 - 4.5.6. Insurance shall be issued by an insurance company licensed to conduct business in the State of Connecticut unless approved in advance by the Town's Risk Manager.

5. **Form of Bonds:** The performance and payment bonds as required by the provisions of Paragraph 20.01 of the General Conditions shall be in the form of AIA Document A312™ - 2010 as published by the American Institute of Architects, with the following modifications and stipulations:
 - 5.1. On the payment bond: The following modification shall be added under Section 18: "This Bond is being furnished to the Owner to comply with the requirements of Section 49-41 of the General Statutes of Connecticut.
 6. **Sales Tax Exemption Certificate:** As a convenience for the Contractor, the CT DRS "Contractor's Exempt Purchase Certificate" form is included in the "Non-Town Agency Required Provisions and Forms". The

Contractor's attention is directed to Paragraph 11.15 of the General Conditions regarding sales and use tax.

7. **Prevailing Wages:** In accordance with CGS Sec. 31-53:

- 7.1. 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 said Section 31-53, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement 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.
- 7.2. The Contractor shall submit to the Town on a monthly basis, by a method acceptable to the Town, on or before a day of the month agreed to by the Parties, and completed on the appropriate form promulgated by the CT Department of Labor, a certified payroll in accordance with the provisions of CGS Sec. 31-53(f)(2).
- 7.3. The minimum rates and classifications (i.e. prevailing wages) for the Project, as issued by the CT Department of Labor on **November 18th 2025 under ID# 25-11862**, are included in the "Non-Town Agency Required Provisions and Forms" section of the Project Manual.
- 7.4. Various other notices, brochures, forms (including the certified payroll form referred to in Paragraph 7.2 above), and other information promulgated by the CT Department of Labor with respect to prevailing wage requirements are also included in the "Non-Town Agency Required Provisions and Forms" section of the Project Manual for convenience only. Notwithstanding such inclusion in the Project Manual, the Contractor remains solely responsible for all necessary compliance with applicable requirements of Laws and Regulations.

8. **Town Representative:** The Town Representative on behalf of the Town shall be Glen Garrity, the Assistant Director of Public Works.

9. **Engineer and Project Manager:** The Engineer for the Project shall be the Town of Bloomfield Public Works Department. The Project Manager shall be Glen Garrity, Assistant Director.

10. **Progress Meetings:** Construction progress meetings are anticipated to be conducted by the Engineer on a bi-weekly basis following the preconstruction conference. The regularly scheduled dates and times for such progress meetings will be set at the preconstruction conference. Attendance by appropriate representatives of the Contractor, the Owner, and the Engineer is required at any progress meeting; attendance by others shall be as invited, requested, appropriate, or allowed.

11. **Obtained Permits:** The following permits have been or will be obtained by the Owner prior to issuance of the Notice to Proceed (or as otherwise noted); electronic copies of the obtained permits shall be provided to the Contractor, and will be provided to any prospective bidder upon request.

11.1. Town of Bloomfield Zoning Permit

TOWN OF BLOOMFIELD, CONNECTICUT

PREVAILING WAGE RATES

FOR

McMahon Wintonbury Library
Children's Garden, Site and Parking
Improvements

Town Bid #1165

Minimum Rates and Classifications for
Heavy/Highway Construction

ID#: 25-11862

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: 1165

Project Town: Bloomfield

State#:

FAP#:

Project: McMahon Wintonbury Library Children's Garden, Site and Parking Improvements

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	48.21	30.01
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	43.14	34.74
2) Carpenters, Piledrivermen	42.03	29.19
2a) Diver Tenders	42.03	29.19
2b) Divers Effluent	67.52	29.19
3) Divers	50.49	29.19
03a) Millwrights	43.25	29.13
03b) Carpenter-Welder	42.53	29.19
03c) Carpenter: Working with creosote lumber or acid	43.03	29.19

4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	59.7	26.65
4a) Painters: Brush and Roller	39.57	26.50
4b) Painters: Spray	42.57	26.50
4bc) Painters: Spray Helper	40.57	26.50
4c) Painters: Steel Only	41.57	26.50
4d) Painters: Blast	44.57	26.50
4de) Painter: Blast Helper	40.57	26.50
4e) Painters: Tanks, Tower and Swingstage etc.	41.57	26.50
4f) Elevated Tanks (60 feet and above)	48.57	26.50
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	48.25	35.22+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	45.25	43.62 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	50.58	36.30
----LABORERS---- -		
8) Group 1: General Laborers and concrete specialist	35.7	28.85

8) Group 1a: Acetylene Burners (Hours worked with a torch)	36.7	28.85
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	35.95	28.85
10) Group 3: Pipelayers	36.2	28.85
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	36.2	28.85
12) Group 5: Toxic waste removal (non-mechanical systems)	37.7	28.85
13) Group 6: Blasters	37.45	28.85
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	38.7	28.85
Group 8: Traffic control signalmen	21.42	28.85
Group 9: Hydraulic Drills	36.45	28.85
Group 10: Toxic Waste Removers A or B With PPE	38.7	28.85
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	37.93	28.85 + a
13b) Brakemen, Trackmen, Miners' Helpers and all other men	36.96	28.85 + a

----CLEANING, CONCRETE AND CAULKING TUNNEL----

14) Concrete Workers, Form Movers, and Strippers 36.96 28.85 + a

15) Form Erectors 37.29 28.85 + a

---ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers, Miners Helpers 36.96 28.85 + a

17) Laborers Topside, Cage Tenders, Bellman 36.85 28.85 + a

18) Miners 37.93 28.85 + a

---TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ---

18a) Blaster 44.42 28.85 + a

19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders 44.22 28.85 + a

20) Change House Attendants, Powder Watchmen, Top on Iron Bolts 42.24 28.85 + a

21) Mucking Machine Operator, Grout Boss, Track Boss 45.01 28.85 + a

----TRUCK DRIVERS----(*see note below)

Block Truck 37.48 32.68 + a

2 Axle	36.16	32.68 + a
Helpers	34.66	32.68 + a
Three Axle Trucks; Two Axle Mixer	36.27	32.68 + a
Three Axle Mixer	36.33	32.68 + a
Four Axle Trucks	36.39	32.68 + a
Four Axle Mixer	37.19	32.68 + a
5 Axle	36.39	32.68 + a
5 Axle Mixer	37.19	32.68 + a
Heavy Duty Trailer (40 tons and over)	38.66	32.68 + a
Heavy Duty Trailer (up to 40 tons)	37.39	32.68 + a
Snorkle Truck	36.54	32.68 + a
Swivel Dump and Tack Truck	36.39	32.68 + a
Euclids and Semi Trailer	36.44	32.68 + a

----POWER EQUIPMENT OPERATORS----

Group 1: Crane Handling or Erecting Structural Steel or Stone, Hoisting Engineer (2 drums or over). (Trade License Required)	58.19	29.80 + a
Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and over.	53.33	29.80 + a
Group 2: Cranes (100 ton rate capacity and over); Bauer Drill/Caisson. (Trade License Required)	57.78	29.80 + a
Group 2a: Cranes (under 100 ton rated capacity).	56.79	29.80 + a
Group 2b: Excavator over 2 cubic yards; Pile Driver (\$3.00 premium when operator controls hammer).	52.92	29.80 + a
Group 3: Excavator; Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	51.92	29.80 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper).	51.42	29.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" mandrel)	50.63	29.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	50.63	29.80 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	50.22	29.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under Mandrel)	49.77	29.80 + a

Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	49.25	29.80 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder), Vacuum Excavation Truck and Hydrovac Excavation Truck (27 HG pressure or greater).	48.67	29.80 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	45.96	29.80 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	45.96	29.80 + a
Group 12: Wellpoint Operator.	45.87	29.80 + a
Group 13: Compressor Battery Operator.	45.12	29.80 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	43.6	29.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	43.06	29.80 + a
Group 16: Maintenance Engineer.	42.2	29.80 + a
Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator., Portable Grout Plant Operator, Portable Water Filtration Plant Operator.	47.91	29.80 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	44.7	29.80 + a
Surveyor: Chief of Party	48.16	29.80 + a
Surveyor: Assistant Chief of Party	44.41	29.80 + a

Surveyor: Instrument Man	42.73	29.80 + a
Surveyor: Rodman or Chairman	36.78	29.80 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

20) Lineman, Cable Splicer, Technician	59.91	34.00
21) Heavy Equipment Operator	53.92	31.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	50.92	30.84
23) Driver Groundmen	44.93	28.47
23a) Groundman Experienced	32.95	13.99

----OUTSIDE LINE CONSTRUCTION----

24) Driver Groundmen	43.78	28.42
25) Groundmen	32.1	13.95
26) Heavy Equipment Operators	52.53	31.83
27) Linemen, Cable Splicers, Dynamite Men	58.37	33.94

28) Material Men, Tractor Trailer Drivers, Equipment Operators	49.61	30.79
29) Technician	56.12	32.85

----COMMUNICATION----

Sales & Service Technician: To include but not limited to: Installation, Repair, Splicing and Maintenance	48.84	18.07
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----DREDGING----

Class A1: Mechanical Dredge Operator	48.48	17.32+a+b
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Class B1: Maintenance Engineer	41.93	16.87+a+b
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Class C1: Mate/Welder	38.38	16.62+a+b
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Class D: Deckhand	30.86	16.09+a+b
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Welders: Rate for craft to which welding is incidental.

Surveyors: Hazardous material removal: \$3.00 per hour premium.

*Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.

**Note: Hazardous waste premium \$3.00 per hour over classified rate.

Truck Drivers: Trainers Premium: \$3.00 over wage rate.

Truck Drivers: Night Premium - Mixer Drivers: \$2.00 over wage rate.

Crane with 150 ft. boom (including jib) - \$1.50 extra
 Crane with 200 ft. boom (including jib) - \$2.50 extra
 Crane with 250 ft. boom (including jib) - \$5.00 extra
 Crane with 300 ft. boom (including jib) - \$7.00 extra
 Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

--Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work

--

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page:

www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

--Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

**AGREEMENT
BETWEEN TOWN OF BLOOMFIELD AND CONTRACTOR
FOR PUBLIC CONSTRUCTION CONTRACT**

THIS AGREEMENT is by and between the **TOWN OF BLOOMFIELD**, a chartered municipality under the statutes of the State of Connecticut, acting herein by its Town Manager, Alvin D. Schwapp, Jr., duly authorized, and ****SOME CONSTRUCTION COMPANY**** ("Contractor"), a Connecticut Corporation, acting herein by ****Some Officer****, its ****Office Held****, duly authorized. The Town of Bloomfield and the Contractor agree as follows:

ARTICLE 1 – CONTRACT WORK

1.01 The Contractor shall complete all Contract Work as specified or indicated in the Contract Documents for the Project, entitled "*McMahon Wintonbury Library Children's Garden, Site and Parking Improvements*", Bid No. 1165.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Contract Work under the Contract Documents is a part, is generally described as follows: installation of a Children's Graden area with a "Perk E Pave" porous flexible pavement surface, play equipment, seating and ornamental details, fencing, replacement of the existing parking lot, installation of a new drainage system, new concrete sidewalks, minor grading, landscaping, and other incidental work.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by TSKP Studio, LLC in collaboration with the Town of Bloomfield Public Works Department.

3.02 The Town of Bloomfield Assistant Director of Public Works ("Engineer") is to act as the Town of Bloomfield's representative, assume all duties and responsibilities, and have the rights and authority assigned to the Engineer in the Contract Documents in connection with the completion of the Contract Work in accordance with the Contract Documents. More particular information regarding the Engineer as a business entity and its primary Project representative is provided in the Supplemental Contract Provisions.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 **Contract Times: Days*

A. The Contract Work will be substantially completed within one hundred seventy five (175) calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.08 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 26.13 of the General Conditions.

4.03 *Liquidated Damages*

A. The Contractor and the Town of Bloomfield recognize that time is of the essence as stated in Paragraph 4.01 above and that the Town of Bloomfield will suffer financial and other losses if the Contract Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The Parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the Town of Bloomfield if the Contract Work is not completed on time. Accordingly, instead of requiring any such proof, the Town of Bloomfield and the Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: The Contractor shall pay the Town of Bloomfield five hundred dollars (\$500.00) for each calendar day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

ARTICLE 5 – CONTRACT PRICE

5.01 The Town of Bloomfield shall pay the Contractor for completion of the Contract Work, as contemplated by the Parties at the Effective Date of this Agreement, in accordance with the Contract Documents the amounts that follow:

For all Contract Work, subject to any adjustments under the Contract, a lump sum of:

\$ _____.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. The Contractor shall submit Applications for Payment in accordance with Article 26 of the General Conditions. Applications for Payment will be processed by the Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. The Town of Bloomfield shall make progress payments on account of the Contract Price on the basis of the Contractor's Applications for Payment, and may withhold retainage as associated therewith, in accordance with said Article 26 of the General Conditions and other applicable provisions of the Contract Documents.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Contract Work in accordance with Paragraph 26.13 of the General Conditions, the Town of Bloomfield shall pay the remainder of the Contract Price as recommended by the Engineer as provided in said Paragraph 26.13.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of ZERO percent (0%) per annum.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

8.01 In order to induce the Town of Bloomfield to enter into this Contract, the Contractor makes the following representations:

- A. The Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
- B. The Contractor has visited the Project Site, conducted a thorough, alert visual examination of the Project Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Project Site conditions that may affect cost, progress, and performance of the Contract Work.
- C. The Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Contract Work.
- D. The Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Project Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Project Site that have been identified in the Supplemental Contract Provisions, if any, especially with respect to any Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions at or adjacent to the Site that have been identified in the Supplemental Contract Provisions, if any, especially with respect to Technical Data in such reports and drawings.
- E. The Contractor has considered the information known to the Contractor itself; information commonly known to contractors doing business in the locality of the Project Site; information and observations obtained from visits to the Project Site; the Contract Documents; and the Project Site-related reports and drawings included or identified in the Contract Documents, if any, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Contract Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by the Contractor; and (3) the Contractor’s safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraphs of this Paragraph 8.01, the Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Contract Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. **The Contractor is aware of the general nature of work, if any, to be performed by the Town of Bloomfield or others at the Project Site that relates to the Contract Work as indicated in the Contract Documents.
- H. The Contractor has given the Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that the Contractor has discovered in the Contract Documents to date, and the written resolution thereof by the Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Contract Work.
- J. The Contractor’s entry into this Contract constitutes an incontrovertible representation by the Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Contract Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement (pages CA-1 to CA- 7, inclusive).
2. Performance bond
3. Payment bond
4. Project Manual – (see Table of Contents).
 - a. Invitation to Bid
 - b. Bid Instructions and Information
 - c. General Conditions.
 - d. Supplemental Contract Provisions.
 - e. State of Connecticut Prevailing Wage Rates.
 - f. Notices to Contractor
 - g. Project Technical Specifications
5. Improvement Plans for Bid consisting of 22 sheets as listed on the Drawing List of the Cover Sheet bearing the Project name and location, and dated August 25, 2025.
6. Exhibits to this Agreement (enumerated as follows):
 - a. The Contractor's Bid Submittal Package consisting of: (i) the completed Bidder Qualifications Statement (pages) and (ii) the Contractor's submitted Bid (pages BF-1 to BF- , inclusive).
7. The following which may be delivered or issued on or after the Effective Date of the Contract (and are not attached hereto):
 - a. Notice to Proceed.
 - b. Schedule of Values.
 - c. Work Change Directives.
 - d. Change Orders.
 - e. Field Orders.
 - f. Amendments to this Agreement duly executed by both Parties.

B. The documents listed in Paragraph 9.01.A are incorporated in this Agreement by reference, *except that the "Bid Instructions and Information" document is not a part of the Contract Documents or this Agreement. Any bonds or exhibits listed therein are attached to this Agreement.

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

E. The provisions of the Contract Documents shall govern in all matters relating to this Agreement.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplemental Contract Provisions.

10.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

A. The Town of Bloomfield and the Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the Town of Bloomfield and the Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Hold Harmless*

A. The **[contractor]** ("Indemnifying Party") agrees to indemnify, defend, and hold harmless Town of Bloomfield ("Indemnified Party"), its officers, directors, employees, agents, successors, and assigns from and against any and all claims, liabilities, damages, losses, costs, expenses, and legal fees (including reasonable attorney's fees) arising out of or related to:

1. Any breach of this Agreement by the Indemnifying Party;
2. Any negligent, reckless, or intentional acts or omissions by the Indemnifying Party, its employees, agents, or subcontractors;
3. Any injury (including death) or damage to persons or property caused by the Indemnifying Party's performance or failure to perform under this Agreement;
4. Any violation of laws, regulations, or third-party rights by the Indemnifying Party.

This hold harmless provision shall survive the termination or expiration of this Agreement. However, this clause shall not apply to any claims, damages, or liabilities arising solely from the Indemnified Party's negligence or willful misconduct.

10.06 *Contractor's Certifications*

A. The Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
2. "Fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of the Town of Bloomfield, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive the Town of Bloomfield of the benefits of free and open competition;
3. "Collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of the Town of Bloomfield, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.07 *Other Provisions*

A. This Agreement form is a modified version of the EJCDC® C-520 template document (2013), and the General Conditions is a or is based in part on excerpts from the EJCDC® C-700 template document (2002), both Copyright© by the National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. Those portions of the text that originated in copyrighted EJCDC® documents remain subject to the copyright. If so requested, the Town of Bloomfield will provide the Contractor with a documentation of the modifications made to either EJCDC® template document.

IN WITNESS WHEREOF, Town of Bloomfield and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

TOWN OF BLOOMFIELD:

By: _____

Title: _____

Attest: _____

Title: _____

Address for giving notices:

CONTRACTOR:

By: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Title: _____

Address for giving notices:

License No.:

(where applicable)

NOTICE TO CONTRACTOR – HOURS OF OPERATION AND LIBRARY COORDINATION

Please be advised of the following operational hours for McMahon Wintonbury Library during the construction period. All contractors are required to schedule construction activities with consideration for these hours to minimize disruption to library staff and patrons.

Current Library Hours (Subject to Change)

- Monday through Thursday: 10:00 AM – 8:00 PM
- Friday: 10:00 AM – 5:00 PM
- Saturday: 10:00 AM – 2:00 PM
- Sunday: Closed

Construction Activity Requirements:

1. **High-Impact Work:** Activities generating significant noise, vibration, or dust (including but not limited to jackhammering, heavy machinery operation, demolition, or core drilling) must be conducted outside of library operating hours whenever feasible.
2. **During Operating Hours:** If construction work must occur while the library is open, contractors shall:
 - Limit activities to low-noise tasks if possible.
 - Maintain clear and safe pathways for library patrons and staff
 - Provide adequate access to the building including signage and barriers to ensure public safety.
 - Coordinate with library management on an ongoing basis and provide at least 48 hours' notice for activities that will disrupt library operations.
3. **Peak Hours:** Exercise particular caution during peak library usage times, typically weekday afternoons and evenings (3:00 PM – 7:00 PM).
4. **Access and Egress:** Ensure all library entrances remain accessible during operating hours. Temporary closures of entrances must be approved by the project manager and coordinated with library staff in advance.
5. **Coordination:** All contractors must check in with the project manager and library administration before beginning daily work activities.

Failure to comply with these requirements may result in work stoppages. Your cooperation in maintaining a safe and welcoming environment for library users is greatly appreciated.

Coordination contacts:

Glen Garrity

Assistant Director of Public Works/Capital Project Manager

Ggarrity@bloomfieldct.gov

Office 860-769-3576

Cell: 860.626.3478

Carol Walters

Library Manager

Cwalters@libraryconnection.info

Office 860-242-0041

Alt. 860-243-9721

Elizabeth Lane

Library Director

Elane@libraryconnection.info

Office 860-243-9721

Acknowledgment Required: Please sign and return a copy of this notice to confirm receipt and understanding.

Contractor/Company Name: _____

Authorized Signature: _____ Date: _____

NOTICE TO CONTRACTOR – TOWN OF BLOOMFIELD DISCLAIMER

Town of Bloomfield bidding and other information and documents which are obtained through the Internet, World Wide Web Sites or sources other than the Official Town of Bloomfield website are not to be construed to be official information for the purposes of bidding or conducting other business with the Town.

It is the responsibility of each bidder and all other interested parties to obtain all bidding related information and documents from official sources within the Town.

Persons and/or entities which reproduce and/or make such information available by any means are not authorized by the Town to do so and may be liable for claims resulting from the dissemination of unofficial, incomplete and/or inaccurate information.

**NOTICE TO CONTRACTOR – SEQUENCE OF OPERATIONS FOR
TREE PLANTING AND POROUS FLEXIBLE PAVING INSTALLATION**

The contractor is hereby instructed to install the two (2) Shademaster Honey locust trees, located in the Porous Flexible Paving area, as soon as possible after commencement of work. The contractor is further instructed to install the Porous Flexible Paving as late in the contract as possible. This will allow the greatest amount of time for settlement of backfill material around the proposed trees in the Porous Flexible Paving area. There will be no additional payment for this work.

NOTICE TO CONTRACTOR - PROTECTION OF UNDERGROUND UTILITIES

The Contractor is hereby instructed to follow established "Call Before You Dig" procedures.

The Contractor is hereby advised that placement of heavy equipment and materials or the traversing of heavy construction equipment over underground utilities which might be damaged shall be reviewed and approved by the Engineer.

The Contractor shall consider in his/her bid any inconvenience and work required for this condition. The work to repair or replace any damage caused by the Contractor's operations will be made solely at the Contractor's expense.

NOTICE TO CONTRACTOR - LIST OF CONTACTS OF UTILITY PERSONNEL

Prior to the commencement of construction, the Contractor shall coordinate, as needed, with the Utility Companies identified below.

Cable TV

Comcast of Connecticut, Inc

Mr. Christopher Simeone,
Construction Manager CT/NY
222 New Park Drive
Berlin, CT 06037

PHONE: EXT: Mobile: 860-491-6701

E-MAIL: christopher_simeone@cable.comcast.com

Special Instructions: CC on all correspondence: ryan_menard@cable.comcast.com : Map

Requests To: nediv_wneconstructionsintake@comcast.com

Utility Ownership: Privately owned

Communication

The Southern New England Telephone Company dba Frontier Communications of Connecticut

Ms. Lynne DeLucia,
Manager - Engineering & Construction
1441 North Colony Road
Meriden, CT 06450-4101

PHONE: (203) 238-5000 EXT: Mobile: 860-967-4389

E-MAIL: Lynne.m.delucia@ftr.com

Special Instructions: Map Requests: FTR-CT-MAPREQUEST@ftr.com

Utility Ownership: Privately owned

Electric Distribution

The Connecticut Light and Power Company dba Eversource Energy - Electric Distribution

Mr. Mark Bonjuklian,
Manager - Distribution Projects and Programs
9 Tindall Avenue
Norwalk, CT 06851

PHONE: 203-845-3456 EXT: Mobile:

E-MAIL: mark.bonjuklian@eversource.com

Special Instructions: Select this link for Eversource Energy map requests:

<https://portal.ct.gov/-/media/DOT/documents/dutilities/Eversource-Energy-Process-to-request-mapping.pdf>

Utility Ownership: Privately owned

Gas

Connecticut Natural Gas Corporation

Mr. Jonathan Gould,
Gas Engineer
76 Meadow Street
Hartford, CT 06108
PHONE: (860) 727-3044 EXT: Mobile:
E-MAIL: jgould@ctgcorp.com
Special Instructions:
Utility Ownership: Privately owned

Water and Sanitary Sewer

Metropolitan District

Mr. Richard Norris,, P.E.
Project Engineer / Utility Liaison
555 Main Street, P.O. Box 800
Hartford, CT 06142-0800
PHONE: (860) 278-7850 EXT: 3450 Mobile:
E-MAIL: rnorris@themdc.com
Special Instructions:
Utility Ownership: Cooperatively owned

Storm Sewer

Town of Bloomfield

Mr. Robert Trottier, P.E.
Town Engineer
21 Southwood Drive
Bloomfield, CT 06002
PHONE: (860) 769-3587
E-MAIL: rtrottier@bloomfieldct.gov

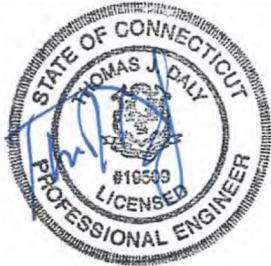
SPECIFICATIONS



for
BLOOMFIELD PUBLIC LIBRARY
McMAHON WINTONBURY LIBRARY

**CHILDREN'S GARDEN, SITE AND PARKING
IMPROVEMENTS**

1015 BLUE HILLS AVENUE
BLOOMFIELD, CT 06002



08/22/2025

Bid #1165 McMahon Wintonbury Library Children's Garden, Site and Parking improvements

BLOOMFIELD PUBLIC LIBRARY - MCMAHON WINTONBURY LIBRARY RENOVATIONS

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DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

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DIVISION 10

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DIVISION 11 - EQUIPMENT

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Site and Infrastructure Subgroup

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312100	EARTHWORK (UTILITIES)	8

DIVISION 32 - EXTERIOR IMPROVEMENTS

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321243	POROUS FLEXIBLE PAVING	8
321313	CONCRETE PAVING	14
321613	CURBING	4
321713	PARKING BUMPERS	2
321723	PAVEMENT MARKINGS	2
323113	CHAIN LINK FENCES AND GATES	8
323119	METAL PICKET FENCES AND GATES	6
323300	SITE FURNISHINGS	6
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Bid #1165 McMahon Wintonbury Library Children's Garden, Site and Parking improvements

BLOOMFIELD PUBLIC LIBRARY

MCMAHON WINTONBURY LIBRARY RENOVATIONS

SECTION 015713 – TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods or services referenced in or related to this Section shall also be bound by the Documents identified in Division 01 Section "Summary", Paragraph 1.1A, entitled "Related Documents."

1.02 EROSION AND SEDIMENTATION CONTROL

A. General

- 1. The Contractor shall be totally responsible for protection of any lands or properties as may be subject to any effect or by-product of his demolition/construction effort. Special care shall be taken to avoid erosion of fill or cut slopes onto adjacent property or downstream siltation or diversion of existing surface drainage. Any damage is to be corrected immediately.
- 2. Erosion control measures in the locations shown and as detailed and described in the plans, shall be considered minimum requirements and the Contractor shall take whatever other erosion and sedimentation control steps that are necessary to accommodate his particular construction procedures.
- 3. Erosion control construction shall be done prior to the commencement of demolition, site preparation or earthwork operations. The Contractor shall install any additional protective measures as may be required to control siltation from the site.

B. Materials

1. Silt Fence

- a. Silt Fence Fabric: Conform to Article M.08.01-26 of Form 818. The fabric must be recommended, by the manufacturer, for use as silt fencing. It shall be a minimum of 30" high and fastened to posts.
- b. Posts: Provide hardwood or metal posts of the size shown in the plans and of sufficient strength to support the filter fabric.

2. Straw hay bales for catch basin protection.

C. Erosion Control Lining

1. As specified in the plans

D. Installation

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1. Silt Fence:

- a. Install silt fences in the locations shown in the plans.
- b. Drive the support posts firmly into the ground so as to maintain the silt fence in position.
- c. Attach the filter fabric firmly to the stakes with the bottom edge of the fabric buried in a trench.

2. Erosion Control Lining:

- a. Install erosion control lining on all exposed cut/fill slopes to protect against rainfall and wind erosion and hold moisture content to enhance vegetation growth in seed where shown in the plans.
- b. Install erosion control lining in the required locations immediately after the area has been seeded.
- c. Place the erosion control lining over the seed mulch to fit against the contours of the area. It shall be applied without stretching, lie smoothly but loosely, and be free of wrinkles and bunches. Roll the material in place and in the direction of the flow of surface water. Anchor the up-grade end of the erosion lining in a narrow trench 6" deep. Firmly tamp the trench backfill in place.
- d. In ditches and on slopes, provide check or junction slots at no greater than 50' intervals.
- e. Where the erosion lining comes into contact with the edges of catch basins or other structures, place a tight fold in the edge of the material and bury it a minimum of 6" into the soil.
- f. Install staples no more than 6" apart at all anchor, junction or check slots.
- g. Where two lengths of erosion control lining are joined, the end of the upgrade strip shall overlap the downgrade by a minimum of a 6" strip and the two strips shall be anchored together.

3. Catch Basins:

- a. Existing catch basins shall be wrapped with filter fabric and ringed with hay bales.
- b. Proposed catch basins and yard drains shall be wrapped and ringed with hay bales promptly after installation.

E. Maintenance and Cleaning

1. General: All temporary erosion and sedimentation control devices shall be maintained and cleaned as required from the time of their installation until their final removal. Permanent erosion control devices shall be maintained and cleaned as required until their final acceptance.

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2. Erosion Control Supervisor:

- a. The Contractor shall name one individual as his sediment and erosion control supervisor whose responsibility will be maintenance and repair of all on-site erosion and control measures. He will keep a daily log of his activities and an updated schedule of proposed construction activities. The log shall be made available to the local authority as well as any State/Federal Inspectors.
3. Silt Fences: Remove silt as required to maintain the integrity of silt fences. If required, remove the silt fence completely and remove all accumulated silt, then reinstall.
4. Erosion Control Lining: The Contractor shall maintain and protect the outlined areas until such time as the turf grass is established. The Contractor shall replace or repair all erosion control lining areas damaged by fire, water or other causes including construction operations.

F. Removal and Cleanup

1. At the end of construction, when turf is established, remove and legally dispose of, off site, all non-permanent erosion control devices and restore the damaged areas. Leave the site neat and clean.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 015713

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SECTION 061063 - EXTERIOR ROUGH CARPENTRY

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.

1.2 SUMMARY

- A. Section Includes:

- 1. Wood pergola structure.

- B. Related Requirements:

- 1. Section 321243 "Porous Flexible Paving" for coordination and sequencing of pergola and porous paving installations.

1.3 DEFINITIONS

- A. Boards: Lumber of less than 2 inches nominal (38 mm actual) in thickness and 2 inches nominal (38 mm actual) or greater in width.
- B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.
- C. Timber: Lumber of 5 inches nominal (114 mm actual) or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pine Inspection Bureau.
 - 5. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

- A. Product Data: For preservative-treated wood products. Include chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
- A. Shop Drawings:
 - 1. Include plans, elevations, sections, details, and attachments to other work.

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2. Include accessories, hardware, fittings and fasteners.
- B. Delegated-Design Submittal: For structural performance of wood pergola structure, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates:
 1. For preservative-treated wood products. Indicate type of preservative used and net amount of preservative retained. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project Site.
 - B. Certificates of Inspection: Issued by lumber grading agency for exposed wood products not marked with grade stamp.
 - C. Evaluation Reports: For preservative-treated wood products, from ICC-ES.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials under cover and protected from weather and contact with damp or wet surfaces. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined below, to design framework and foundations for wood pergola structure.
 1. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the 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 similar in material, design, and extent to those indicated for this Project.

2.2 LUMBER, GENERAL

- A. Comply with DOC PS 20 and with grading rules of lumber grading agencies certified by ALSC's Board of Review as applicable. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by ALSC's Board of Review.
 1. Factory mark each item with grade stamp of grading agency.
 2. For items that are exposed to view in the completed Work, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.

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3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry wood products.
4. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content:

1. Boards: 15 percent.
2. Dimension Lumber: 15 percent 19 percent.
3. Timber. 19 percent.

2.3 LUMBER

- A. Hand select wood for each component of pergola for freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot holes, shake, splits, torn grain, and wane.
- B. Dimension Lumber: Select Structural grade and the following species:
 1. Western Red Cedar.
- C. Boards:
 1. Western red cedar, Grade A; NLGA, WCLIB, or WWPA.

2.4 POSTS

- A. Dimension Lumber Posts: Grade A; NLGA, WCLIB, or WWPA.
 1. Western Red Cedar.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated, acceptable to authorities having jurisdiction, and that comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.
 1. Use stainless steel unless otherwise indicated.
- B. Nails: ASTM F1667.
- C. Power-Driven Fasteners: ICC-ES AC70.
- D. Wood Screws and Lag Screws: ASME B18.2.1, ASME B18.6.1, or ICC-ES AC233.
- E. Carbon-Steel Bolts: ASTM A307 (ASTM F568M) with ASTM A563 (ASTM A563M) hex nuts and, where indicated, flat washers all hot-dip zinc coated.

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- F. Stainless Steel Bolts: ASTM F593, Alloy Group 1 or 2 (ASTM F738M, Grade A1 or Grade A4); with ASTM F594, Alloy Group 1 or 2 (ASTM F836M, Grade A1 or Grade A4) hex nuts and, where indicated, flat washers.
- G. Postinstalled Anchors: Stainless steel, chemical or torque-controlled expansion anchors with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing according to ASTM E488, conducted by a qualified independent testing and inspecting agency.
 - 1. Stainless steel bolts and nuts complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2 (ASTM F738M and ASTM F836M, Grade A1 or Grade A4).

2.6 METAL ACCESSORIES

- A. Simpson Strong-Tie Concealed post tie type CPT88Z, stainless steel, Type 316.

2.7 CONCRETE FOR FOOTINGS

- A. Conform to Form 819 Article M.03.02, PCC03340.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that pergola post footings have been installed at the correct locations and elevations as indicated in the Drawings.

3.2 INSTALLATION

- A. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit work to other construction; scribe and cope as needed for accurate fit.
- B. Framing Standard: Comply with AF&PA WCD1 unless otherwise indicated.
- C. Install metal framing anchors to comply with manufacturer's written instructions.
- D. Do not splice structural members between supports unless otherwise indicated.
- E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- F. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of members or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

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G. Securely attach exterior rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. "Fastening Schedule" in ICC's International Building Code.

END OF SECTION 061063

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SECTION 101401 – SITE SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods or services referenced in or related to this Section shall also be bound by the Documents identified in Division 01 Section "Summary", Paragraph 1.1A, entitled "Related Documents."

1.2 SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show fabrication and installation details for signs and posts.

1.3 SUMMARY

- A. This Section includes the following:
 - 1. 'Stop' signs
 - 2. 'Do not enter' signs
 - 3. 'One-Way' signs
 - 4. 'Lane Use' signs
 - 5. 'Keep Right' signs
 - 6. 'Accessible Parking' signs
 - 7. 'Van Accessible' signs
 - 8. 'School Crossing' signs
 - 9. 'Student Pick-Up and Drop-Off Only' signs
 - 10. 'Visitor and Student Pick-Up Drop-Off' signs
 - 11. 'No Parking Here to Corner' signs
 - 12. 'Bus Lane School Buses Only' signs
 - 13. 'Staff Parking' signs
 - 14. 'Staff Parking/Pickup and Drop-Off' signs
 - 15. 'No Parking – Emergency Access Only' signs
 - 16. All sign posts and mounting hardware

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1.4 DEFINITIONS

- A. ADA-ABA Accessibility Guidelines:** U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:** Comply with applicable provisions of the Standard Specifications Form 818.

PART 2 - PRODUCTS

2.1 MATERIALS

A. 'Stop' Signs: Shall conform to State of Connecticut Department of Transportation "Specifications for Roads, Bridges, Facilities and Incidental Construction" 2020 edition and latest supplements, Form 818 Article M.18.09.2.

B. 'Do Not Enter' Signs: Shall conform to State of Connecticut Department of Transportation "Specifications for Roads, Bridges, Facilities and Incidental Construction" 2020 edition and latest supplements, Form 818 Article M.18.09.2.

C. 'One-Way' Signs, 'Lane Use' Signs, 'Keep Right' Signs, 'Accessible Parking' Signs, 'Van Accessible' Signs, 'School Crossing' Signs, 'Student Pick-Up and Drop-Off Only' Signs, 'Visitor and Student Pick-Up Drop-Off Signs, 'No Parking Here to Corner' Signs, 'Bus Lane School Buses Only' Signs, 'Staff Parking' Signs, 'Staff Parking / Pick-Up and Drop-Off Signs:

Shall conform to State of Connecticut Department of Transportation "Specifications for Roads, Bridges, Facilities and Incidental Construction" 2020 edition and latest supplements, Form 818 Article M.18.09.1.

D. Manual on Uniform Traffic Control Devices (MUTCD).

E. Metal Sign Posts: Shall conform to State of Connecticut Department of Transportation "Specifications for Roads, Bridges, Facilities and Incidental Construction" 2020 edition and latest supplements, Form 818 Article M.18.14.

F. Square Metal Sign Posts: Shall be as indicated on the Contract Drawings.

G. Sign Mounting Bolts: Shall conform to State of Connecticut Department of Transportation "Specifications for Roads, Bridges, Facilities and Incidental Construction" 2020 edition and latest supplements, Form 818 Article M.18.15.

H. Sign Post Foundations: Shall be as indicated on the Contract Drawings and in conformance with Section 32 32 13 "Cast-In-Place Concrete".

PART 3 - EXECUTION

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3.1 INSTALLATION

- A. Locate signs and accessories where indicated and complying with the State of Connecticut Department of Transportation "Specifications for Roads, Bridges, Facilities and Incidental Construction" 2020 edition and latest supplements, Form 818 Sections 12.07 and 12.08.
- B. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
- C. Install square posts as indicated on the Contract Drawings and per the manufacturer's recommendations.
- D. Sign Posts with Concrete Foundation: Drill holes in firm, undisturbed or compacted soil to the dimensions indicated on the Contract Drawings. Excavate deeper as required for adequate support in soft and loose soils, and for posts with heavy lateral loads. Place concrete around posts in a continuous pour. Trowel finish around post. Slope to direct water away from posts.

END OF SECTION 101401

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SECTION 116800 - PLAY FIELD EQUIPMENT AND STRUCTURES

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. The following Attachments are included within this Section:
 - 1. Attachment A: Harmony Bells Components.
 - 2. Attachment B: Diatonic Tembos Components.

1.2 SUMMARY

- A. Section includes playfield equipment as follows:
 - 1. Furnish and install outdoor music instrument components.
 - 2. Furnish and install concrete foundations.
 - 3. Furnish and install base stone materials.
- B. Related Sections:
 - 1. Section 321243 "Porous Flexible Paving" for coordination of installation of concrete footings and outdoor musical instruments.

1.3 REFERENCE STANDARDS

- A. CTDOT Form 819: State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction Form 819; including latest Supplements, except as noted otherwise in this Section. Requirements of this Section are in addition to or supersede those of Form 819.

1.4 ALTERNATES

- A. All work contained in this Section is part of a Bid Alternate and not included in the Base Bid.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For outdoor musical equipment, signage, and structures. Include plans, elevations, perspectives, sections, details, attachments to other work, footing plans, material specifications, and installation specifications for components.
 - 1. Include signage and label details with proposed information to be communicated on all signs and labels.

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- C. Samples for Initial Selection: For products involving selection of color, texture or design.

1.7 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Plans, drawn to scale, on which the Outdoor Musical Instruments and adjacent site improvements are shown and coordinated with each other, using input from installers.
- B. Qualification Data: For qualified Installer and manufacturer.
- C. Product Certificates: For each type of Outdoor Musical Instrument.
- D. Material Certificates: For the following items:
 1. Shop finishes.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of Outdoor Musical Instrument.
- F. Warranty: Sample of special warranty for Outdoor Musical Instruments.

1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: An order-specific maintenance kit for Outdoor Musical Instruments and finishes to include in maintenance manuals. The maintenance kit shall include:
 1. Notebook or packet with a second set of installation documents.
 2. Order-specific maintenance documentation with recommendations on how often to inspect, what to look for and what to do to keep the equipment in like-new condition.
 3. Touch-up primer.
 4. Appropriate color touch-up paint.
 5. Sandpaper.
 6. Appropriate color touch-up PVC.
 7. Additional installation tools for the tamperproof fasteners.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers approved by manufacturer.
 1. Installer shall be responsible for installing the Outdoor Musical Instruments.

1.10 DELIVERY, STORAGE AND HANDLING

- A. Hardware Packages: All shipments shall include individual component-specific hardware packages. Each hardware package shall be labeled with the part number, description, a component diagram showing the appropriate component, package weight, a bar code linking the hardware package to the job number, assembler's name, date and time the package was assembled, work center number, and work order number.
- B. Installation Documentation: All shipments shall include a notebook or packet of order-specific, step-by-step instructions for assembly of each component, including equipment assembly diagrams, estimated hours for assembly, footing dimensions, concrete quantity for direct bury components, area required information and detailed material specifications.

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- C. Packing List: All shipments shall include a packing list for each skid/container, specifying the part numbers and quantities on each skid or within each container.
- D. Packaging: Components shall be individually wrapped or bulk wrapped to provide protection during shipment. Small parts and hardware packages will be placed in crates for shipment. The components and crates are then shrink-wrapped to skids (pallets) to ensure secure shipping. It will be unacceptable for parts and pieces to come loose.

1.11 WARRANTY

- A. Percussion Play warranty our materials and workmanship against defects from the date of Substantial Completion, subject to installation being carried out by competent persons in accordance with the manufacturer's installation instructions.
 - 1. Products and/or components may be repaired or exchanged on an Ex Works basis and may be subject to the defective parts being returned to Percussion Play or its authorised Agent.
 - 2. A full text of the warranty must accompany the bid.
- B. Warranty Period
 - 1. Limited Twenty-Five (25) Year Warranty - Percussion Play offers an unrivalled Limited 25 Year Warranty on metalwork used in the supporting structure of stands and frames against structural failure caused by deterioration due to exposure to weather or by defective materials or defective workmanship.
 - 2. Limited Ten (10) Year Warranty – on timber, composite, aluminum and stainless steel components (includes notes and fixings) against structural failure caused by deterioration due to exposure to weather or by defective materials or defective workmanship.
 - 3. Limited Two (2) Year Warranty – on mallets and components used in the initiation of percussive sound on our instruments and associated fastening hardware, on fastening hardware associated with notes.
 - 4. These Limited Warranties do not include fading of colors, damage due to excessive wear and tear, vandalism, or negligence.

PART 2 - PRODUCTS

2.1 OUTDOOR MUSICAL INSTRUMENTS

- A. Source Limitations: Obtain Outdoor Musical Instruments from single source from single manufacturer.
- B. Basis-of-Design Products: Subject to compliance with requirements, provide products manufactured by Percussion Play, www.percussionplay.com or comparable product acceptable to the Architect.
 - 1. Harmony Bells
 - a. Three (3) individual flower bells. Include one of each of the following:
 - 1) A Minor.
 - 2) C Major.
 - 3) F Major.
 - b. Each flower contains four (4) bells.
 - c. Each flower shall be made of a stainless-steel frame with powder coated aluminum petals and bells.
 - d. One (1) mallet permanently attached to each flower.

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- e. Colors: To be selected by the Architect from the manufacturer's full range of colors.

- 2. Diatonic Tembos
 - a. One (1) Diatonic Tembo in C Major.
 - b. Each tembo contains eight (8) elephant "trunks".
 - c. Tubing shall be stainless steel.
 - d. Two (2) EVA foam paddles, permanently attached.

2.2 MISCELLANEOUS MATERIALS

- A. Concrete for footings
 - 1. Conform to CTDOT Form 819, M.03.02, PCC03340.

- B. Stone base for footings
 - 1. Processed Aggregate Base – Conform to CTDOT Form 819, M.05.01.

2.3 ACCESSORIES

- A. Maintenance Kit: An order-specific maintenance kit shall be provided for each structure order. The kit shall include the following:
 - 1. A notebook or packet with a second set of installation documents
 - 2. Order-specific maintenance documentation with recommendations on how often to inspect, what to look for and what to do to keep the equipment in like-new condition.
 - 3. Touch-up primer
 - 4. Appropriate color touch-up paint
 - 5. Sandpaper
 - 6. Appropriate color touch-up PVC
 - 7. Additional installation tools for the tamperproof fasteners.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for earthwork, subgrade elevations, surface and subgrade drainage, and other conditions affecting performance of the Work.
 - 1. Do not begin installation before final grading required for placing playground equipment and protective surfacing is completed.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Verify locations of Outdoor Musical Instruments and that layout and equipment comply with requirements for each type and component of equipment.

- B. Coordinate with Site Contractor and Porous Flexible Paving installer for sequencing of installation with Outdoor Musical Instruments.

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3.3 INSTALLATION

- A. Comply with manufacturer's written installation instructions for each equipment type unless more stringent requirements are indicated. Anchor equipment securely, positioned at locations and elevations indicated.
- B. Post and Footing Excavation: Excavate holes for posts and footings as indicated in firm, undisturbed or compacted subgrade soil.
- C. Post Set with Concrete Footing: Comply with CTDOT Form 819 for measuring, batching, mixing, transporting, forming, and placing concrete.
 1. Set equipment posts in concrete footing. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at the correct angle, alignment, height, and spacing.
 - a. Place concrete around posts and vibrate or tamp for consolidation. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
 2. Embedded Items: Use setting drawings and manufacturer's written instructions to ensure correct installation of anchorages for equipment.
 3. Concrete Footings: Smooth top, and shape to shed water.

3.4 PROTECTION

- A. Protect installed Outdoor Musical Instruments form damage during the Construction Period with temporary protective coverings approved by the manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period, so no evidence remains of correction work. Return items that cannot be refinished in the field to the manufacturer and replace in kind with new Outdoor Musical Instrument.

3.5 CLEANING

- A. Clean installed Outdoor Musical Instruments per the Manufacturers' recommendations.

END OF SECTION 116800

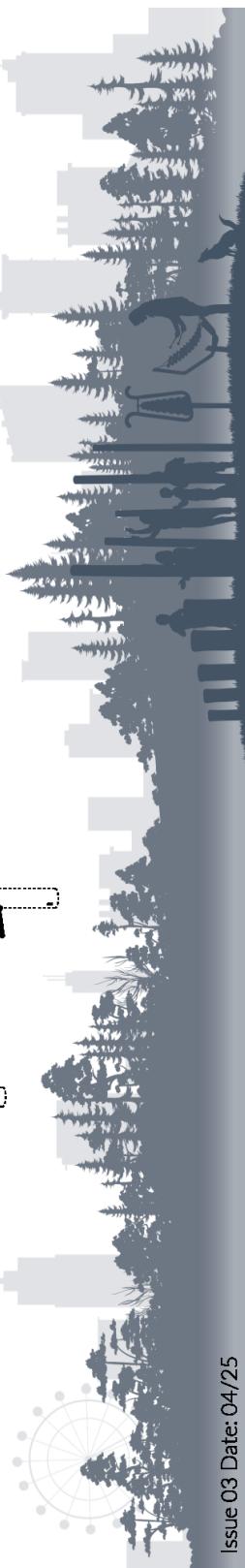
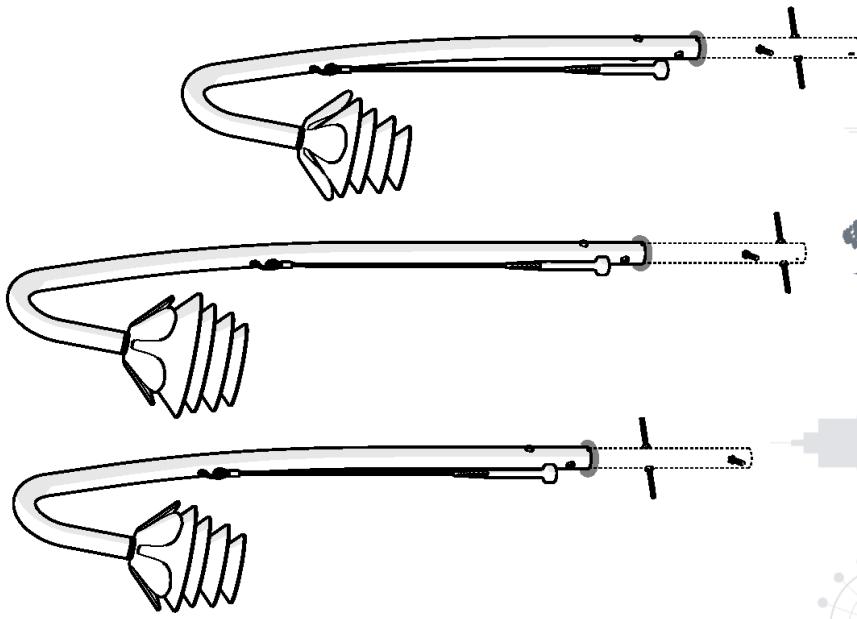
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ATTACHMENT A – HARMONY BELLS COMPONENTS



Harmony Bells Installation Instructions (Ground fix) 1 of 12

Part Reference	Description
PP-HBEL-C-MA-GR	Harmony Bells C Major C4 - C5 (Red Bells) (Ground Fix)
PP-HBEL-D-MI-GR	Harmony Bells D Minor D4 - D5 (Orange Bells) (Ground Fix)
PP-HBEL-E-MI-GR	Harmony Bells E Minor E4 - E5 (Yellow Bells) (Ground Fix)
PP-HBEL-F-MA-GR	Harmony Bells F Major F4 - F5 (Green Bells) (Ground Fix)
PP-HBEL-G-MA-GR	Harmony Bells G Major G4 - G5 (Blue Bells) (Ground Fix)
PP-HBEL-A-MI-GR	Harmony Bells A Minor A4 - A5 (Indigo Bells) (Ground Fix)

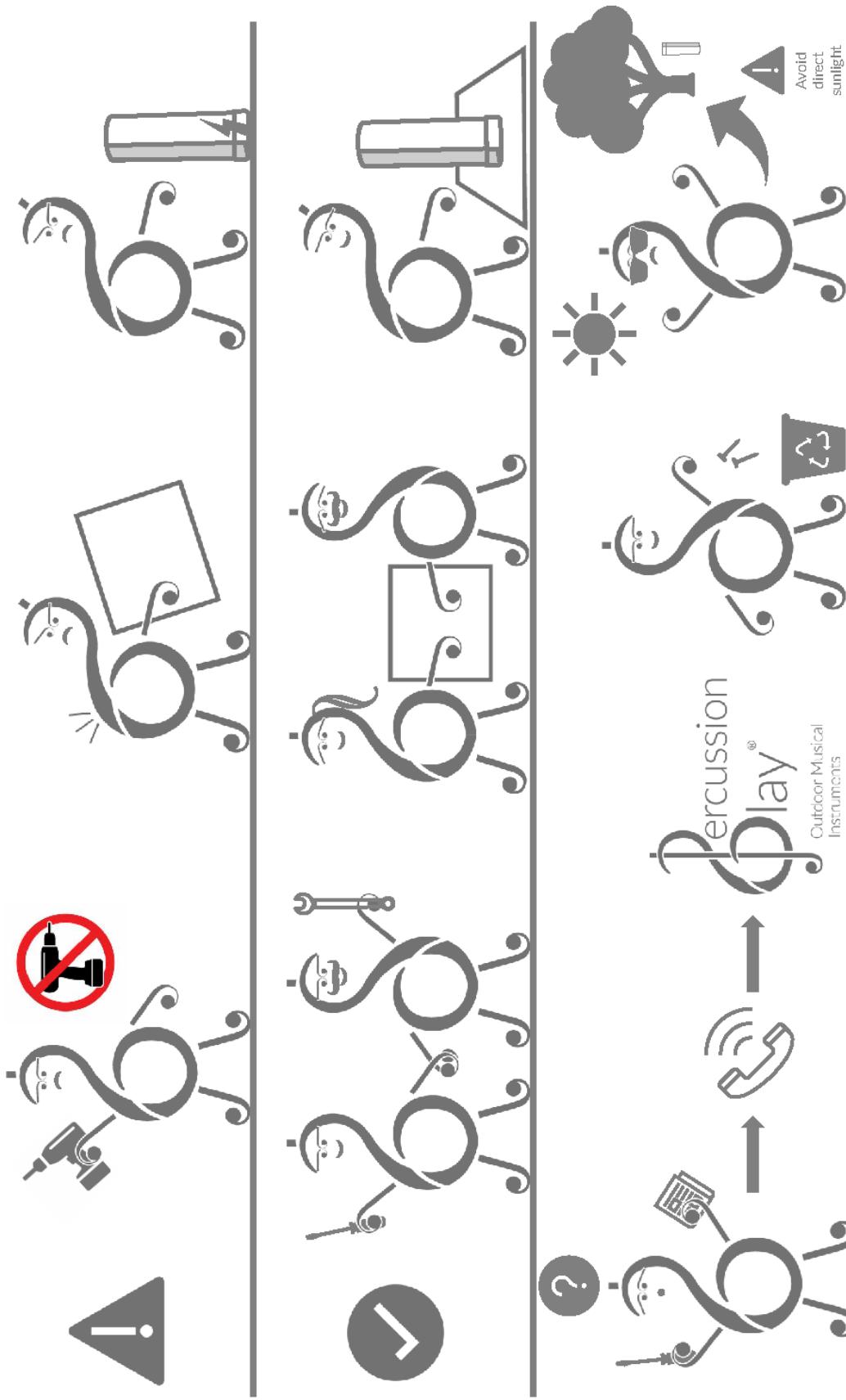


Issue 03 Date: 04/25



Harmony Bells Installation Instructions (Ground fix)

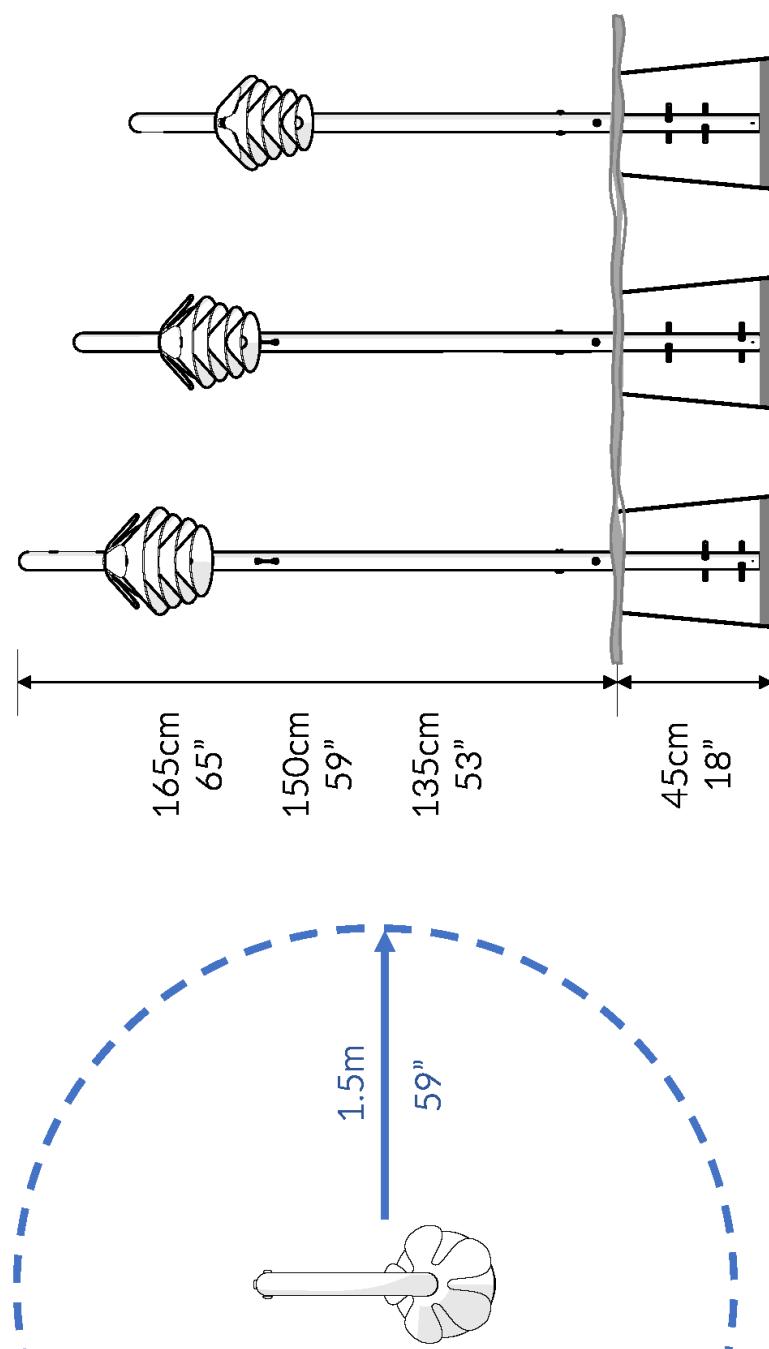
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Harmony Bells Installation Instructions (Ground fix)

3 of 12



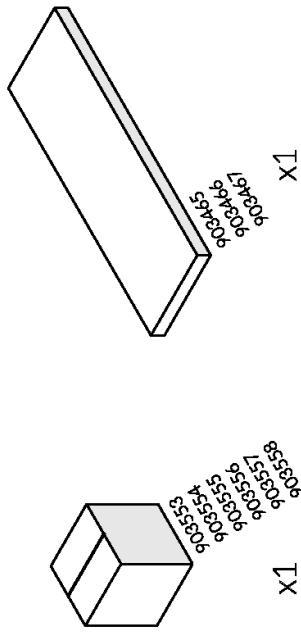
Check Risk Assessment



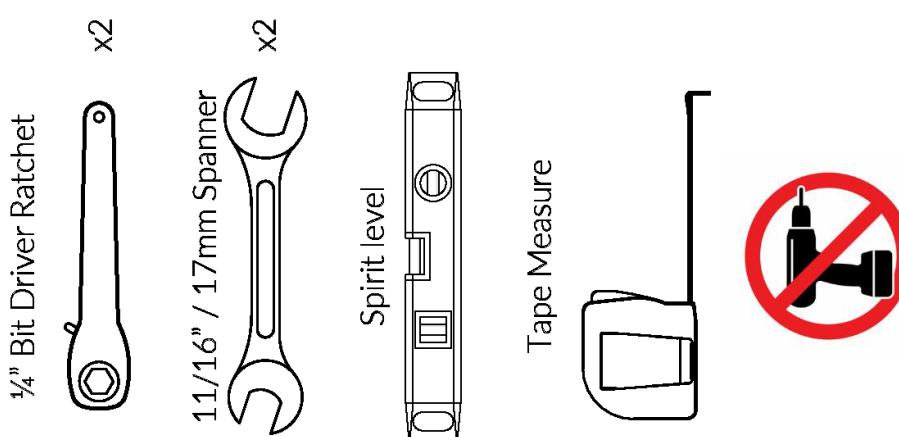
Harmony Bells Installation Instructions (Ground fix)

4 of 12

Packages



Tools required (not supplied)



		L	W	H	Weight	Net
x1	903553 903554 903555 903556 903557 903558	29cm / 11.5"	28cm / 11"	27cm / 10.5"	3kg / 6.6lbs	
x1	903465 (L) 903466 (M) 903467 (S)	148cm / 50"	48cm / 6"	7cm / 2"	9kg / 20lbs	

Spares available from
percussionplay.com or
from your local distributor

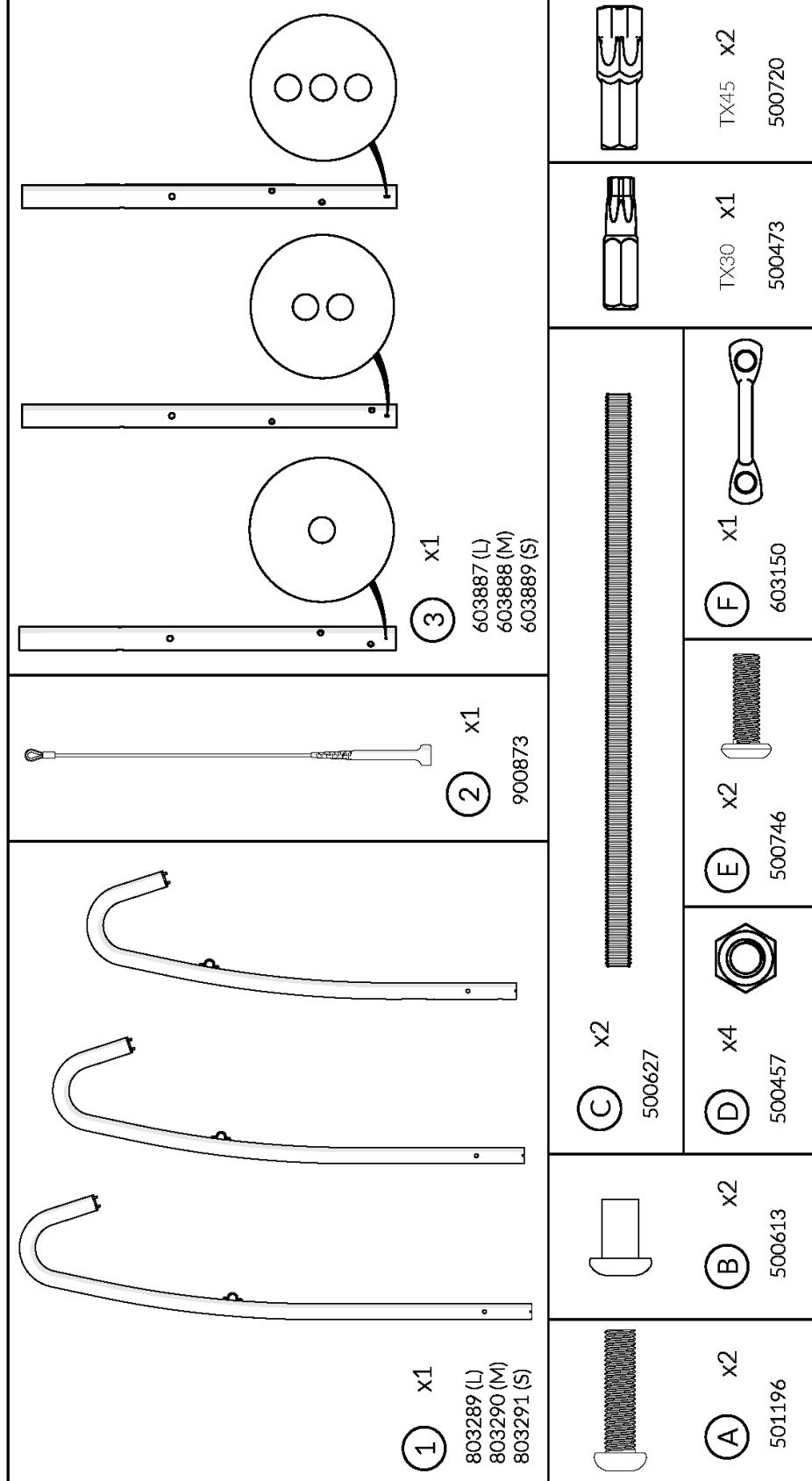


Harmony Bells Installation Instructions (Ground fix)

5 of 12

Not to scale

903465 (L)
903466 (M)
903467 (S)

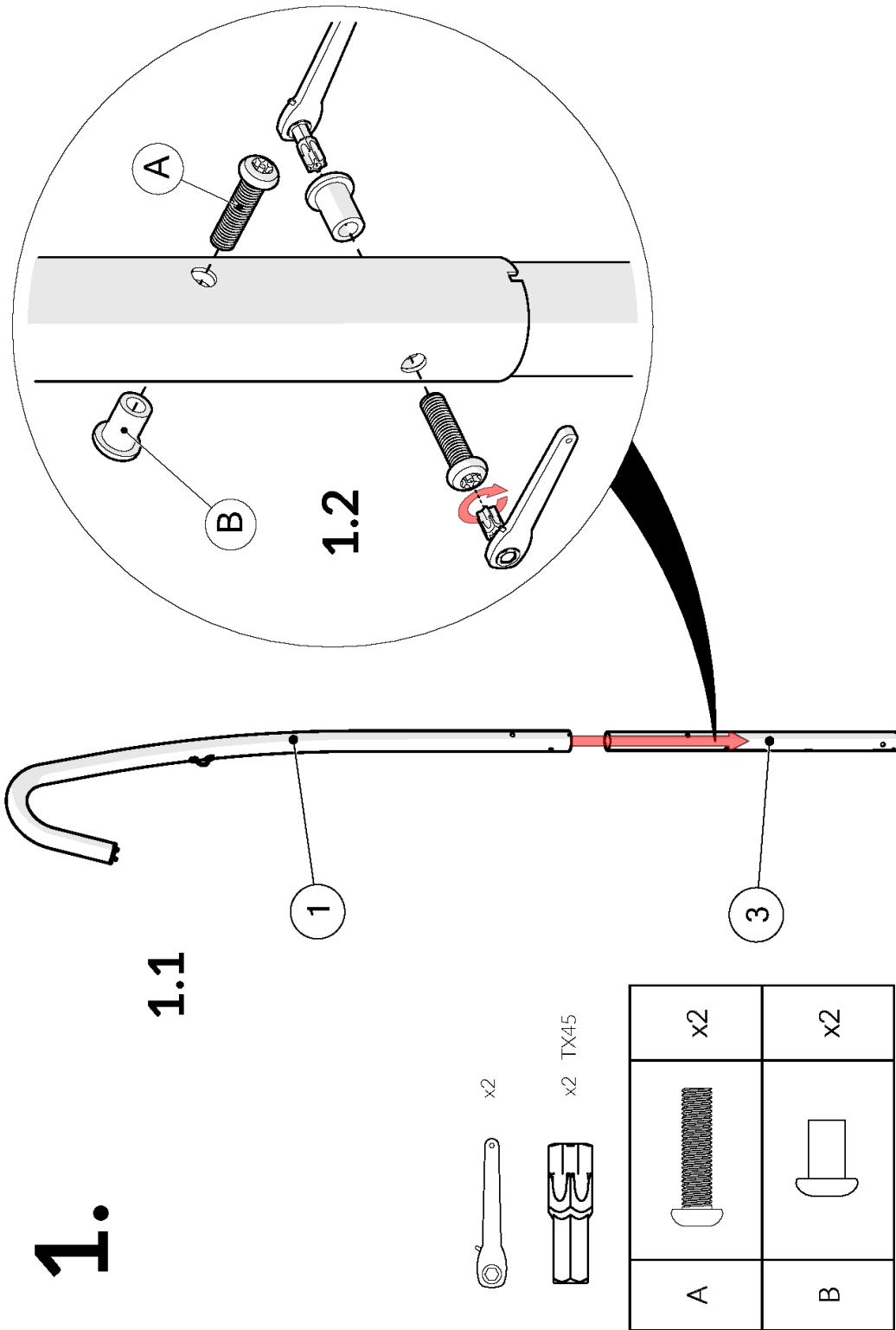




Harmony Bells Installation Instructions (Ground fix)

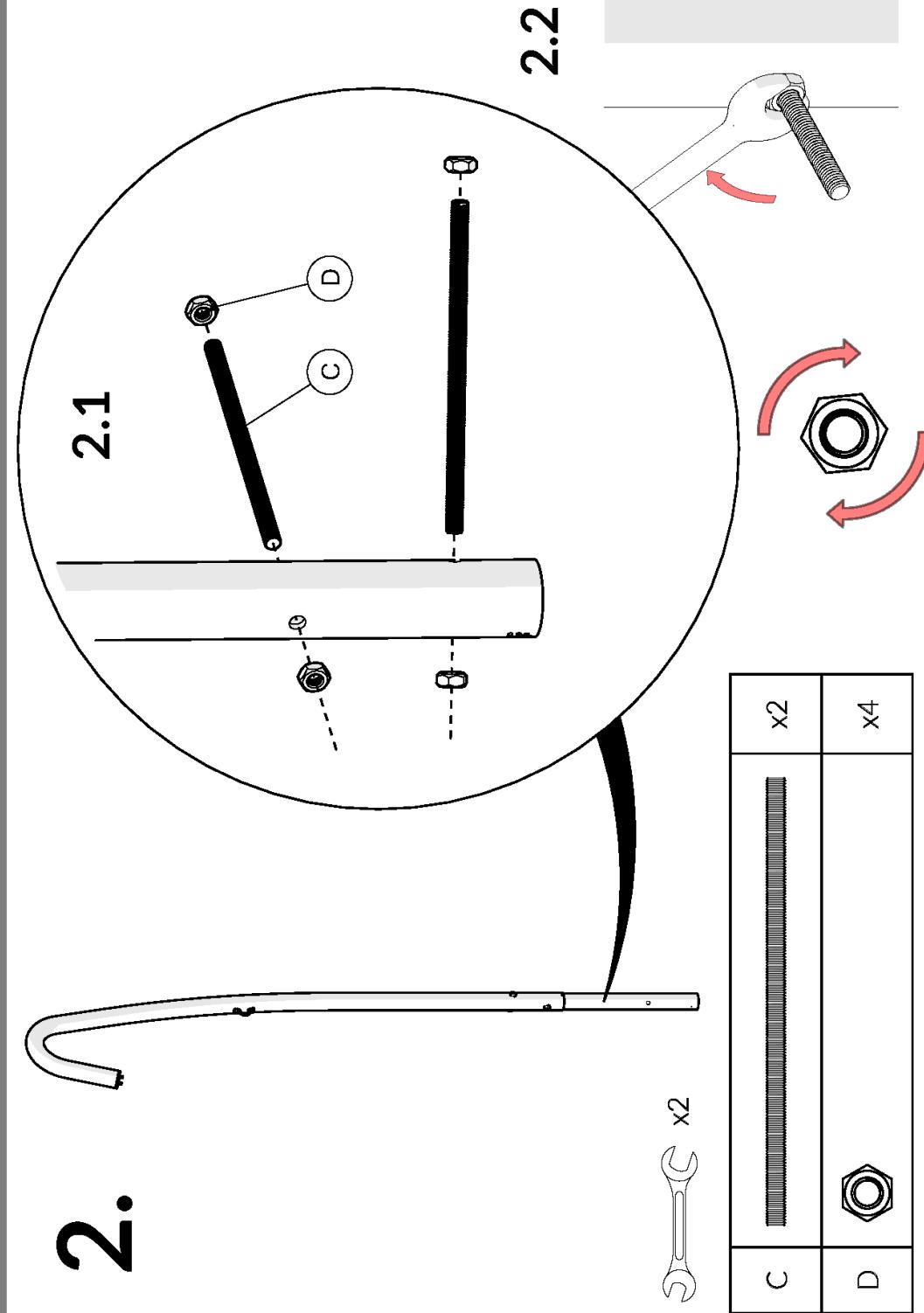
6 of 12

903553	903556	903557	903554	903555	903558	
				<img alt="Bell		





8 of 12
Harmony Bells Installation Instructions (Ground fix)





Harmony Bells Installation Instructions (Ground fix)

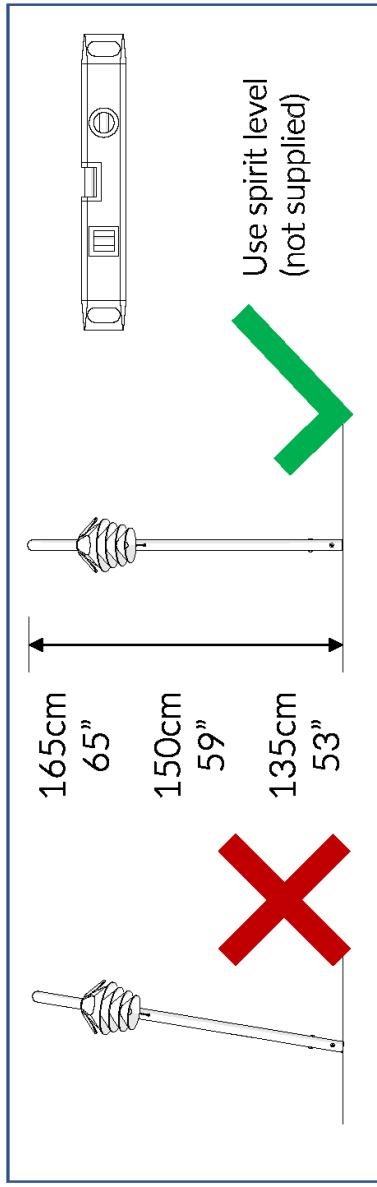
9 of 12

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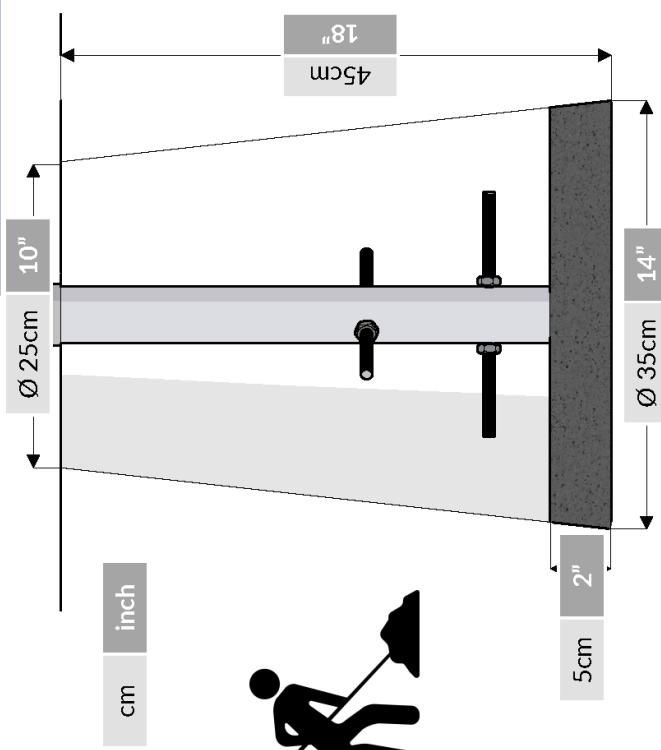


Foundations
should not present
a hazard

Refer to your local
Health & Safety
standards



Use spirit level
(not supplied)

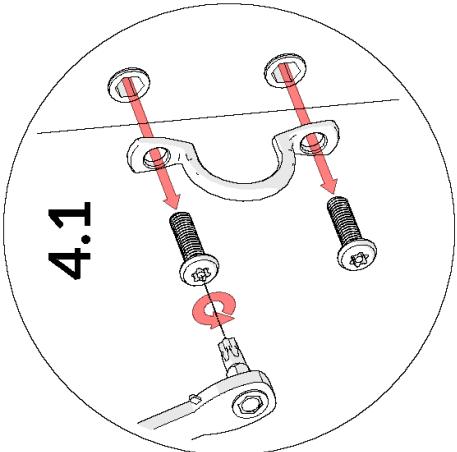




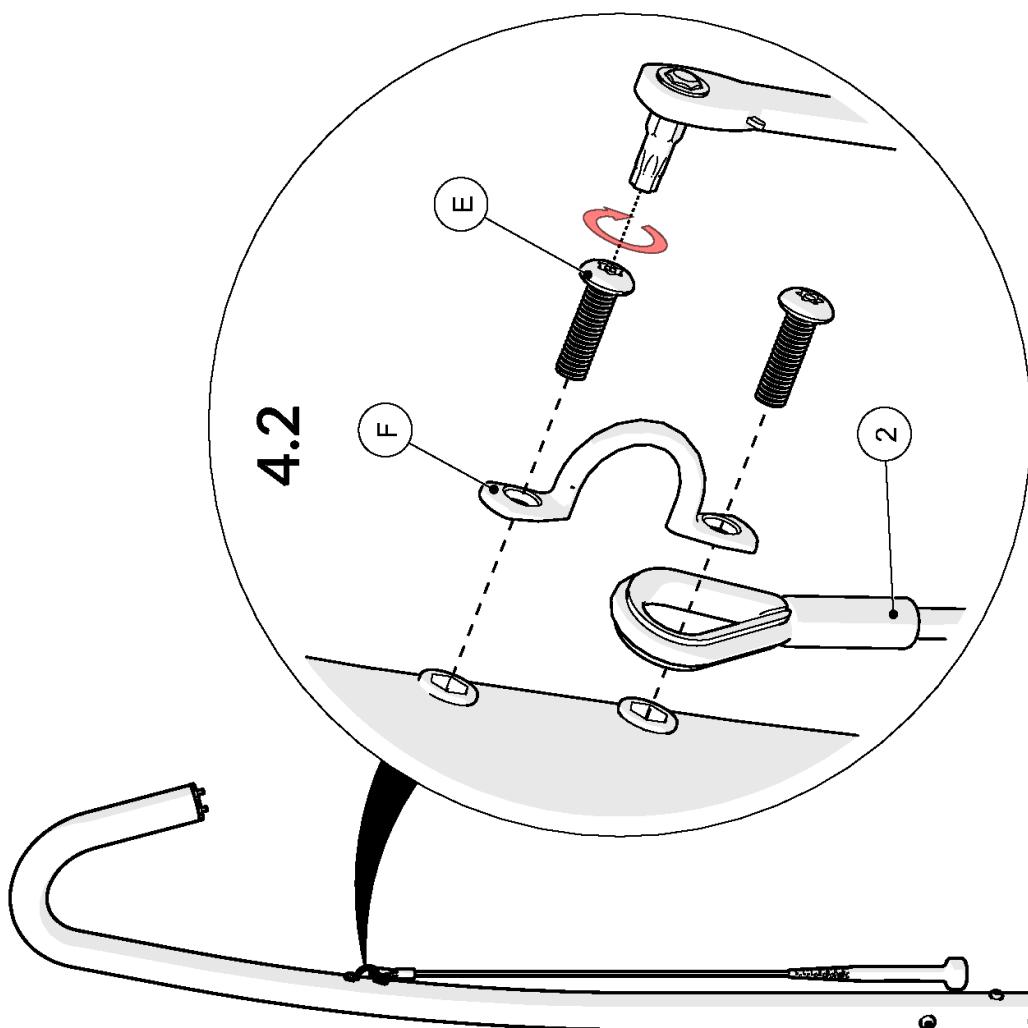
Harmony Bells Installation Instructions (Ground fix)

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4.



4.1



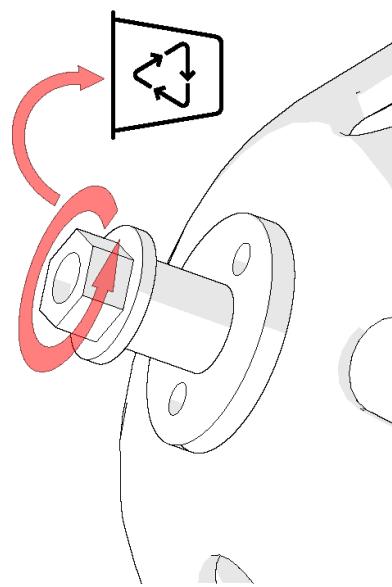
4.2



	x1	x2	x1
2			
E			
F			

5.

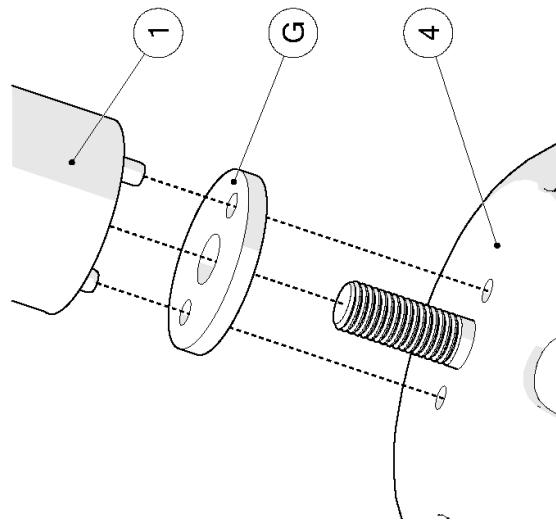
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5.3

5.2

5.4

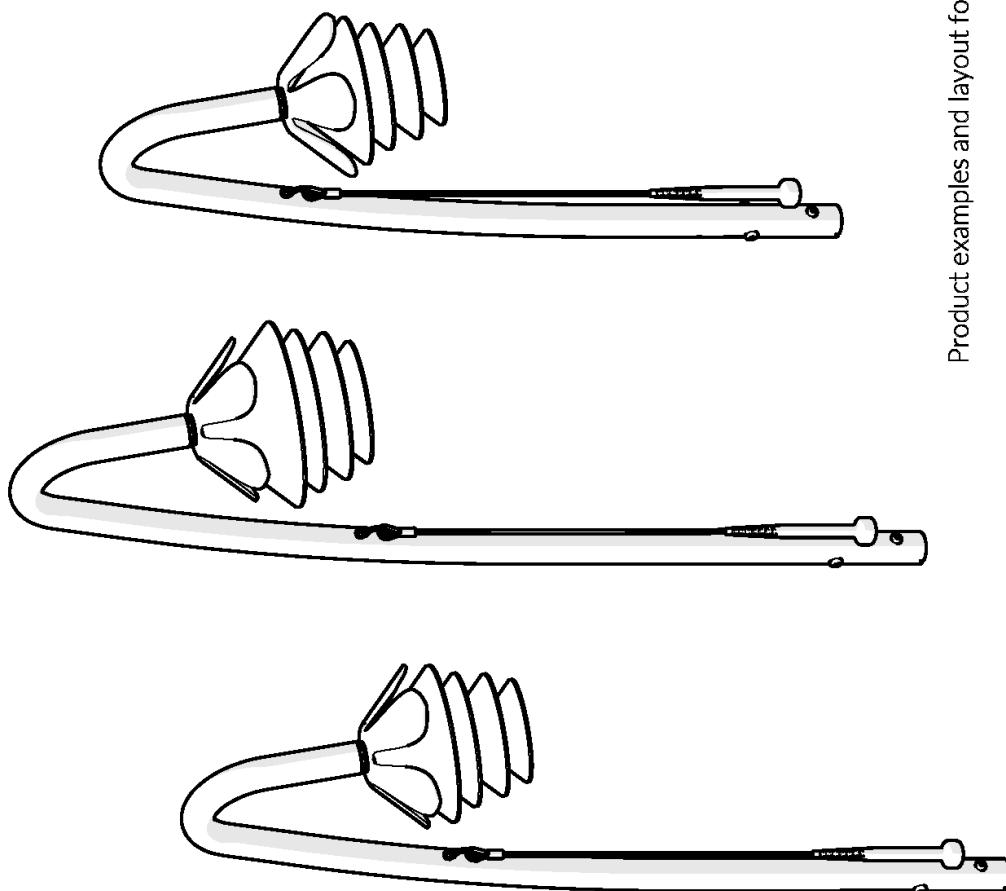


	x1	x1	x1
G			
H			-



Harmony Bells Installation Instructions (Ground fix)

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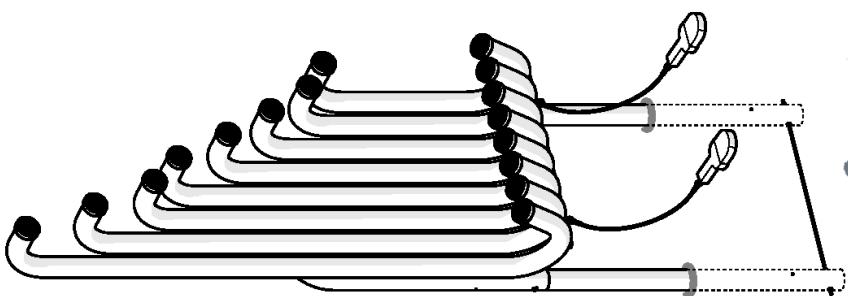
Product examples and layout for illustration purposes only
Sold individually

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ATTACHMENT B – DIATONIC TEMBOS COMPONENTS



Diatonic Tembos Installation Instructions (Ground fix) 1 of 9



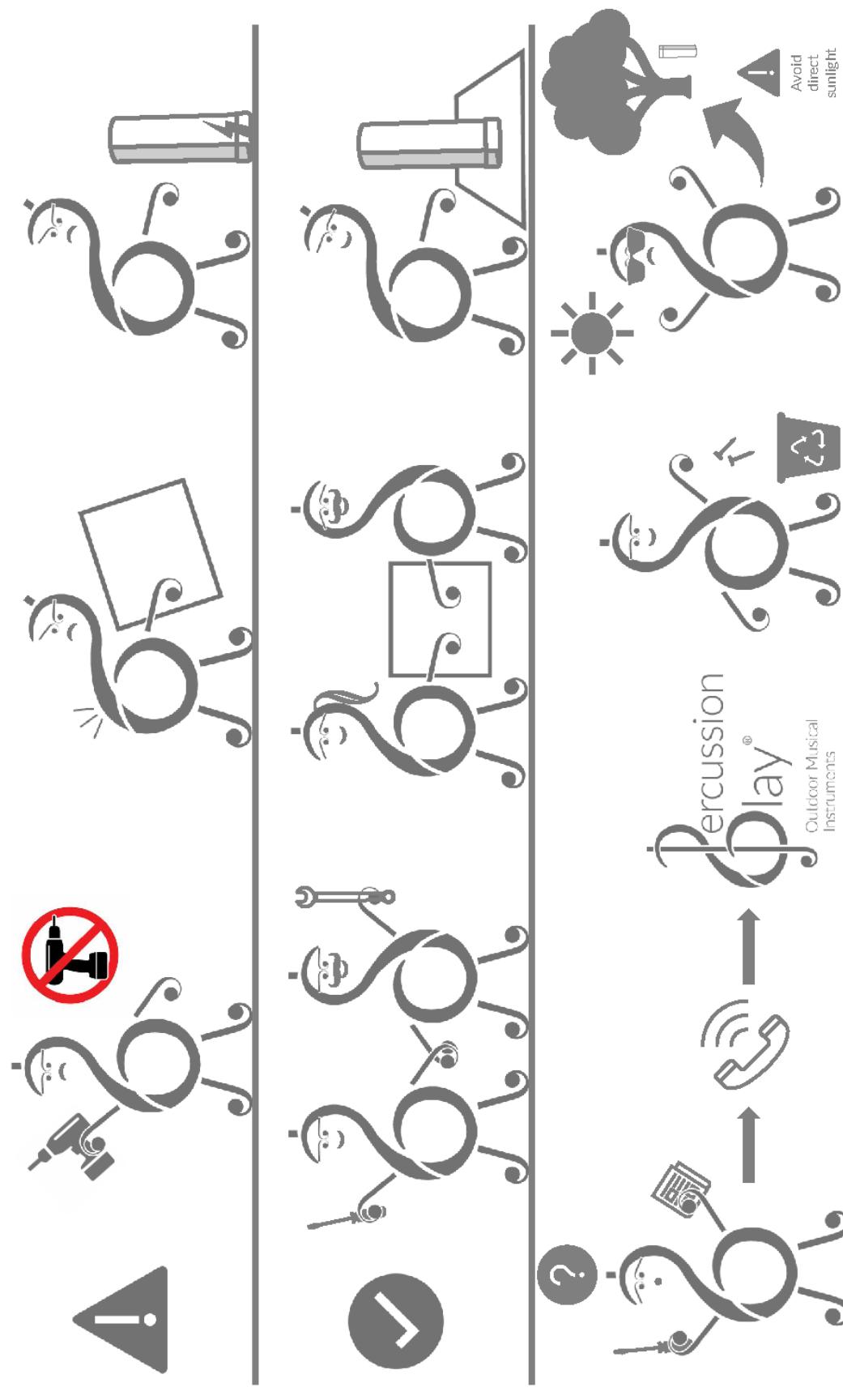
Part Reference	Description
PP-TEM-B-DI-GR	Diatonic Tembos - with closed cell foam paddles (Ground Fix)



Issue 01 Date: 06/24

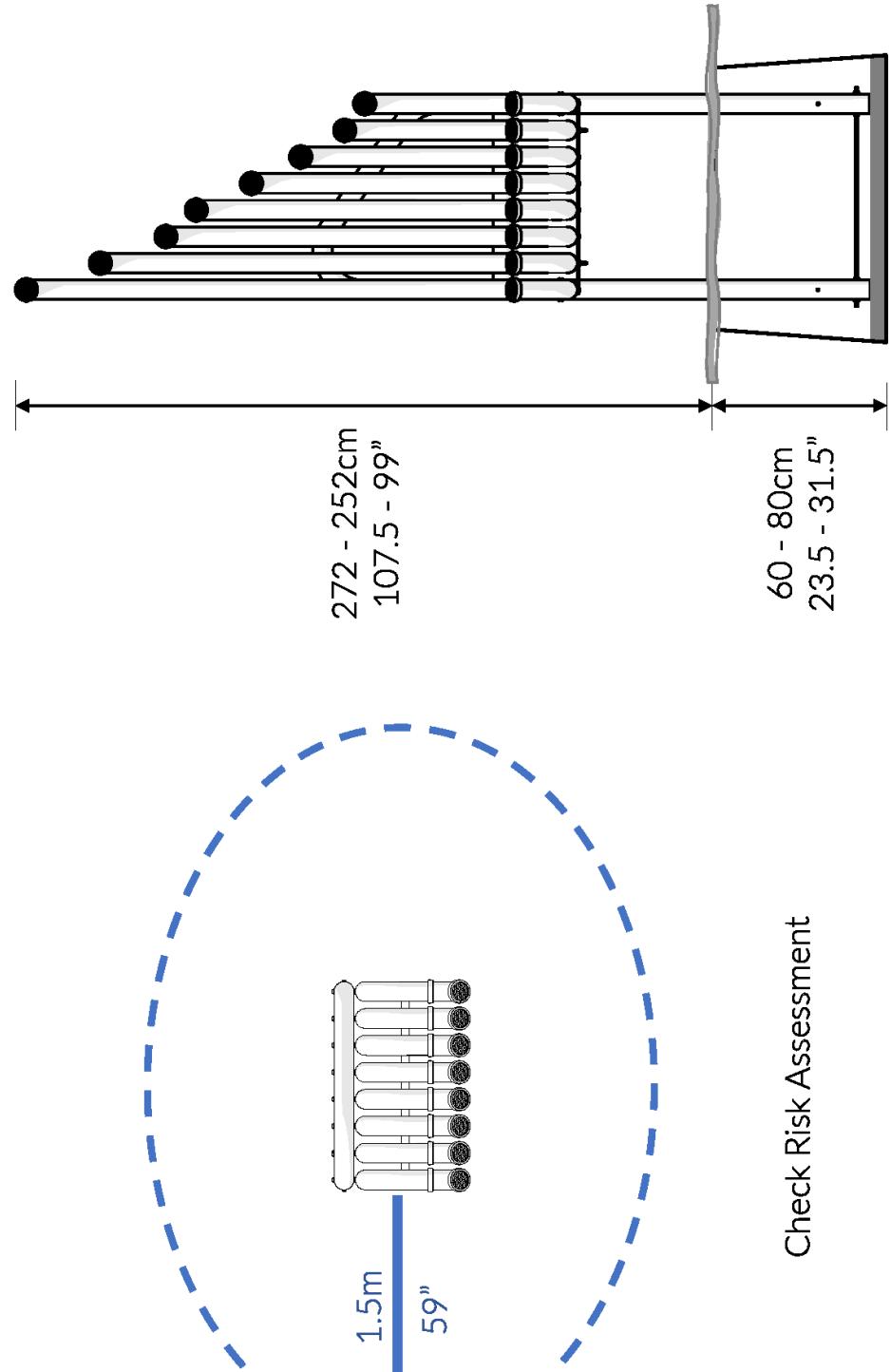


Diatonic Tembos Installation Instructions (Ground fix) 2 of 9





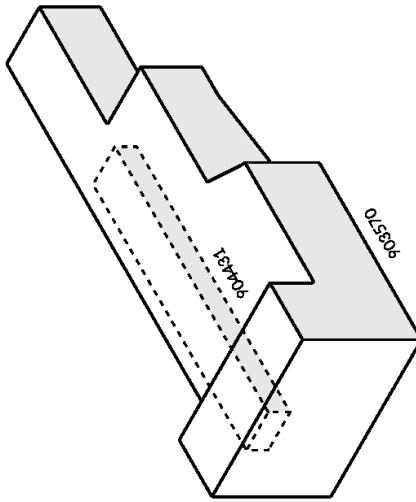
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Diatonic Tembos Installation Instructions (Ground fix) 3 of 9



Check Risk Assessment



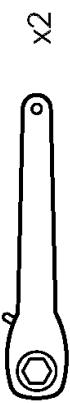
Packages



x1

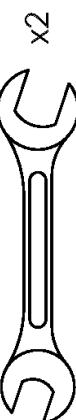
Tools required (not supplied)

1/4" Bit Driver Ratchet



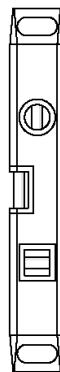
x2

11/16" / 17mm Spanner



x2

Spirit level



Tape Measure



	L	W	H	Weight	Net
903570	225cm / 88.5"	80cm / 31.5"	50cm / 20"	85kg / 187lbs	
x1	904431	140cm / 55"	20cm / 8"	10kg / 22lbs	

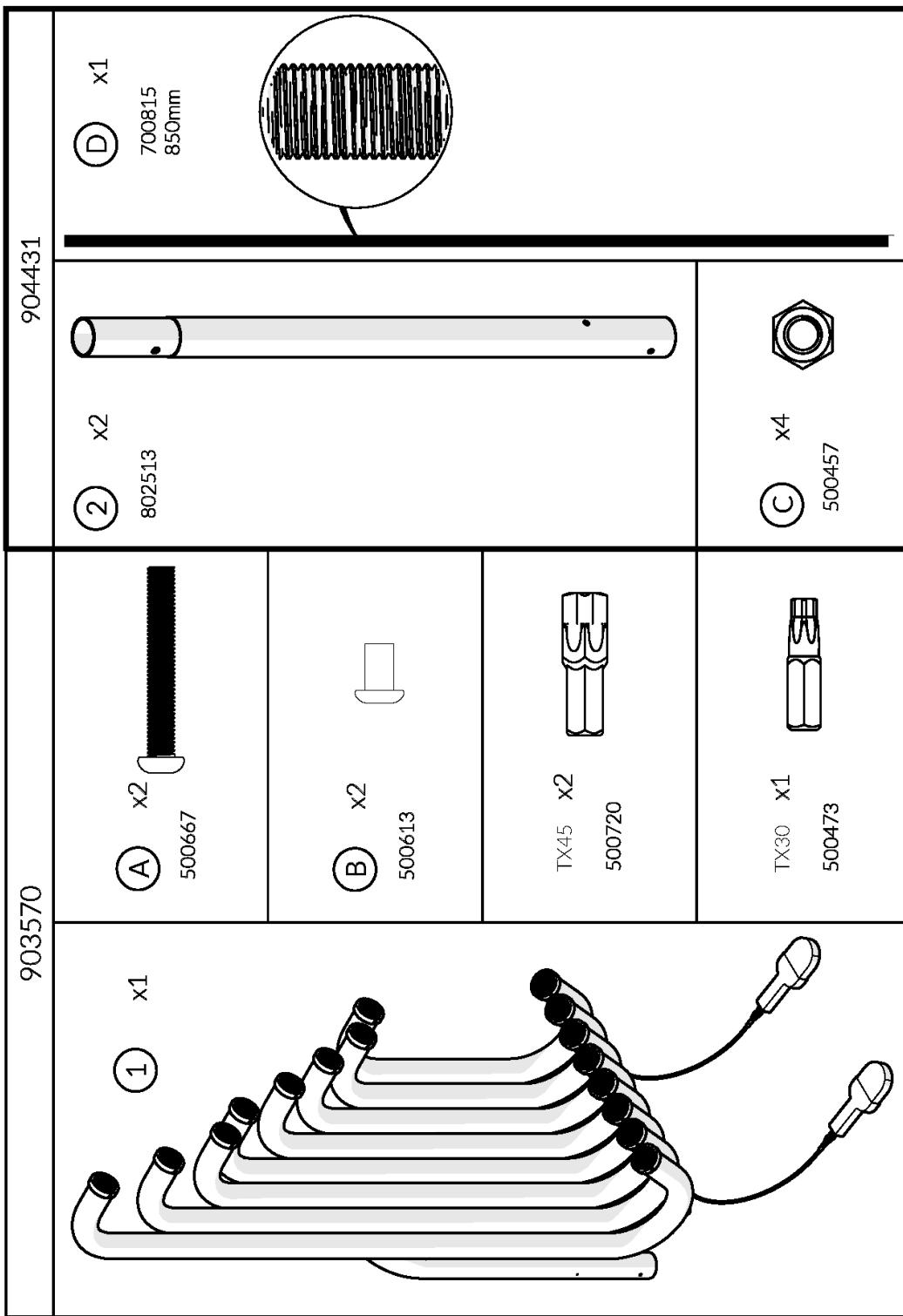
Spares available from
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Diatonic Tembos Installation Instructions (Ground fix)

5 of 9

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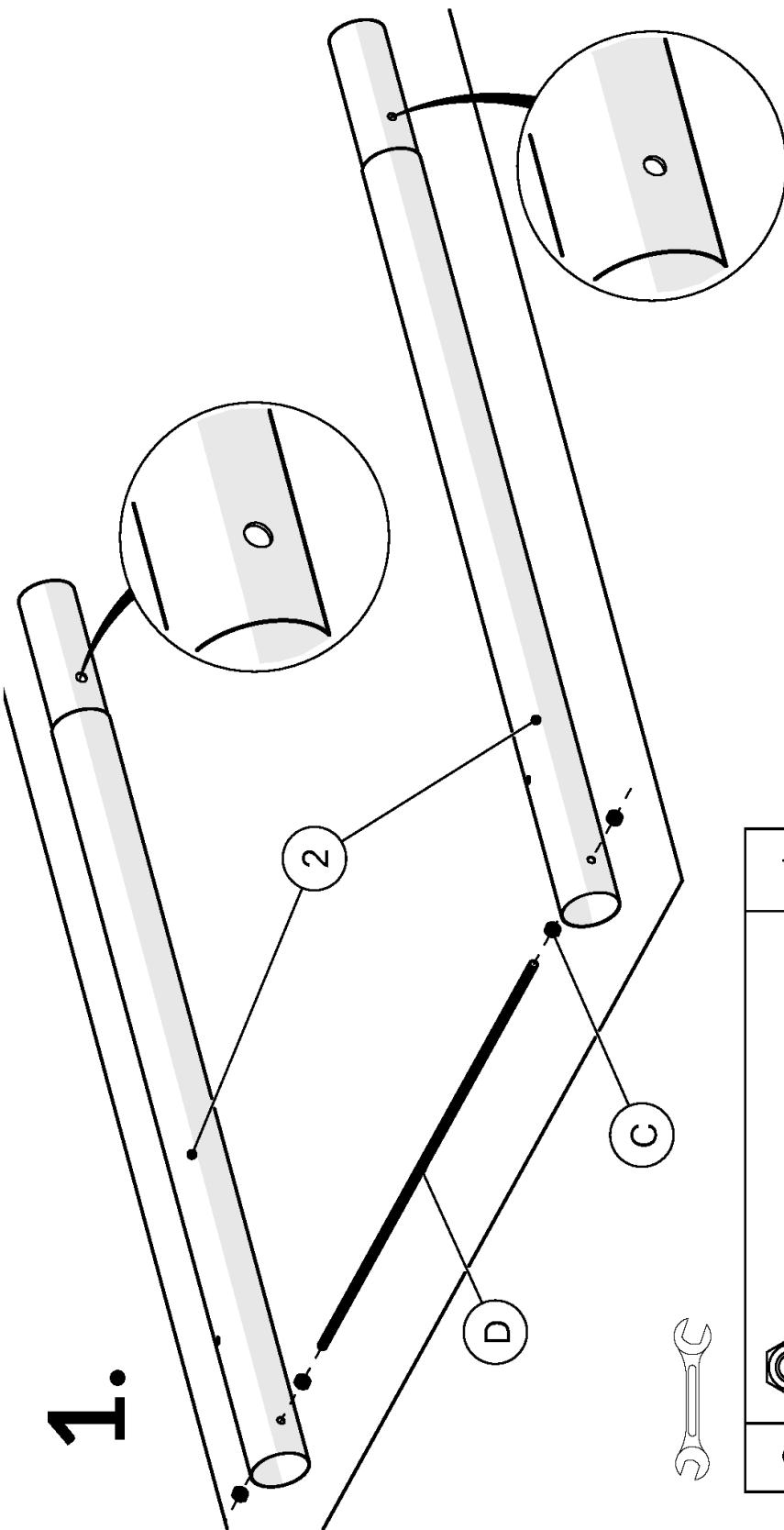




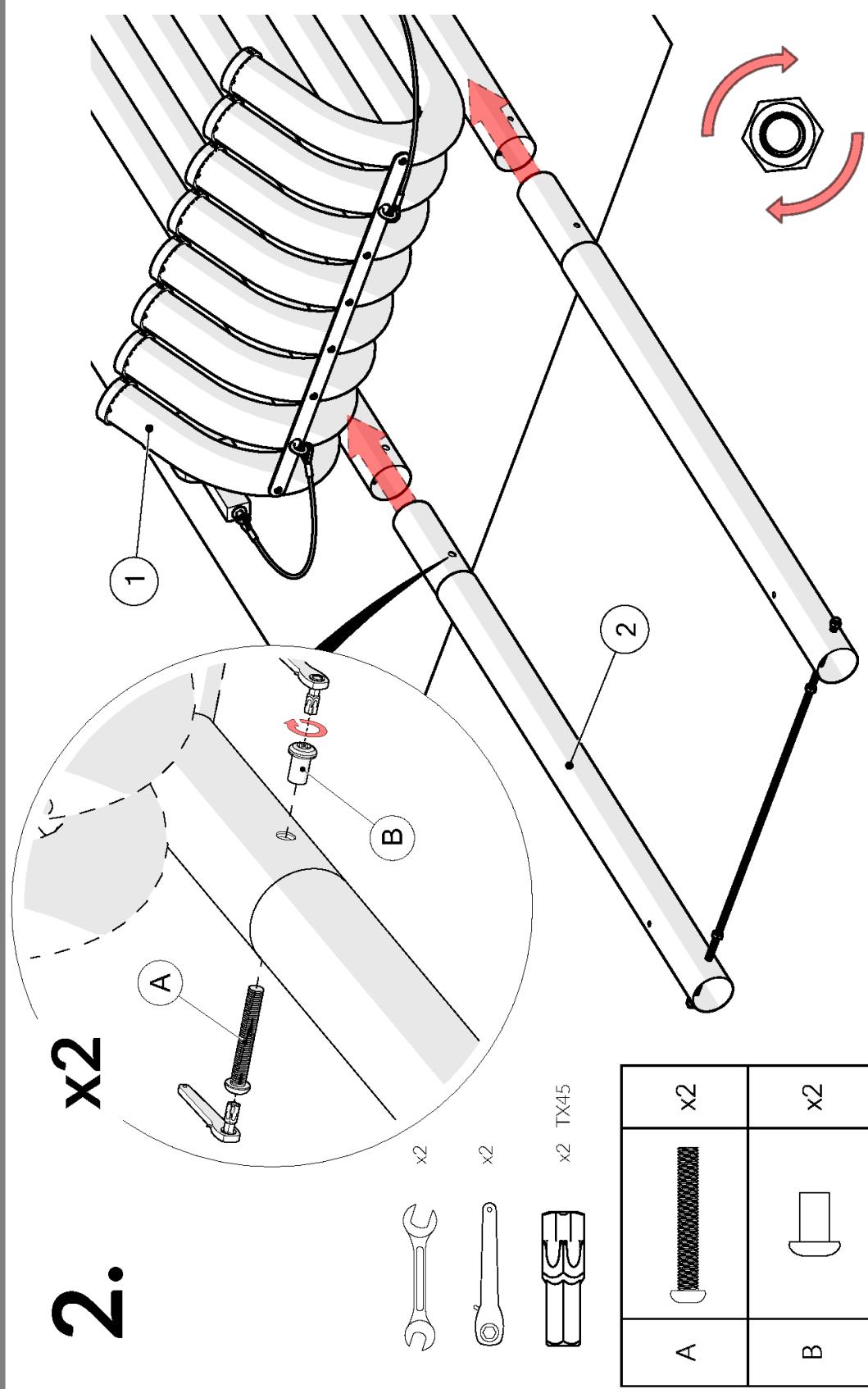
Diatonic Tembos Installation Instructions (Ground fix)

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1.



	x4		x1
C			
D			





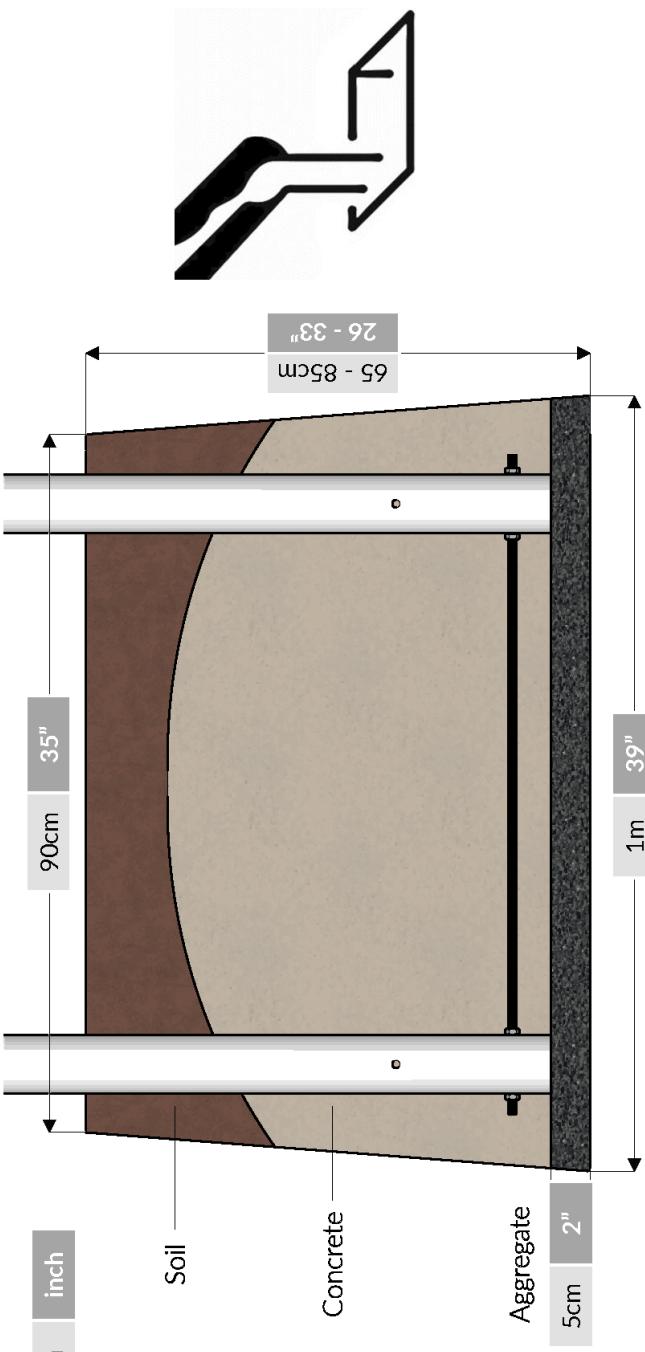
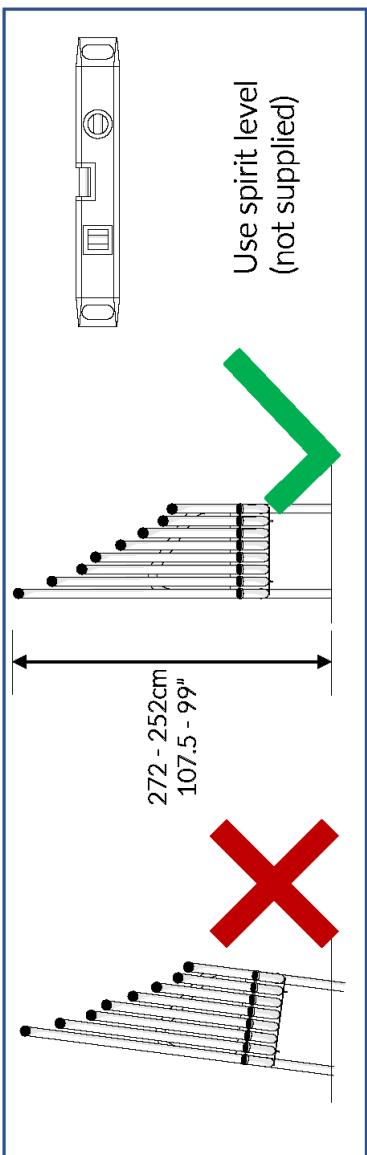
Diatonic Tembos Installation Instructions (Ground fix) 8 of 9

3.



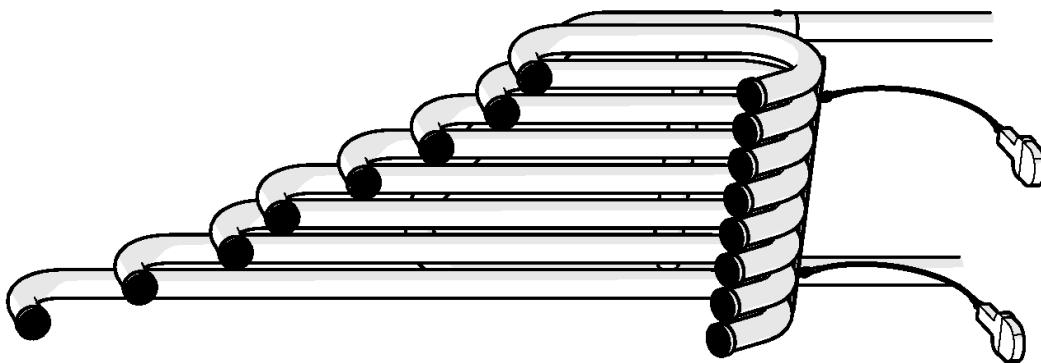
Foundations
should not present
a hazard

Refer to your local
Health & Safety
standards





Diatonic Tembos Installation Instructions (Ground fix) 9 of 9



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SECTION 311000 - SITE CLEARING

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.

1.2 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.

B. Related Requirements:

1. Section 015639 "Temporary Tree and Plant Protection" for protection of existing tree and plant materials to remain.

1.3 DEFINITIONS

A. 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.

B. 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.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings and indicated according to requirements in Section 015639 "Temporary Tree and Plant Protection."

F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

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1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 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.

1.6 INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or video recordings.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.

B. Topsoil stripping and stockpiling program.

C. Burning: No burning shall be performed.

1.7 QUALITY ASSURANCE

A. Topsoil Stripping and Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

1.8 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, 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. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Architect.

C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

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- D. Utility Locator Service: Notify utility locator service Call Before You Dig for area where Project is located before site clearing.
- E. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.
- F. Tree- and Plant-Protection Zones: Protect according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- G. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.
- B. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer complying with MPI #23 (surface-tolerant, anticorrosive metal primer) or SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating.

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 according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- 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 TREE AND PLANT PROTECTION

- A. Protect trees and plants remaining on-site according to requirements in Section 015639 "Temporary Tree and Plant Protection."

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- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.3 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 - 2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
 - 3. Use only hand methods or air spade for grubbing within protection zones.
 - 4. Chip removed tree branches and dispose of off-site.
- 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, and compact each layer to a density equal to adjacent original ground.

3.4 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.
 - 1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and 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.
 - 1. Limit height of topsoil stockpiles to 72 inches.
 - 2. Do not stockpile topsoil within protection zones.
 - 3. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.5 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

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1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.
3. Existing pavement base materials may be stockpiled and reused provided they meet the requirements for processed aggregate base as defined in Processed Aggregate Base conforming to Form 818, M.05.01.

3.6 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.
- B. Burning tree, shrub, and other vegetation waste is not permitted. Burning of other waste and debris is prohibited.
- C. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials, and transport them to recycling facilities. Do not interfere with other Project work.
- D. Demolished bituminous asphalt paving is a waste product and shall be removed from the site and legally disposed of.

END OF SECTION 311000

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SECTION 312100 – EARTHWORK (UTILITIES)

PART 1 - GENERAL

1.1 WORK INCLUDED:

A. Provide all materials, labor, equipment, and services necessary to perform the work of this section as shown on the Drawings, as specified, and as required by job conditions, including, but not limited to, the following:

General excavation and backfill for structures and other site improvements.

Preparing of subgrade for slabs at grade, footings, walks, pavements, etc.

Trench excavation and backfill for utilities.

Excavation and backfill for underground mechanical and electrical utilities and buried mechanical and electrical appurtenances.

Rock excavation, mass, and trench.

Soil compaction control.

Site grading, temporary sediment basin.

Fill from off-site sources, if required.

Removal of excess materials off-site, if required.

Disposal of unsuitable materials off-site, if required.

1.2 RELATED WORK:

Section 33 11 00 - Water Utility Distribution Piping

Section 33 31 00 - Sanitary Utility Sewerage

Section 33 41 00 - Storm Utility Drainage System

1.3 DEFINITIONS:

Excavation: Removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.

In areas where rock is encountered, continuous and individual footing excavation shall be in accordance with details on the plans.

Unauthorized Excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer. Unauthorized excavation shall be at the Contractor's expense.

Under foundation bases or retaining walls, fill unauthorized excavation by extending indicated base to excavation bottom, without altering required top elevation. Clean concrete fill may be used to bring elevations to proper position, when acceptable to the Engineer.

In locations other than those above, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the Engineer.

Subgrade: The undisturbed soil or compacted soil layer at footing bearing elevations or immediately below the subbase at slabs, walks, and paving.

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Structure: Slabs, tanks, curbs, or other manmade stationary features occurring above or below ground surface.

Unsuitable Material: On-site materials, which are of improper gradation to allow adequate compaction, are organically contaminated or have been identified as improper for the intended use by the Engineer.

1.4 SUBMITTALS:

Test Reports: Submit the following reports directly to Owner from the testing services, with copy to Contractor:

Gradation test reports on borrowed material.

Field reports; in-place soil density tests.

One optimum moisture-maximum density curve for each type of soil compacted.

The Contractor shall submit samples of all materials from off-site sources to the testing laboratory at least ten (10) calendar days prior to use in the work. The Contractor shall not deliver or use any materials for off-site sources until written approval is received from the Engineer based upon test results showing compliance with these specifications.

On-site excavated material, including fill and topsoil, if available, may be submitted for testing.

1.5 QUALITY ASSURANCE:

Codes and Standards: Perform earthwork in compliance with applicable requirements of authorities having jurisdiction.

Town of Fairfield and Form 816 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2004 edition shall be used for materials compliance and execution of the work in this section.

1.6 PROJECT CONDITIONS:

Notify Owner if unexpected subsurface conditions are encountered and discontinue work in area until Owner provides notification to resume work.

Examine the substrata of the areas and ascertain the conditions under which earthwork is to be performed/installed. Do not proceed until all unsatisfactory conditions, if any, have been corrected to the satisfaction of the Owner.

Inform Call Before You Dig (1-800-922-4455) before beginning excavations. Do not proceed until clearance is received.

Existing Utilities: Locate existing underground utilities in areas of excavation work. Provide adequate means of support and protection during earthwork operations.

Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

Do not interrupt existing utilities serving facilities occupied by Owner or others during occupied hours except when permitted and then only after acceptable temporary utility services have been provided.

Provide adequate notice to the Owner, and receive written notice to proceed before interrupting utility.

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Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shutoff of services if lines are active.

Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.

Operate warning lights as recommended by authorities having jurisdiction.

Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

Protect benchmarks and existing structures, roads, sidewalks, paving, and curbs against damage from equipment and vehicular or foot traffic.

Underpin adjacent structures, which may be damaged by excavation work, including service lines and pipe chases.

Provide necessary safeguards to prevent accidents, to avoid all necessary hazards, and to protect the public, the work, and the property at all times, including Saturdays, Sundays, and holidays.

Contractor shall be responsible for any and all damages which may arise or occur to any party whatsoever by reason of the neglect in providing proper lights, guards, barriers, or any other safeguards to prevent damage to property, life, and limb.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. General Fill: Select excavated material, obtained from the construction site or imported, free from roots, wood, trash, broken rocks or stones in excess of 5" and other organic material, and approved suitable for use as general fill.
- B. Granular Structural Fill: Select excavated gravel or stone materials free of organic material, loam, trash, snow, ice, frozen soil, and other objectionable material, conforming to the gradation requirements as follows:

<u>Sieve Size</u>	<u>% Passing (by weight)</u>
8"	100%
3"	70-100%
$\frac{3}{4}$ "	45-95%
No. 4	30-90%
No. 10	25-80%
No. 40	10-50%
No. 200	0-8%

Crushed Gravel: Broken stone or gravel conforming to the requirements of Section M.02.06 for Gradation 'A' as described in the State of Connecticut DOT Form 814A, with gradation as follows:

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<u>Sieve Size</u>	<u>% Passing (by weight)</u>
5"	100%
3½"	90-100%
1½"	55-95%
1/4"	25-60%
10"	15-45%
40"	5-25%
100"	0-10%
200"	0-5%

Filter Fabric: Conform to State of Connecticut Form 816, 2004 Edition, Section M.08.01, Paragraph 26. MIRAFI 140 Filter Fabric, or approved equal.

1. Separation fabric shall contain recycled content as available (the percentage of recycled content is based on the weight of the component materials). Certification and submittal of recycled content shall be in accordance with Section 01450 1.5A.
2. Separation fabric fabricated within, and containing raw materials extracted within 500 miles (by air) of the project site shall be documented in accordance with the Section 1450 1.5B.
3. Products for work in the Section fabricated within, and containing raw materials extracted within 500 miles (by air) of the project site shall be documented in accordance with the Section 14550 1.5.

PART 3 - EXECUTION

3.1 GENERAL

Excavation Classifications: The following classifications of excavations are to be recognized in areas five feet or more outside building perimeter.

Earth Excavation: Excavation of all materials of any kind, except as classified as rock excavation, trench rock excavation, and trench earth excavation.

Trench Earth Excavation: Excavation of individual piers, footings, catch basins, pits, manholes, and including the excavation of all trench materials of any kind except as classified as trench rock excavation. No tunneling will be allowed.

Mass rock excavation shall include the excavation of hard and solid ledge, boulders in excess of one cubic yard in volume and rock hard cementitious deposits, the removal of which requires the use of drilling, barring, wedging, and/or blasting. For the purposes of payment, rock shall be defined as material, which cannot be excavated with equipment rated at less than 120 HP flywheel power developing at least 40,000 pounds breakout force measured in accordance with SAE S732C. Hard and compact materials such as cemented-gravel, glacial till, and relatively soft or disintegrated rock that can be removed without continuous and systematic drilling and blasting

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will not be considered as mass rock even though intermittent drilling and blasting may be performed to increase production.

Trench and pit rock excavation shall include the removal of solid rock, ledge, shale, or boulders in excess of one-half cubic yard in volume encountered in excavating trenches or pits which cannot be removed by power equipment without wedging, drilling, and/or blasting. For the purposes of payment, rock shall be defined as material, which cannot be excavated with equipment rated at less than 120 HP flywheel power developing at least 40,000 pounds breakout force measured in accordance with SAE S732C. Trenches in excess of 13'-0" in width are classified as Mass Rock Excavation.

3.2 ROCK PAYMENT LINES

A. Rock payment lines are limited to the following:

One foot six inches outside of concrete work for which forms are required, except footings.

Neat outside dimensions of concrete work where no forms are required.

The maximum rock slope shall be six units vertical to one unit horizontal.

In pipe trenches, one foot below the invert elevation of the pipe and two foot wider than the inside diameter of the pipe, but not less than a three foot minimum trench width.

Under slabs on grade, 1'-0" below bottom of slab.

Under proposed pavements, 6" below top of subgrade elevations.

No payment will be made for rock removal beyond specified rock payment lines.

3.3 UNSUITABLE MATERIAL

If unsuitable materials as defined by the Engineer are encountered at required subgrade elevations, carry excavations deeper and replace excavated material with other material as directed by the Engineer. Remove unsuitable materials from the site and legally dispose of them.

Removal of unsuitable material and its replacement as directed, provided it is not due to fault or neglect of the Contractor, will be paid on the basis of contract conditions relative to changes in work. Where the removal of unsuitable soil material is due to the fault or negligence of the Contractor in his performance of earthwork and site grading operations, excavate the resulting unsuitable material and replace with compacted satisfactory material as required, at no additional cost to the Contract Sum.

3.4 STABILITY OF EXCAVATIONS

A. General: Comply with local, state, and federal codes, ordinances, and requirements of agencies having jurisdiction.

Slope sides of excavations to comply with local, state, and federal codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

Slope the sides of excavations over 5' deep to the angle of repose of the material excavated, but not steeper than 1½ horizontal to 1 vertical. Where sloping is not possible, either because of space restrictions or stability of material excavated, shore and brace in accordance with requirements of authorities having jurisdiction. In addition, provide 5' high snow fence around these areas as protection. Temporary slopes should be covered with plastic sheeting or other suitable cover where necessary to prevent the surface from drying or eroding.

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Maintain sides and slopes of excavation in a safe condition until completion of backfilling, by scaling, benching, shelving, or bracing.

Take precautions to prevent slides or cave-ins when excavations are made in locations adjacent to backfilled excavations, and when sides or excavations are subject to vibrations from vehicular traffic or the operation of machinery, or from any other source.

Provide minimum requirements for trench shoring and bracing to comply with ANSI A10.1 "Safety for Building Construction", and with local codes and authorities having jurisdiction.

3.5 DEWATERING

Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavation limits to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.

3.6 EXCAVATION OF TRENCHES FOR PIPES AND CONDUIT

Excavate trenches to uniform width, sufficiently wide to provide ample working room and a minimum of six to nine inch clearance on both sides of pipe or conduit, unless otherwise indicated on drawings.

Excavate trenches and conduit to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on undisturbed soil. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

If rock is encountered, carry excavation 12" below required elevation and backfill a six inch layer of fine aggregate fill prior to installation of pipe.

For pipes or conduit less than six inches in nominal size, and for flat-bottomed, multiple-duct conduit units, do not excavate beyond indicated depths. Hand excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.

For pipes and equipment six inches or larger in nominal size, shape bottom of trench to fit of pipe for 90 degrees (bottom 1/4 of the circumference). Fill depressions with tamped fine aggregate backfill. At each pipe joint, dig bell holes to relieve pipe bell of loads and ensure continuous bearing of pipe barrel on bearing surface.

3.7 EXCAVATION FOR PAVEMENTS

Where rock is encountered at required top of subgrade elevations in parking and road areas, carry rock excavation down to allow the placement of six inches of stone fill over the surface of the exposed rock.

3.8 COLD WEATHER PROTECTION

Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F.

Protect bottom of excavations and soil around and beneath foundations from frost.

3.9 BACKFILL AND FILL

A. General: Place acceptable soil material in layers to required subgrade elevations.

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Under slabs on grade, place slab subbase.

Under piping, conduit, and equipment, use fine aggregate fill where required over rock bearing surface and for correction of unauthorized excavation. Shape excavation to fit bottom 90 degrees of cylinder.

At perforated drain piping, surround pipe with 6" minimum stone fill enveloped in filter fabric.

Backfill trenches with concrete where trench excavations pass within 18" of column or wall footings and that are carried below bottom of such footings or that pass under wall footings. Ensure trenching does not interfere with normal 45 degree bearing splay of any foundation. Place concrete to level of bottom of adjacent footing.

Backfill excavations as promptly as work permits, but not until completion of the following:

Acceptance of construction below finish grade including, where applicable, damp proofing, waterproofing, and perimeter insulation.

Inspection, testing, approval, and recording locations of underground utilities.

Removal of shoring and bracing, and backfilling of voids with satisfactory materials.

Removal of trash and debris from excavation.

Permanent or temporary horizontal bracing is in place on horizontally supported walls.

3.10 PLACING AND COMPACTION

A. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified in this section for particular area classification, break up ground surface, pulverize, moisture condition as required to achieve optimum moisture content, and compact to required depth and percentage of density. For slab on grade, proof roll existing ground surface with a ten ton roller.

Place backfill and fill materials in layers not more than eight inches in loose depth for material compacted by heavy compaction equipment, and not more than four inches in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to foundations or other structures to required elevations. Prevent wedging action of backfill against structures by carrying material uniformly around structures to approximately same elevation in each lift.

Control soil and fill compaction, providing minimum percentage of density specified for each area classification indicated below. Correct improperly compacted areas or lifts as directed by Engineer if soil density tests indicate inadequate compaction.

Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density, in accordance with ASTM D 1557.

Under structures, building slabs, steps, and pavements, compact top 12 inches of subgrade and each layer of backfill or fill material to 95% maximum density.

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Under and to Five Feet Outside of Site Pavements: Compact top 12" of subgrade and each layer of backfill or fill material to 95% of maximum density.

In Trenches and Pits: Compact top 12" of subgrade and each layer of backfill or fill material to 95% of maximum density.

Behind wall structures, compact each layer of backfill or fill material to a minimum of 90%, but not more than 92% of maximum density.

In Landscaped Areas: Compact top six inches of subgrade and each layer of backfill or fill material to 90% of maximum density.

Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

3.11 GRADING

General: The Drawings indicate finished elevations. The grading to be performed consists of establishing finished grade elevations as shown on the Drawings. The Contractor shall import additional materials if on-site quantities are insufficient and/or shall dispose of excess materials off-site as required at no additional cost to the Contract Sum.

Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

Finish surfaces free from irregular surface changes, and as follows:

Landscaped Areas: Finish areas to receive topsoil to within not more than 0.10' above or below required subgrade elevations.

Walks: Shape surface of areas under walks to line, grade, and cross section, with finish surface not more than 0.04'/1/2" above or below required subgrade elevation.

Pavements: Shape surface of areas under the pavement to line, grade, and cross-section, with finish surface not more than 0.04'/1/2" above or below required subgrade elevation.

Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum density for each area classification.

END OF SECTION

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SECTION 321216 – BITUMINOUS CONCRETE 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.

1.2 SUMMARY

A. Section Includes:

1. Hot-mix bituminous asphalt paving.
2. Hot-mix bituminous asphalt patching.
3. Bituminous asphalt curbs.

B. Related Requirements:

1. Section 311000 "Site Clearing" for demolition and removal of existing asphalt pavement.
2. Section 321313 "Concrete Paving" for concrete pavement.
3. Section 321613 "Curbing" for extruded concrete curbing.

1.3 REFERENCE STANDARDS

A. CTDOT Form 819: State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction Form 819; including latest Supplements, except as noted otherwise in this Section. Requirements of this Section are in addition to or supersede those of Form 819.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
 - a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
 - b. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.

1.5 ACTION SUBMITTALS

A. Provide Quality Control plan for the preparation and installation of the asphalt paving.

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- B. Product Data: Include technical data and tested physical and performance properties.
 - 1. Herbicide.
 - 2. Paving geotextile.
 - 3. Joint sealant.
- C. Hot-Mix Asphalt Designs:
 - 1. Certification, by authorities having jurisdiction, of approval of each hot-mix asphalt design proposed for the Work.
 - 2. For each hot-mix asphalt design proposed for the Work.
- D. Quality Control Plan, Project Summary Sheet and Extended Season Paving Plan as identified and formatted per Form 819 and the CTDOT Advisory Team Web Page.
- E. Samples for Verification: For the following product, in manufacturer's standard sizes unless otherwise indicated:
 - 1. Paving Geotextile: 12 by 12 inches minimum.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For paving-mix manufacturer and testing agency.
- B. Material Certificates: Include statement that mixes containing recycled materials will perform equal to mixes produced from all new materials.
 - 1. Aggregates.
 - 2. Asphalt binder.
 - 3. Asphalt cement.
 - 4. Cutback prime coat.
 - 5. Emulsified asphalt prime coat.
 - 6. Tack coat.
 - 7. Fog seal.
 - 8. Undersealing asphalt.
- C. Field quality-control reports.

1.7 QUALITY ASSURANCE

- A. The Contractor shall conform to the requirements of Form 819, Section 4.06.03-8 Contractor Quality Control (QC) Requirements.
 - 1. The Contractor shall perform all quality control sampling and testing, provide inspection, and exercise management control to ensure that bituminous concrete placement conforms to the requirements as outlined in its QCP during all phases of the work. The Contractor shall document these activities for each day of placement.
 - 2. The Owner or Owner's Representative may elect to employ a separate testing agency to confirm that certain crucial quality control procedures or requirements are met during the construction process.

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- B. Manufacturer Qualifications:** A paving-mix manufacturer qualified annually by the Connecticut Department of Transportation for the production of hot-mixed asphalt paving mixtures for use on Department projects.
- C. Testing Agency Qualifications:** Qualified in accordance with ASTM D3666 for testing indicated. The Contractor is responsible for Quality Control of the paving installation and shall provide quality control personnel throughout the paving operation.
- D. Regulatory Requirements:** Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction Form 818, including current Supplements.
 - 1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.
- E. FIELD CONDITIONS**
 - 1. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 - a. Prime Coat: Minimum surface temperature of 60 deg F.
 - b. Tack Coat: Minimum surface temperature of 60 deg F.
 - c. Slurry Coat: Comply with weather limitations in ASTM D3910.
 - d. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
 - e. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. General:** Use materials and gradations that have performed satisfactorily in previous installations.
- B. Coarse Aggregate:** CTDOT Form 819 Subarticle M.04.01-1.
- C. Fine Aggregate:** CTDOT Form 819 Subarticle M.04.01-2.
- D. Mineral Filler:** CTDOT Form 819 Subarticle M.04.01-3.

2.2 BITUMINOUS CONCRETE ASPHALT MATERIALS

- A. Asphalt Binder:** CTDOT Form 819 Subarticle M.04.01-4.
- B. Emulsified Asphalts:** CTDOT Form 819 Subarticle M.04.01-5.
- C. Water:** Potable.

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2.3 AUXILIARY MATERIALS

- A. Reclaimed Asphalt Pavement (RAP) Recycle Option: CTDOT Form 819 Subarticle M.04.01-6.
- B. Joint Seal: Hot-poured rubber compound CTDOT Form 819 Subarticle M.04.01-8.
- C. Herbicide: Commercial chemical for weed control, registered by the EPA, and not classified as "restricted use" for locations and conditions of application. Provide in granular, liquid, or wettable powder form.

2.4 MIXES

- A. Hot-Mix Asphalt: dense-graded, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and complying with the following requirements:
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
 - 2. Curb Mix: CTDOT Form 819 Subarticle M.04.02-1.
 - 3. Superpave Mixes: CTDOT Form 819 Subarticle M.04.02-2.
 - a. Base/Binder Course: HMA S0.375.
 - b. Surface Course: HMA S0.375.

2.5 FORMS

- A. Wood or metal; straight, free from warp, and of sufficient strength to resist springing from the impact of the roller. Wood forms shall be 2-inch surfaced plank except that thinner material may be used at sharp curves. Forms shall be of a depth equal to the depth of the finished pavement section.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that aggregate base course is dry and in suitable condition to begin paving.
- B. Adequately protect and leave in clean condition manhole frames and covers, catch basin grates, valve and meter boxes, curbs, walks, and walls.
- C. Adjust manhole covers, catch basin grates, valve boxes and similar items to conform with pavement grade or as directed by the Engineer.
- D. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 BITUMINOUS ASPHALT CONCRETE REPLACEMENT

- A. Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into perimeter of

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adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompack existing unbound-aggregate base course to form new subgrade.

- B. Tack Coat: Before placing patch material, apply tack coat uniformly to vertical asphalt surfaces abutting the patch. Apply at a rate of 0.05 to 0.15 gal./sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Placing Patch Material: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

3.3 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
- B. Tack Coat: Apply uniformly to all contact surfaces, and to all pavement surfaces that have been in place longer than 5 calendar days, at a rate of 0.05 to 0.15 gal./sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.4 PLACING HOT-MIX ASPHALT

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
 - 2. Place hot-mix asphalt surface course in single lift.
 - 3. Spread mix at a minimum temperature of 250 degrees F.
 - 4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
 - 5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
 - 6. Forms shall be used when hot mix asphalt is spread by hand. Forms shall be cleaned and oiled each time they are used. Forms shall be securely staked, braced, and held firmly to the required line and grade.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches from strip to strip to ensure proper compaction of mix along longitudinal joints.
 - 2. Complete a section of asphalt base course before placing asphalt surface course.

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- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.5 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 1. Clean contact surfaces and apply tack coat to joints.
 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
 4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."

3.6 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent or greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

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3.7 ASPHALT CURBS

- A. Construct hot-mix asphalt curbs over compacted pavement surfaces. Apply a light tack coat unless pavement surface is still tacky and free from dust. Spread mix at a minimum temperature of 250 deg F.
- B. Place hot-mix asphalt to curb indicated cross sections by machine or by hand in wood or metal forms. Tamp hand-placed materials and screed to smooth finish. Remove forms after hot-mix asphalt has cooled.
- C. Utilize special molds to produce the curb cross sections detailed on the Drawings.

3.8 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 1. Base Course: Plus or minus 3/8 inch.
 2. Surface Course: Plus 1/4 inch, no minus.
- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 1. Base Course: 1/4 inch.
 2. Surface Course: 1/8 inch.

3.9 FIELD QUALITY CONTROL

- A. Contractor will provide quality control personnel throughout the paving process.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- C. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- D. Replace and compact hot-mix asphalt where core tests were taken.
- E. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.10 WASTE HANDLING

- A. General: Handle asphalt-paving waste in accordance with Form 819, Section 4.09.03-A.

END OF SECTION 321216

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SECTION 321243 - POROUS FLEXIBLE 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.

1.2 SUMMARY

A. Section Includes:

- 1. Porous flexible paving surface at Children's Garden.
- 2. Base materials.
- 3. Geotextile.
- 4. Edge restraints with Geo-Grid.

B. Related Requirements:

- 1. Section 311000 "Site Clearing" for removal of existing site elements.
- 2. Section 329115 "Soil Preparation (Performance Specification)" for plantings soils to be used below porous flexible paving at tree pits.
- 3. Section 329117 "Structural Soil for Plantings" for the use of structural soils under pavements.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 SUBMITTALS

A. The Porous Flexible Paving manufacturer shall submit;

- 1. Certificates stating that materials meet or exceed the specified contract requirements.
- 2. Site handling and storage instructions.
- 3. Mixing and installation instructions.
- 4. A sample that reflects the characteristics of the material to be installed. The sample, upon approval, shall be maintained as the standard of minimum quality for all the proposed surfacing and paving work required for the project.

1.5 QUALITY ASSURANCE

- A. The Contractor installing the Porous Flexible Paving shall be a Certified Installer of the Basis of Design Porous Flexible Paving Product.
- B. Contractors bidding for installation of Porous Flexible Paving may become Certified Installers by contacting the manufacturer and successfully completing the Certified Installer program.

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- C. Mock-Up Panel: Construct 6' x 6' mock-up panel of porous flexible paving and finishing to demonstrate finish color, texture, finish and joint treatments. Rework panel until acceptable to the Landscape Architect. Upon acceptance, panels will be the standard for all porous flexible paving.
- D. The Contractor shall:
 - 1. Furnish all labor, materials, tools, equipment, and incidentals required to install Porous Flexible Paving.
 - 2. Provide an adequate number of skilled workers who are trained and experienced with installing Porous Flexible Paving and are familiar with the specified contract requirements and the methods needed for its installation.
 - 3. Install the crushed stone sub-base as described in the specifications and shown on the contract drawing unless the sub-base is installed/provided.
 - 4. Install the Porous Flexible Paving to depth and width as described in the specifications and shown in the contract drawings.
 - 5. Reduce the risk of damage to the Porous Flexible Paving surface by not allowing track vehicles (metal or rubber), forklifts (warehouse-variable reach), main lifts (booms or scissors), and/or dumpsters or roll-off containers on the Porous Flexible Paving either during or following installation.
- E. The Contractor is responsible for supplying and installing a warranted material that meets, or exceeds, the manufacturer's specifications and testing:
 - 1. ASTM C 666/C/666M- Freeze-Thaw testing with no cracks or breaks through 300 cycles of testing.
 - 2. Designated as "Highly Permeable" under FL DOT FM 5-565 permeability testing.
 - 3. Independent testing showing a percolation rate of 2400 gph (40 gpm) per sq. ft. or higher.
 - 4. Scuff/Power Steering Resistance in accordance with ISSA TB 100 / ISSA TB 139.
 - 5. Accelerated Weathering using ASTM 4798.
 - 6. Hamburg Loaded Wheel Testing TX DOT 242-F, must be equivalent or better than 2.3 rut depth at 8,000 cycles and full recovery within 24 hours.
 - 7. Static Creep Testing TX DOT 231-F, shall be equivalent to or better than total strain +2.703% and permanent strain equal to 0.514%.
 - 8. Resilient Modulus Testing in accordance with ASTM D 4123 shall be equivalent or better than 68,495 pounds.
 - 9. Slip resistant and ADA compliant, in accordance with ASTM D 2047 testing.
 - 10. Heat resilient to 400 degrees in accordance with ASTM D 4123 testing.
 - 11. Sound absorbent, in accordance with ASTN C423-09a / E795-05 testing.
 - 12. Compression tested and be able to withstand 250 psi without permanent deformation or damage.
 - 13. Has a leachate less than 6 parts per billion and containing no organic compounds or heavy metals.
 - 14. The material shall be resistant to the following elements: transmission, hydraulic, and brake fluids, gasoline, diesel, saltwater, oil, chlorine, ozone, bromine, and muriatic acid.

1.6 PROJECT CONDITIONS

- A. The Contractor shall provide appropriate and adequate protection to adjacent areas including but not limited to:
 - 1. Protection of adjacent work space from splashing of Porous Flexible Paving materials.
 - 2. Remove all stains from exposed surfaces of paving, structures, and grounds.

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3. Remove all waste and spillage.
4. Provide suitable protection to assure no damage or disturbance to existing improvements or vegetation before starting work and maintain protection throughout the course of the work.
5. Restore and repair areas, at no additional cost to the owner, that have been damaged as a result of construction work, including existing paving on or adjacent to the site, to their original condition or repair as directed to the satisfaction of the Owner's Representative.

B. Weather

1. The urethane binder is engineered based on the geographical location of the project and climate expectations during installation. The manufacturer will provide the appropriate binder for each installation and the materials delivered will be based on project location and seasonality.
2. The urethane binder shall be stored on site at between 59°- 77° F and used within 6 months of delivery.
3. The Contractor shall not pave on days when rain is forecast, unless a change in the weather results in favorable paving conditions as determined by the Owner's Representative.
4. In the event of rain on days prior to installation, the sub base must be dry and not contain any standing or moving water.

C. Safety and Traffic Control

1. When construction work will interfere with existing, traffic and sidewalks the Contractor shall notify and cooperate with local authorities, and other jurisdictional organizations, and provide temporary barriers, signs, warning lights, flaggers, and other protections as required by the authorities to assure the safety of pedestrians and vehicles around the construction area and to organize the smooth flow of traffic.

1.7 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For maintaining, cleaning and repairing Porous Flexible Paving.
- B. Warranty Documentation:
 1. Manufacturers' special warranties.
 2. Installer's special warranties.

1.8 MAINTENANCE MATERIALS

- A. Provide maintenance materials (attic stock) for each of the Porous Flexible Paving components in the below quantities:
 1. Type 1: 400 SF.
 2. Type 2: 200 SF.

1.9 WARRANTY

- A. Special Warranty: Manufacturer and Installer agree to repair or replace Porous Flexible Paving that fail(s) in materials or workmanship within specified warranty period.

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1. Failures include, but are not limited to, the following:
 - a. Structural failures, including raveling of surface materials and failure of binder agent.
2. Warranty Period: 1 year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GEOTEXTILE

- A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made 100% Spunbonded Polypropylene; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
 1. Tensile Strength: 73(lbs)
 2. Puncture Strength (lbs): 23
 3. Air Opening Size (equivalent sieve): 30/40
 4. Air Opening Size (mm): 0.52
 5. Trap Tear (lbs): 35
 6. Air Permeability (cm/sec): 10x10-2
 7. Flux (gal/ft²/min): 200
 8. Permitivity (sec-1): 3.0
 9. Color: Black

2.2 POROUS FLEXIBLE PAVING SYSTEM

- A. The Basis of Design Standard for Porous Flexible Paving is "Perk E Pave", **Mix 11**, Pottstown, PA – www.perkEpave.com and is a flexible porous paving system comprised of a combination of three components: recycled passenger car tires, aggregate and urethane binder, and provides a strong, pervious yet flexible pavement. Other manufacturers/products will be considered if determined to be an Equal Product by the Landscape Architect. Equivalency includes the color options of the recycled rubber tire shreds and stone aggregate.
- B. Base Aggregate Stone
 1. Graded Aggregate for Base Course: Sound crushed stone or gravel complying with 1 ½" Open Graded Stone – No Fines, AASHTO # 57.
 - a. 100% passing 1 ½" screen and
 - b. 95-100% passing 1" screen and
 - c. 0-10% passing #4 screen and
 - d. 0-5% passing #8 screen.
 2. Do not use rounded river gravel.
 3. All stone materials shall be washed with less than 1% passing the No. 200 sieve.
- C. Porous Flexible Paving Aggregate
 1. Triple-washed and dried coarse aggregate (1/4 to 3/8 inch) per ASTM C33. Bagged in 50 lb. quantity. Nominal maximum aggregate size shall not exceed 1/3 of the specified paving thickness.

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- D. Porous Flexible Paving Rubber
 - 1. Recycled passenger tires ground to $\frac{1}{4}$ " nominal with wire remnants removed
 - 2. Colors:
 - a. Type 1 – PerkEPave #11, Brown & Tan rubber with Beige Stone.
 - b. Type 2 – PerkEPave #11, Gray & Green rubber with S&P Stone.
- E. Binding Agent
 - 1. Urethane liquid prepolymer based upon diphenylmethane Diisocyanate.
- F. Mix Design
 - 1. Using materials mix ratio as acceptable by the Manufacturer for the intended application. The volume by weight of aggregate shall be as required by the Manufacturer for the intended application.

2.3 EDGE RESTRAINTS

- A. StrypRail Geo-Tension Paver Edge Restraint Anchoring System: Versa Heavy Edge Restraint System as manufactured by Fortress Engineered Edge Restraints, Prior Lake Minnesota (612) 940-0370 www.fortressedging.com
 - 1. Comprised of a polyester bi-directional Geo-Grid mechanically connected to the back of the edge restraint using stainless steel screws provided by the manufacturer.
 - 2. Edge Restraint Dimensions
 - a. Width: 4.25 inches
 - b. Height: 2.625 inches
 - c. Length: 84 inches
- B. Anchoring Spikes: 12 inch long by 3/8 inch diameter galvanized steel spikes.
 - 1. Maximum spike spacing – 12 inches on curved sections and 24 inches on straight sections.

2.4 PLANTING SOIL AND TREES

- A. Conform to Section 329115 “Soil Preparation (Performance Specifications).
- B. Conform to Section 329300 “Plants”.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that subgrades below the area to receive the Porous Flexible Paving have been achieved as indicated in the Drawings.
- B. Compact subgrade material to 95% compaction per AASHTO T-180.
- C. Place Geotextile over subgrade and vertically as indicated in the drawings.

3.2 BASE AGGREGATE STONE

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- A. Install in the locations and to the depths indicated in the drawings.
- B. Compact to 95% compaction per AASHTO T-180.
- C. Place Base aggregate and structural soil in equal lifts to maintain edge conditions between the two for the depths of each material.

3.3 STRUCTURAL SOIL FOR PLANTINGS

- A. Install structural soil per Section 319117.
- B. Compact to 95% compaction per AASHTO T-180.

3.4 GEO-GRID

- A. Install Geo-grid on top of the base aggregate Stone per Manufacturer's recommendations.

3.5 EDGE RESTRAINT

- A. Install the edge restraint per the manufacturer's recommendations and at the locations indicated in the Drawings.
 - 1. Place edging on top of the bi-directional polyester Geo-Grid and fold grid over edging and secure per manufacturer's instructions.
 - 2. Slide the retention lip under the bedding layer. Edging must not be installed on top of the bedding layer

3.6 PLANTING MIX AND TREE PLANTING

- A. Coordinate the placement of the planting soils with the structural soil to allow for formation of the tree pits.
- B. Plant trees in the tree pits prior to the installation of the porous flexible paving as indicated in the drawings.
- C. Base aggregate stone place over the planting soil should be compacted to a range of 75%-82%.
- D. Hand tamp stone over the root ball. Do not compact the root ball.

3.7 FLEXIBLE POROUS PAVING

- A. Flexible Porous Paving can be installed from 45°F to 95°F temperatures. Important: When curing, the temperature should not fall below 35°F.
- B. Flexible Porous Paving shall be installed by installers who have undergone training provided by the Manufacturer.

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C. Flexible Porous Paing is a construction paving material that is dynamic in its physical construction which is mixed directly at the installation site.

3.8 INSTALL AS SHOWN ON THE DRAWINGS AND PER MANUFACTURERS RECOMMENDATIONS.

3.9 MAINTENANCE MATERIALS

A. Turn over to the Owner attic stock materials as indicated in Article 1.8 above for future repairs.

END OF SECTION 321243

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SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

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

1.2 SUMMARY

A. Section Includes Concrete Paving Including the Following:

1. Concrete Walks and curb ramps.
2. Tactile Warning Surfacing.
3. Concrete Paving Joint Sealants
4. Water repellent and chloride screen.

B. Related Requirements:

1. Section 311000 "Site Clearing".
2. Section 321216 "Bituminous Concrete Paving".
3. Section 321613 "Curbing".

1.3 REFERENCE STANDARDS

A. CTDOT Form 819: State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction Form 819; including latest Supplements, except as noted otherwise in this Section.

1.4 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to concrete paving, including but not limited to, the following:
 - a. Concrete mixture design.
 - b. Quality control of concrete materials and concrete paving construction practices.
2. Require representatives of each entity directly concerned with concrete paving to attend, including the following:
 - a. Contractor's superintendent.

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b. Concrete paving Subcontractor.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Initial Selection: For each type of product, ingredient, or admixture requiring color selection.
- C. Samples for Verification: For each type of product or exposed finish, prepared as Samples of size indicated below:
- D. 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.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified ready-mix concrete manufacturer.
- B. Material Certificates: For the following, from manufacturer:
 - 1. Cementitious materials.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Admixtures.
 - 4. Curing compounds.
 - 5. Joint fillers.
 - 6. Joint Sealants.
 - 7. Tactile Warning Surfacing.
 - 8. Concrete Paving Joint Sealants
 - 9. Water repellent and chloride screen.
- C. Material Test Reports: For each of the following:
 - 1. Aggregates: Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- D. Field quality-control reports.

1.8 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

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B. Mockups: Build mockups to verify selections made under 1.6.D. above and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Build mockups of full-thickness sections of concrete paving to demonstrate typical joints; surface finish, texture, and color; curing; and standard of workmanship.
2. Build mockups of concrete paving where directed by Architect and not less than 96 inches (2400 mm) by 96 inches (2400 mm).
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 FIELD CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:

1. When air temperature has fallen to or is expected to fall below 40 deg F (4.4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.

C. Hot-Weather Concrete Placement: Comply with ACI 301 (ACI 301M) and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 (ACI 301M) unless otherwise indicated.

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2.2 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
 - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet (30.5 m) or less. Do not use notched and bent forms.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

- A. Epoxy-Coated Welded-Wire Reinforcement: ASTM A884/A884M, Class A, plain steel.
- B. Epoxy-Coated Reinforcing Bars: ASTM A775/A775M or ASTM A934/A934M; with ASTM A615/A615M, Grade 60 (Grade 420) deformed bars.
- C. Epoxy-Coated-Steel Wire: ASTM A884/A884M, Class A; coated, deformed.
- D. Epoxy-Coated, Joint Dowel Bars: ASTM A775/A775M; with ASTM A615/A615M, Grade 60 (Grade 420) plain-steel bars.
- E. Tie Bars: ASTM A615/A615M, Grade 60 (Grade 420); deformed.
- F. Hook Bolts: ASTM A307, Grade A (ASTM F568M, Property Class 4.6), internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- G. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
 - 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
- H. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

2.4 CONCRETE MATERIALS

- A. Regional Materials: Concrete shall be manufactured within 100 miles (160 km) of Project site from aggregates and cementitious materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles (160 km) of Project site.

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- B. Cementitious Materials: Conform to Form 819 Section 9.21 and M.03.02 PCC 04460.
- C. Water: Potable and complying with ASTM C94/C94M.

2.5 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- B. Water: Potable.
- C. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, dissipating.

2.6 RELATED MATERIALS

- A. Joint Fillers: semi-rigid, closed-cell polypropylene foam, preformed joint filler that meets the following physical property requirements and fully complies with ASTM D8139.

1. Compression Strength	30-60 psi	per ASTM D 545 or AASHTO T 42
2. Compression Recovery	> 80%	per ASTM D 545 or AASHTO T 42
3. Extrusion	< 0.1 in.	per ASTM D 545 or AASHTO T 42
4. Density	>3.5 lbs./cu.ft.	per ASTM D 545 or AASHTO T 42
5. Water Absorption	< 1.0%	per ASTM D 545 or AASHTO T 42
6. Heat Resistance °F	392°F± 5°F	per ASTM D 5249
7. Freeze Thaw Resistance	No change	per ASTM C 666 (300 cycles)
8. UV Weathering	No change	per ASTM D 4329 (1000 hrs., Cycle A)
9. Thickness	3/8 inch typical, 1/2 inch where walk abuts structures	
10. Provide cutting tool for pre-scoring the top edge of the joint filler, to allow removal of top portion for sealant application.		
- B. Joint Sealant for horizontal applications: Two component polyurethane elastomeric type complying with FS-TT-S-00227, self-leveling designed for foot traffic, 2c SL, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
 - 1. Color to be selected by Landscape Architect.
- C. Joint Sealant for vertical applications: Two component polyurethane elastomeric type complying with FS-TT-S-00230, non-sag, 2c NS EZ Mix, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
 - 1. Color to be selected by Landscape Architect.
- D. Sealant Backer Rod: Compressible rod stock or polyethylene foam, polyethylene jacketed, butyl rubber foam, or neoprene foam, as recommended by sealant manufacturer where required for back-up of sealant.
- E. Grout: Non-shrink, non-staining grout.

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F. Water repellant and chloride screen: Consolideck Saltguard WB, water based salt guard densifier, silane/siloxane water repellant and chloride screen as manufactured by Prosooco. Subject to compliance with requirements, provide the specified product or comparable product of Foundation Armor SX5000 WB or Ghostshield Siloxa-Tek 8500.

2.7 DETECTABLE WARNING SQUARE CAST IRON PAVER MATERIALS

A. Detectable Warning Square Cast Iron Paver Materials shall be a minimum of 60% post-consumer recycled content.

B. Detectable Warning Square Cast Iron Paver: 24 Inch x 24 inch paver.

1. Straight and radial detectable square cast iron paver warning plates shall be ADA II/ABA compliant, with slip resistant surface.
2. Plate shall be heavy duty grey iron, compliant with ASTM A48 CL35B.
3. 24 inch width of tactile warning strip for dimensioned lengths, unless otherwise indicated on plans.
4. Provide radius sections as required to meet back of curb radii in project drawings.
5. Detectable Warning paver shall be manufactured with integral anchor lugs to ensure solid attachment to cast-in-place concrete.
 - a. Cast iron paver shall be undipped Grey iron.
 - b. **Rust conditioner coating to be factory applied by the manufacturer.**

2.8 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to Form 819 Section M.03.02 PCC 04460.

B. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.

1. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.

C. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Pozzolan: 25 percent.

D. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:

1. Air Content: 6 percent plus or minus 1-1/2 percent for 1-inch (25-mm) nominal maximum aggregate size.

E. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

F. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

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G. Concrete Mixtures: Normal-weight concrete.

1. Compressive Strength (28 Days): 4400 psi (31 MPa).
2. Maximum W/C Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).

2.9 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C94/C94M and ASTM C1116/C1116M. Furnish batch certificates for each batch discharged and used in the Work.

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. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph (5 km/h).
2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons (13.6 tonnes).
3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch (13 mm) according to requirements in Section 312000 "Earth Moving."

C. Proceed with installation only after unsatisfactory conditions have been 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.

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3.4 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- E. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D3963/D3963M.

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.
 - 1. When joining existing paving, place transverse joints to align with previously placed joints 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.
 - 1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
 - 2. Provide tie bars at sides of paving strips where indicated.
 - 3. Butt Joints: Use bonding agent at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys unless otherwise indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 - 5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- C. Expansion/Isolation Joints: Form expansion/isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
 - 1. Locate expansion joints at intervals of 20 feet unless otherwise indicated.
 - 2. Extend joint fillers full width and depth of joint.

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3. Doweled Expansion Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat one-half of dowel length to prevent concrete bonding to one side of joint.
4. Pre-score the top edge of the joint filler with the manufacturer provided cutter tool. Install the joint filler system so that either the top edge of joint filler is at or slightly below the intended concrete surface.
5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
6. Remove top scored portion of joint filler after concrete has been placed and cured on both sides of joint.

D. Tooled/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, as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch (6-mm) radius. Repeat grooving of contraction joints after applying surface finishes.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.

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. Review edging in the field with the Landscape Architect to determine locations where “picture frame” edging shall be installed.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. 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.
- D. Comply with ACI 301 (ACI 301M) requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- F. 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.

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- G. Consolidate concrete according to ACI 301 (ACI 301M) by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels and joint devices.
- H. Screed paving surface with a straightedge and strike off.
- I. 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.
- J. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
- K. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 FLOAT 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.
 - 1. 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.

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3.8 DETECTABLE WARNING SQUARE CAST IRON PAVER

- A. Install detectable warning in accordance with manufacturer's instructions at locations indicated on the drawings.
- B. Any cutting required to fit detectable warning to an abutting piece, shall be done making every effort that cut line does not bisect the tactile domes, but falls between them. If cuts do bisect a dome, then the edge of the cut dome must be ground to meet ADA requirements for change in vertical grades. Cut pieces shall be dry fitted to ensure tight butt joint between plates prior to placing tactile warning in wet concrete.
- C. Set pavers in wet concrete at final position. Keep wet concrete off of the top surface of the pavers at all times.
- D. Press pavers into wet concrete to final elevation.
- E. Finish concrete around assembled pavers.
- F. Pavers must be flush with abutting concrete surface and flush curbing.

3.9 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching $0.2 \text{ lb/sq. ft. x h}$ (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.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture curing, curing compound or a combination of these as follows:
 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 2. 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.

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3.10 SEALANT INSTALLATION

- A. Install joint sealant in all expansion joints in accordance with manufacturer's installation instructions. Remove dust, dirt and loose material. Clean and prime joints.
- B. Apply sealants in continuous beads, without open joints, voids, or air pockets. Hand tool and finish all joints.
- C. Confine materials to joint areas with masking tape or other precautions. Insure joint sealing is cleanly executed with no override onto adjacent pavement.
- D. Remove excess compound promptly as work progresses and clean adjoining surfaces. Protect until fully cured.
- E. In rough surfaces or joints of uneven widths, hold joint sealant well back into joints.

3.11 WATER REPELLANT AND CHLORIDE SCREEN

- A. Apply water based water repellant and chloride screen per manufacturer's instructions.

3.12 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 (ACI 117M) and as follows:
 1. Elevation: 1/4 inch (6 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 1/2 inch (13 mm).
 4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches (13 mm per 300 mm) of tie bar.
 5. Lateral Alignment and Spacing of Dowels: 1 inch (25 mm).
 6. Vertical Alignment of Dowels: 1/4 inch (6 mm).
 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches (6 mm per 300 mm) of dowel.
 8. Joint Spacing: 3 inches (75 mm).
 9. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
 10. Joint Width: Plus 1/8 inch (3 mm), no minus.

3.13 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing and inspecting of composite samples of fresh concrete obtained according to ASTM C172/C172M shall be performed according to the following requirements:
 1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.

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- a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
2. Slump: ASTM C143/C143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C231/C231M, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when it is 80 deg F (27 deg C) and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C31/C31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
6. Compressive-Strength Tests: ASTM C39/C39M; test one specimen at seven days and two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).

D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

G. Concrete paving will be considered defective if it does not pass tests and inspections.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

I. Prepare test and inspection reports.

3.14 REPAIR 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.

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- B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
- C. 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.
- D. 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 321313

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SECTION 321613 - CURBING

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.

1.2 SUMMARY

- A. Section includes Concrete Curbing, furnished in accordance with the dimensions and details of the plans, and installed to the lines and grades shown on the plans.
- B. Related Requirements:
 - 1. Section 321216 "Asphalt Paving" for bituminous pavement curbing.
 - 2. Section 321313 "Concrete Paving" for concrete pavement.

1.3 REFERENCE STANDARDS

- A. Form 819 shall mean the State of Connecticut, Department of Transportation Standard specifications for Roads, Bridges and Incidental Construction, Form 819 or its latest edition and any supplemental specifications.
- B. Obtain approval of construction and secure all permits for work in R.O.W. areas. Contractor shall be licensed to R.O.W. holder and pay all fees.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Extruded concrete curbs including straight sections, inside radius and outside radius.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- B. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

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- C. Store liquids in tightly closed containers protected from freezing.
- D. Store asphalt cement and other bituminous materials in tightly closed containers.

1.7 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 and higher.
 - 3. When ambient temperature exceeds 100 deg F, or when wind velocity exceeds 8 mph and ambient temperature exceeds 90 deg F, set pavers within 1 minute of spreading setting-bed mortar.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain each type of curb mix material from single source with resources to provide materials and products of consistent quality in appearance and physical properties.

2.2 FORMS

- A. Form Materials: Commercially available extruded concrete forming equipment producing the curb profiles and dimensions as indicated in the Drawings.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 CURBING

- A. Concrete Curbing: Conform to Form 819, Section 8.11. and the additional requirements below.
 - 1. Class PCC04482 Concrete as defined in Form 819, M.03.02.
 - 2. Exposure factor 2 – Severe: In contact with deicing chemicals.
 - 3. Concrete to contain a minimum of 1lb. of fiber mesh reinforcement per cubic yard.
 - 4. Concrete adhesive shall be Sika Latex, Lara Crete 40, Concresive Paste LPL or approved equal designed to bond new concrete to existing bituminous concrete pavement.

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5. **Provide inside and outside radius curb and special sections where indicated on the drawings.**
- B. Special pieces: provide slope transition curbs, 180-degree bullnose, 90-degree driveway corners, and other special pieces as indicated.

2.4 JOINT FILLER

- A. Joint filler shall meet the requirements of Form 819, M.03.08-1.

2.5 BASE MATERIAL

- A. Bituminous concrete pavement.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas indicated to receive curbing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Ensure all bituminous concrete pavement has been installed and has met the minimum curing requirements to withstand personnel and equipment.
- B. Coordinate with the bituminous concrete installer to ensure that the bituminous concrete pavement has been overpaved, with additional pavement and base to accept the dimensions of the extruded concrete curbing as indicated in the Drawings.
- C. Thoroughly clean the bituminous concrete base course to remove all dust, dirt, oil and other deleterious materials.
 1. The bituminous concrete base course shall be cleaned using high pressure water washing or abrading.

3.3 EDGE FORMS CONSTRUCTION

- A. Adjust extruded curbing equipment to match the dimensions as indicated in the Drawings.
- B. Clean equipment as required to ensure separation from concrete without damage, and ability to provide a smooth finish on the face of extruded curbing.

3.4 INSTALLATION

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- A. Ensure all equipment is clean.
- B. Adhesive:
 - 1. Follow manufacturer's instructions for concrete adhesive installation.
- C. Curbing:
 - 1. Install curbing to the lines, grades, and details shown in the drawings.
 - a. Curb Installation
 - b. Place concrete curbing to the dimensions and shapes as detailed.
 - c. Backfill with approved material.
 - d. Tool control joints at intervals not to exceed nine (9) feet. Install additional control joints where required on radii.
 - e. Provide joint filler at intervals not to exceed fifty-four (54) feet.
 - 2. The finished curb shall be cured in with liquid membrane-forming curing material.
 - 3. Provide transition sections where extruded concrete curbing meets other types of curbing or flush conditions.
 - a. Transition sections shall provide a smooth transition from the dimensions of the extruded curbing to those of the material to be met.

3.5 REPAIRING AND CLEANING

- A. Remove and replace curbing sections that are chipped, broken, stained, or otherwise damaged or that do not match adjoining curbing. Provide new curbing to match adjoining and install in same manner as original, with same joint treatment and with no evidence of replacement.
 - a) Cleaning: Remove staining from exposed surfaces of curbing; wash and scrub clean.

END OF SECTION 321613

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SECTION 321713 - PARKING BUMPERS

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.

1.2 SUMMARY

- A. Section Includes:

- 1. Precast concrete wheel stops.

- B. Related Requirements

- 1. Section 321216 "Bituminous Concrete Paving".

1.3 ACTION SUBMITTALS

- A. Product Data:

- 1. Precast concrete wheel stops.

PART 2 - PRODUCTS

2.1 PARKING BUMPERS

- A. Precast Concrete Wheel Stops: Precast, steel-reinforced, air-entrained concrete; 4000-psi minimum compressive strength; 6 inches high by 9 inches wide by 72 inches long. Provide chamfered corners, transverse drainage slots on underside, and a minimum of two factory-formed or -drilled vertical holes through wheel stop for anchoring to substrate.

- 1. Source Limitations: Obtain wheel stops from single source from single manufacturer.
 - 2. Surface Appearance: Smooth, free of pockets, sand streaks, honeycombs, and other obvious defects. Corners shall be uniform, straight, and sharp.
 - 3. Mounting Hardware: Galvanized-steel spike or dowel, 1/2-inch diameter, 14-inch minimum length.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that pavement is in suitable condition and has met required curing time to begin installation in accordance with manufacturer's written instructions.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install wheel stops in accordance with manufacturer's written instructions unless otherwise indicated.
- B. Securely anchor wheel stops to substrate with hardware in each preformed vertical hole in wheel stop as recommended in writing by manufacturer. Recess head of hardware beneath top of wheel stop.

END OF SECTION 321713

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SECTION 321723 – PAVEMENT MARKINGS

PART I - GENERAL

1.01 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods or services referenced in or related to this Section shall also be bound by the Documents identified in Division 01 Section "Summary", Paragraph 1.1A, entitled "Related Documents."

1.02 PAVEMENT MARKINGS

A. Materials

- 1. 15-minute dry paint: Conform to Article M.07.20 of Form 814A.
- 2. Fast drying paint: Conform to Article M.07.21 of Form 814A.
- 3. Glass beads: Conform to Article M.07.30 of Form 814A.

B. Preparation

- 1. Pavement areas to be painted shall be dry and cleaned of sand and road debris so as to provide an acceptable bond between the paint and the pavement.

C. Application

- 1. Paint shall be applied at a rate of 100 - 115 sf per gallon.
- 2. Glass beads shall be applied at a rate of 6 lbs. per gallon of paint for painted pavement markings and painted legend, arrows, and markings. For fast drying painted pavement markings, the rate shall be at 8 lbs. per gallon of paint.
- 3. Fast drying paint shall be applied at a temperature of 120 - 150 ⁰F at the spray gun.
- 4. Painted centerline and shoulder lines shall be applied with a truck mounted sprayer.
- 5. All painting shall be performed in a neat and workmanlike manner. The lines shall be sharp and clear with no feathered edge or fogging and precautions shall be taken to prevent tracking by tires of the striping equipment. Paint shall be applied parallel to the road centerline or as shown on the plan with no unsightly deviations.

D. Protection

- 1. After application, the paint shall be protected from crossing vehicles for a time at least equivalent to the drying time of the paint.

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E. Removal

1. Any existing painted markings that are shown to be removed or are directed to be removed shall be permanently removed from the pavement by any method that does not damage the integrity of the pavement. Marring of the surface by sandblasting methods will be acceptable.
2. Sand or other material deposited on the pavement as a result of the removal process shall be removed as work progresses.
3. Painting existing markings black shall not be allowed.

F. Temporary markings

1. Commercially available temporary marking tape shall be installed on roads being used when the permanent pavement markings will not be applied immediately following removal or covering of existing markings or where temporary markings are needed.
2. The materials used and the installation shall be done in accordance with Article 12.12 of Form 814A.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 321723

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SECTION 323113 - CHAIN LINK FENCES AND GATES

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.

1.2 SUMMARY

- A. Section Includes:

1. Chain-link fences.
2. Swing gates.
3. Privacy slats.

- B. Related Requirements:

1. Section 311000 "Site Clearing" for preparations for installation of chain link fence and gates.
2. Section 321313 "Concrete Paving" for coordination of fence installation with Concrete Paving Installer.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Fence and gate posts, rails, and fittings.
 - b. Chain-link fabric, reinforcements, and attachments.
 - c. Accessories: Privacy slats.
 - d. Gates and hardware.

- B. Shop Drawings: For each type of fence and gate assembly.

1. Include plans, elevations, sections, details, and attachments to other work.
2. Include accessories, hardware, gate operation, and operational clearances.

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- C. Samples for Initial Selection: For each type of factory-applied finish.
- D. Samples for Verification: For each type of component with factory-applied finish, prepared on Samples of size indicated below:
 - 1. Polymer-Coated Components: In 6-inch lengths for components and on full-sized units for accessories.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of chain-link fence, and gate.
- B. Field quality-control reports.
- C. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Maintenance manuals for chain link fence, gates and privacy slats, including directions for minor repairs and paint touch-ups.
- B. Touch up primer and paint: Provide manufacturer provided touch up primer and paint for future Owner touch up and repair of scratches or blemishes to paint frame work or mesh.

1.7 QUALITY ASSURANCE

- A. Provide fences and gates as complete units produced by a single manufacturer, including necessary erection accessories, fittings, and fastenings.
- B. Installation shall be performed by the manufacturer or by an experienced chain link fence installer approved by the manufacturer.
- C. Provide a rigid, plumb finished fence structure, with fabric tight and in tension.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.9 WARRANTY

- A. Special Warranty: Manufacturer and Installer agree to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:

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- a. Failure to comply with performance requirements.
- b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Chain-link fence and gate frameworks shall withstand the design wind loads and stresses for fence height(s) and under exposure conditions indicated according to ASCE/SEI 7.

1. Design Wind Load: as required by Connecticut State Building Code .
 - a. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified.

2.2 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:

1. Fabric Height: As indicated on Drawings.
2. Steel Wire for Fabric:
 - a. Chain link fences, and upper panels of baseball backstop and softball hood: 2-inch mesh by 9-gauge (0.148-inch) core wire size (8-gauge finished wire).
 - b. Lower panels of softball backstops: 2-inch mesh by 6-gauge (0.192-inch) core wire size (5-gauge finished wire).
 - c. Fence enclosing detention basin: 1 ¼-inch mesh by 11-gauge (0.120-inch) core wire size (9-gauge finished wire size).
 - d. Polymer-Coated Fabric: ASTM F668, Class 2b over zinc-coated steel wire.
 - 1) Color: to be selected by Architect from manufacturer's standard and premium colors.
3. Selvage: Knuckled at both selvages.

2.3 FENCE FRAMEWORK

A. Posts and Rails: ASTM F1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F1043 based on the following:

1. Fence Height: As indicated on Drawings.
2. Heavy-Industrial-Strength Material: Group IA, round steel pipe, Schedule 40.
 - a. Line Post: As indicated in Drawings.

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- b. End, Corner, and Pull Posts: As indicated in Drawings .
3. Horizontal Framework Members: Intermediate, top and bottom rails according to ASTM F1043.
4. Brace Rails: ASTM F1043.
5. Metallic Coating for Steel Framework:
 - a. Hot-dipped galvanized with a minimum average 1.8 oz./sq. ft. of coated surface area.
6. Polymer coating over metallic coating.
 - a. Color: Match chain-link fabric, according to ASTM F934.

2.4 SWING GATES

- A. General: ASTM F900 for gate posts and [single] [double] swing gate types.[Provide automated vehicular gates according to ASTM F2200.]
 1. Gate Leaf Width: As indicated.
 2. Framework Member Sizes and Strength: Based on gate fabric height as indicated.
- B. Pipe and Tubing:
 1. Zinc-Coated Steel: ASTM F1043 and ASTM F1083; protective coating and finish to match fence framework.
 2. Gate Posts: Round tubular steel.
 3. Gate Frames and Bracing: Round tubular steel.
- C. Frame Corner Construction: Welded.
- D. Hardware:
 1. Hinges: Heavy duty hinges structurally capable of supporting gate leaf and allow opening and closing without binding. Non-lift-off type hinge design shall permit gate to swing 180 degrees as indicated on the drawings.
 2. Latch: Forked type capable of retaining gate in closed position permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.
 3. Closer: Manufacturer's standard.
 4. Keeper: Provide keeper for each gate leaf. Gate keeper shall consist of mechanical device for securing free end of gate when in full open position.
 5. Double Gates: Provide drop rod to hold inactive leaf. Provide gate stop pipe to engage center drop rod. Provide locking device and padlock for locking both gate leaves.

2.5 FITTINGS

- A. Provide fittings according to ASTM F626.
- B. Post Caps: Provide for each post.
 1. Provide line post caps with loop to receive tension wire or top rail.
- C. Rail and Brace Ends: For each gate, corner, pull, and end post.

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- D. Rail Fittings: Provide the following:
 - 1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails to posts.
- E. Tension and Brace Bands: Pressed steel.
- F. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.
- H. Tie Wires, Clips, and Fasteners: According to ASTM F626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:
 - a. Hot-Dip Galvanized Steel: 0.148-inch- diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.
- I. Finish:
 - 1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. of zinc.
 - a. Polymer coating over metallic coating.

2.6 PRIVACY SLATS

- A. Tubular Polyethylene Slats: Minimum 0.023-inch (0.58-mm) thick tubular polyethylene, manufactured for chain-link fences from virgin polyethylene with UV inhibitor, sized to fit mesh specified for direction indicated, with vandal-resistant fasteners and lock strips. Provide minimum 75% privacy/blockage.
- B. Color: match chain link fence color, as selected by Architect.

2.7 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a certified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 - 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing according to ASTM F567 and more stringent requirements specified.
 - 1. Install fencing on established boundary lines inside property line.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Concealed Concrete: Place top of concrete 2 inches Insert dimension below grade as indicated on Drawings to allow covering with surface material.
 - b. Posts Set into Sleeves in Concrete: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout or anchoring cement, mixed and placed according to anchoring material manufacturer's written instructions. Finish anchorage joint to slope away from post to drain water.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.
- E. Line Posts: Space line posts uniformly at not more than 10 feet o.c.
- F. Post Bracing and Intermediate Rails: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts

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with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.

1. Locate horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- G. Top Rail: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- H. Intermediate and Bottom Rails: Secure to posts with fittings.
- I. Chain-Link Fabric: Apply fabric to inside of enclosing framework. Leave 1-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.
- K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F626. Bend ends of wire to minimize hazard to individuals and clothing.
 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.
- L. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- M. Privacy Slats: Install slats in direction indicated, securely locked in place.
 1. Vertically for privacy factor of 90 percent.

3.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install privacy slats vertically where indicated for privacy factor of 90 percent. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.5 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

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- B. Lubricate hardware and other moving parts.

3.6 CLEANING

- A. Clean dust and construction material residues from chain link fence posts, mesh and framework.
- B. Touch-up with manufacturer approved primer and paint matching color of fence.
- C. The Contractor shall clean the jobsite of excess materials including post-hole excavations.

END OF SECTION 323113

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SECTION 323119 - METAL PICKET FENCES AND GATES

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.

1.2 SUMMARY

A. Section Includes:

- 1. Decorative aluminum fences, posts and gates.
- 2. Steel gate posts.
- 3. ADA required metal kick plate/tube.

1.3 REFERENCE STANDARD

- A. Form 819 - State of Connecticut, Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 819 or its latest edition and any supplemental specifications. Additional requirements are provided in this section.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For fencing and gates.
 - 1. Include plans, elevations, sections, gate locations, post spacing, and details.
- C. Samples: For each fence material and for each color specified.
 - 1. Provide Samples 12 inches (300 mm) in length for linear materials.

1.6 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Product Test Reports: For decorative metallic-coated-steel tubular picket fences, including finish, indicating compliance with referenced standard and other specified requirements.

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1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.
- B. The Contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and the materials specified.

1.8 WARRANTY

- A. Manufacturer's Limited Lifetime warranty on Fence panels and posts, framework and powder coat finishing.
 - 1. Fencing system and framework warranted against defects in workmanship and materials.
 - 2. Powder coat finish warranted against cracking, peeling, chipping, blistering and corroding resulting in structural failure, without cause.

PART 2 - PRODUCTS

2.1 METAL PICKET FENCES

- A. Aluminum Fences:
 - 1. Basis-of-Design Standard Product: Subject to compliance with requirements, provide modified model Echelon Plus Majestic aluminum ornamental fence system as manufactured by Ameristar Perimeter Security USA Inc., Tulsa, OK
www.ameristarperimeter.com
- B. Posts: Square extruded tubes, Alloy and Temper Designation 6005-T%.
 - 1. Line Posts: 2-1/2 by 2-1/2 inches with 0.060-inch wall thickness.
 - 2. End and Corner Posts: 2-1/2 by 2-1/2 inches with 0.060-inch wall thickness.
- C. Post Caps: Aluminum castings that cover entire top of posts.
- D. Rails: Extruded-aluminum channels, 1-1/4 by 1-7/16 inches, with 0.11-inch thick sidewalls and 0.090-inch thick top.
 - 1. Rails to be punched to accept pickets.
 - 2. Rails shall have internal raceway for pickets to be retained with a 1/8" retaining rod.
- E. Pickets: Extruded-aluminum tubes, Alloy and Temper Designation 6063-T52 3/4 inch (19 mm) square, with 0.045-inch wall thickness.
 - 1. Terminate tops of pickets at top rail for flush top appearance.
 - 2. Picket Spacing: 3-15/16" clear, maximum.
 - 3. Terminate bottom pickets at bottom rail.
- F. Fasteners: Manufacturer's standard tamperproof, corrosion-resistant, color-coated fasteners matching fence components with resilient polymer washers.
- G. Fabrication: Assemble fences into sections by welding pickets to rails.
- H. Finish: Powder coating.

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1. Six-stage pretreatment/wash followed by an electrostatic spray application of a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2-4 mils.
2. Color: Black.

2.2 SWING GATES

- A. Gate Configuration: As indicated.
- B. Gate Frame Height: As indicated.
- C. Gate Opening Width: As indicated.
- D. Gate Posts:
 1. Swing Gate Posts: Tubular steel 3 by 3 inches with 0.120-inch wall thickness.
- E. Aluminum Frames and Bracing: Fabricate members from square extruded-aluminum tubes 1.75-inch x 1.75-inch with 0.125-inch wall thickness.
- F. Frame Corner Construction: Welded.
- G. Gate Rails: Extruded-aluminum channels, 1-1/4 by 1-7/16 inches, with 0.11-inch thick sidewalls and 0.090-inch thick top.
 1. Rails to be punched to accept pickets.
 2. Rails shall have internal raceway for pickets to be retained with a 1/8" retaining rod.
- H. Infill: Comply with requirements for adjacent fence.
- I. Latches: Latches shall be ADA compliant and permit operation from both sides of gate. Fabricate latches with integral eye openings for padlocking; padlock accessible from both sides of gate.
 1. Padlock to be provided by the Owner.
- J. Hinges:
 1. Heavy duty barrel hinge with grease fitting.
 2. Allow operation to provide a minimum of 90 degrees opening.
- K. Finish: Same as fence.

2.3 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
 1. For aluminum, provide type and alloy as recommended by producer of metal to be welded and as required for strength and compatibility in fabricated items.
- B. Concrete: Conform to CT DOT Form 819, M.03.02, PCC03340.

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C. Nonshrink Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M and specifically recommended by manufacturer for exterior applications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, construction layout, and other conditions affecting performance of the Work.
- B. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.
 1. Construction layout and field engineering are specified in Section 017300 "Execution."

3.3 FENCE INSTALLATION

- A. Install fences according to manufacturer's written instructions.
- B. Post Excavation: Drill or hand-excavate holes for posts in firm, undisturbed soil. Excavate holes as indicated in the Drawings.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 2. Space posts uniformly as indicated in the Drawings.

3.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference.
- B. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage.
- C. Adjust hardware for smooth operation and lubricate where necessary.
- D. Provide gate swing direction as indicated in the Drawings.

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E. ADA Compliant kick-plate to be installed on the push side of gate at a minimum.

3.5 ADJUSTING

A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

B. Lubricate hinges utilizing installed grease fittings.

3.6 CLEANING

A. Clean dust and construction material residues from fence posts, panels, gates and framework.

B. Touch-up with manufacturer approved primer and paint matching color of fence.

C. The Contractor shall clean the jobsite of excess materials including post-hole excavations.

END OF SECTION 323119

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SECTION 323300 - SITE FURNISHINGS

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.

1.2 SUMMARY

A. Section Includes:

- 1. Seating – Metal Bench.
- 2. Tables with attached seating.
- 3. Seating – Precast Concrete platforms and pods.

B. Related Requirements:

- 1. Section 321313 "Concrete Paving".
- 2. Section 321243 "Porous Flexible Paving".

1.3 ALTERNATES

- A. All items within this specification section are part of an Add Alternate and not included in the Base Bid.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.
- C. Samples for Initial Selection: For units with factory-applied finishes.
- D. Samples for Verification: For each type of exposed finish, not less than 6-inch-long linear components and 4-inch-square sheet components.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For site furnishings manufactured with preservative-treated wood.
 - 1. Indicate type of preservative used and net amount of preservative retained. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

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1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For site furnishings to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Bench Replacement Slats: No fewer than six full-size units for each size indicated.
2. Anchors: twelve anchors for metal bench.
3. Patch materials provided by the manufacturer for precast concrete seating.

PART 2 - PRODUCTS

2.1 SEATING – METAL BENCH

A. Basis-of-Design Product: Subject to compliance with the requirements, provide products indicated on the Drawings "Multiplicity" Backed Bench by Landscape Forms, Inc., 431 Lawndale Avenue, Kalamazoo, MI 49048, (800) 521-2546.

B. "Multiplicity" Backed Bench:

1. Benches
 - a. Style: Surface Mount style with end arms both ends.
 - b. Depth: 23 inches.
 - c. Overall Height: 2'-8 3/4" inches.
 - d. Length: 7'-10 1/2" inches and 48" as indicated on the Drawings.

C. Materials:

1. Seat and back panels: Exterior wood, thermally modified ash, no finish.
2. Frame, Legs, and Arms: Supports: Cast aluminum.

D. Accessories:

1. Anchor Bolts and anchor paver adapters: provided by the installer.

E. Provide stainless steel shims or washers to level benches before tightening

F. Finishes:

1. Finish on Metal: Landscape Forms, Inc. "Pangard II".
 - a. Primer: Rust inhibitor on ferrous supports.
 - b. Topcoat: Thermosetting TGIC polyester powder coat. UV, chip, and flake resistant.
 - c. Test Results: "Pangard II".
 - 1) Gloss Consistency, Gardner 60 Degrees, ASTM D 523: Plus or minus 5 percent from standard.

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- 2) UV Resistance, Color and Gloss, ASTM G 155, Cycle 7: Delta E less than 2 at 2.0 mils and less than 20 percent loss.
- 3) Cross-Hatch Adhesion, ASTM D 3359, Method B: 100 percent pass.
- 4) Flexibility Test, Mandrel, ASTM D 522: 3 mm at 2 mils.
- 5) Erichsen Cupping, ISO 1520: 8 mm.
- 6) Impression Hardness, Buchholz, ISO 2815: 95.
- 7) Impact Test, ASTM D 2794: 60 inch-pounds at 2.5 mils.
- 8) Pencil Hardness, ASTM D 3363: 2H minimum.
- 9) Corrosion Resistance, 1,500-Hour Test, ASTM B 117: Max. undercutting 1 mm.
- 10) Humidity Resistance, 1,500-Hour Test, ASTM D 2247: Max. blisters 1 mm.

2. Color: Custom color to match RAL #7037 Semi Matte.

2.2 TABLES WITH ATTACHED SEATING

A. Basis-of-Design Product: Subject to compliance with the requirements, provide products indicated on the Drawings "Carousel" table with attached seating by Landscape Forms, Inc., 431 Lawndale Avenue, Kalamazoo, MI 49048, (800) 521-2546.

B. "Carousel" tables with seating:

1. Table Style: Dining height, five and six seat units. Five seat unit shall be wheelchair accessible.
2. Seat Style: Backed, perforated metal.
3. Tabletop: Steelhead, 42-inch diameter with solid metal insert.
4. Mounting: Freestanding with glides.
5. No umbrella hole.
6. Seat and Table Heights
 - a. Six (6) seat table and chairs
 - 1) Table height 29-1/4" with seat height 18-1.4".
 - 2) Table height 22" with seat height 14".
 - b. Five (5) seat table and chairs
 - 1) Table height 29-1/4" with seat height 18-1.4".
 - 2) Table height 22" with seat height 14".

C. Materials:

1. Seat: Perforated metal, 14 gauge steel panel with 1/4-inch square holes on 7/16-inch straight centers. Welded in 7/8-inch O.D. by 0.120-inch wall tubular steel frame.
2. Tabletop: Steelhead, set in 1 1/2-inch O.D. tubular frame reinforced with steel channels beneath top. Solid insert: 14 gauge steel.

D. Accessories:

1. Anchor Bolts: Stainless Steel, provided by the installer

E. Fabrication:

1. Shop assembled litter and recycling receptacles

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F. Finishes:

1. Finish on Metal: Landscape Forms, Inc. "Pangard II."
 - a. Primer: Rust inhibitor.
 - b. Topcoat: Thermosetting polyester powdercoat. UV, chip, and flake resistant.
 - c. Test Results: "Pangard II".
 - d. Gloss Consistency, Gardner 60 Degrees, ASTM D 523: Plus or minus 5 percent from standard.
 - e. UV Resistance, Color and Gloss, ASTM G 155, Cycle 7: Delta E less than 2 at 2.0 mils and less than 20 percent loss.
 - f. Cross-Hatch Adhesion, ASTM D 3359, Method B: 100 percent pass.
 - g. Flexibility Test, Mandrel, ASTM D 522: 3 mm at 2 mils.
 - h. Erichsen Cupping, ISO 1520: 8 mm.
 - i. Impression Hardness, Buchholz, ISO 2815: 95.
 - j. Impact Test, ASTM D 2794: 60 inch-pounds at 2.5 mils.
 - k. Pencil Hardness, ASTM D 3363: 2H minimum.
 - l. Corrosion Resistance, 1,500-Hour Test, ASTM B 117: Max undercutting 1 mm.
 - m. Humidity Resistance, 1,500-Hour Test, ASTM D 2247: Max blisters 1 mm.

G. Color: Custom color from full range of standard, premium and metallic colors, to be selected by Architect

2.3 SEATING – PRECAST CONCRETE

A. Precast Concrete Seating Performance Requirements:

1. Compressive Strength: 5,000 psi minimum.
2. Air Content: 6-8%.
3. Water-Cement Ratio: 0.45.
4. Deflection Max: L/720

B. Precast Concrete Material Requirements:

1. Portland Cement: ASTM C-150 Specifications for Portland Cement.
2. Aggregates: Aggregate shall be blended to meet individual project requirements.
3. Coloring: Pigments used shall be inorganic, resistant to alkalinity and used per manufacturer's recommendations.
4. Reinforcement and Hardware: Reinforce precast with deformed rods as recommended by precast concrete manufacturer.

C. Precast Concrete Manufactured Unit Requirements:

1. Sizing Tolerance: All units to conform to shop drawings with a $\pm 1/8"$ tolerance in dimension.
2. Precast Surfaces and Edges:
 - a. All exposed edges to have minimum 1/8" radius to prevent chipping.
 - b. All finished surfaces to match approved control sample.
 - c. All precast concrete finished surfaces to be factory sealed.

D. Pod Seat:

1. Basis-of Product: Subject to compliance with the requirements, provide Cloud ZB.CL.01 as manufactured by Wausau Tile, Wausau, WI (800) 388-8728 www.wausautile.com, or a comparable product of equal or better quality as approved by the Architect.

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- a. Size: As detailed.
- b. Finish: Acid wash, a light etch finish with an even and flat texture across the entire surface.
- c. Color: to be selected by Architect from manufacturer's standard and premium colors.

E. Platform Seat:

- 1. Basis-of-Design Product: Subject to compliance with the requirements, provide custom manufactured Galet I Bench ZB.GL.01 as manufactured by Wausau Tile, Wausau, WI (800) 388-8728 www.wausautile.com, or a comparable product of equal or better quality as approved by the Architect.
 - a. Sizes: As detailed.
 - b. Finish: Acid wash, a light etch finish with an even and flat texture across the entire surface.
 - c. Color: to be selected by Architect from manufacturer's standard and premium colors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Coordinate with the porous flexible paving and other site Contractors for sequencing the installation of precast concrete seating with other improvements.

3.2 SEATING INSTALLATION

- A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- C. Install site furnishings level, plumb, true, and securely anchored at locations indicated on Drawings.
- D. Provide all necessary protections of installed porous flexible paving and other pavements to prevent damage to pavement surfaces and structure when placing the precast concrete seating at the locations indicated in the Drawings.

3.3 CLEANING AND PROTECTION

- A. Protect furnishings from damage.

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- B. Immediately prior to Substantial Completion, clean furnishings in accordance with manufacturer's instructions to remove dust, dirt, adhesives, and other foreign materials.
- C. Touch up damaged finishes according to manufacturer's instructions.

END OF SECTION 323300

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SECTION 329115 - SOIL PREPARATION (PERFORMANCE SPECIFICATION)

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.

1.2 SUMMARY

- A. Section includes planting soils specified according to performance requirements of the mixes.
- B. Related Requirements:
 - 1. Section 311000 "Site Clearing" for topsoil stripping and stockpiling.
 - 2. Section 329300 "Plants" for placing planting soil for plantings.

1.3 DEFINITIONS

- A. AAPFCO: Association of American Plant Food Control Officials.
- B. Backfill: The earth used to replace or the act of replacing earth in an excavation. This can be amended or unamended soil as indicated.
- C. CEC: Cation exchange capacity.
- D. Compost: The product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth.
- E. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.
- F. Imported Soil: Soil that is transported to Project site for use.
- G. Layered Soil Assembly: A designed series of planting soils, layered on each other, that together produce an environment for plant growth.
- H. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.
- I. NAPT: North American Proficiency Testing Program. An SSSA program to assist soil-, plant-, and water-testing laboratories through interlaboratory sample exchanges and statistical evaluation of analytical data.

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- J. Organic Matter: The total of organic materials in soil exclusive of undecayed plant and animal tissues, their partial decomposition products, and the soil biomass; also called "humus" or "soil organic matter."
- K. 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.
- L. RCRA Metals: Hazardous metals identified by the EPA under the Resource Conservation and Recovery Act.
- M. SSSA: Soil Science Society of America.
- N. 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.
- O. 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.
- P. 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.
- Q. USCC: U.S. Composting Council.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include recommendations for application and use.
 - 2. Include test data substantiating that products comply with requirements.
 - 3. Include sieve analyses for aggregate materials.
 - 4. Material Certificates: For each type of imported soil and soil amendment and fertilizer before delivery to the site, according to the following:
 - a. Manufacturer's qualified testing agency's certified analysis of standard products.
 - b. Analysis of fertilizers, by a qualified testing agency, made according to AAPFCO methods for testing and labeling and according to AAPFCO's SUIP #25.
 - c. Analysis of nonstandard materials, by a qualified testing agency, made according to SSSA methods, where applicable.
- B. Samples: For each bulk-supplied material, 1-gal. volume of each in sealed containers labeled with content, source, and date obtained. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of composition, color, and texture.

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1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For each testing agency.
- B. Preconstruction Test Reports: For preconstruction soil analyses specified in "Preconstruction Testing" Article.
- C. Field quality-control reports.

1.7 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.

1.8 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction soil analyses on existing, on-site soil and imported soil.
 - 1. Notify Architect seven days in advance of the dates and times when laboratory samples will be taken.
- B. Preconstruction Soil Analyses: For each unamended soil type, perform testing on soil samples and furnish soil analysis and a written report containing soil-amendment and fertilizer recommendations by a qualified testing agency performing the testing according to "Soil-Sampling Requirements" and "Testing Requirements" articles.
 - 1. Have testing agency identify and label samples and test reports according to sample collection and labeling requirements.

1.9 SOIL-SAMPLING REQUIREMENTS

- A. General: Extract soil samples according to requirements in this article.
- B. Sample Collection and Labeling: Have samples taken and labeled by Contractor in presence of Architect under the direction of the testing agency.
 - 1. Number and Location of Samples: Minimum of three representative soil samples from varied locations for each soil to be used or amended for landscaping purposes.
 - 2. Procedures and Depth of Samples: According to USDA-NRCS's "Field Book for Describing and Sampling Soils."
 - 3. Division of Samples: Split each sample into two, equal parts. Send half to the testing agency and half to Owner for its records.
 - 4. Labeling: Label each sample with the date, location keyed to a site plan or other location system, visible soil condition, and sampling depth.

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1.10 TESTING REQUIREMENTS

- A. General:** Perform tests on soil samples according to requirements in this article.
- B. Physical Testing:**
 - 1. Soil Texture:** Soil-particle, size-distribution analysis by one of the following methods according to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods":
 - a. Sieving Method:** Report sand-gradation percentages for very coarse, coarse, medium, fine, and very fine sand; and fragment-gradation (gravel) percentages for fine, medium, and coarse fragments; according to USDA sand and fragment sizes.
 - b. Hydrometer Method:** Report percentages of sand, silt, and clay.
- C. Chemical Testing:**
 - 1. CEC:** Analysis by sodium saturation at pH 7 according to SSSA's "Methods of Soil Analysis - Part 3- Chemical Methods."
 - 2. Clay Mineralogy:** Analysis and estimated percentage of expandable clay minerals using CEC by ammonium saturation at pH 7 according to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods."
 - 3. Metals Hazardous to Human Health:** Test for presence and quantities of RCRA metals including aluminum, arsenic, barium, copper, cadmium, chromium, cobalt, lead, lithium, and vanadium. If RCRA metals are present, include recommendations for corrective action.
 - 4. Phytotoxicity:** Test for plant-available concentrations of phytotoxic minerals including aluminum, arsenic, barium, cadmium, chlorides, chromium, cobalt, copper, lead, lithium, mercury, nickel, selenium, silver, sodium, strontium, tin, titanium, vanadium, and zinc.
- D. Fertility Testing:** Soil fertility analysis according to standard laboratory protocol of SSSA NAPT NEC-67, including the following:
 - 1. Percentage of organic matter.
 - 2. CEC, calcium percent of CEC, and magnesium percent of CEC.
 - 3. Soil reaction (acidity/alkalinity pH value).
 - 4. Buffered acidity or alkalinity.
 - 5. Nitrogen ppm.
 - 6. Phosphorous ppm.
 - 7. Potassium ppm.
 - 8. Manganese ppm.
 - 9. Copper ppm.
 - 10. Sodium ppm and sodium absorption ratio.
 - 11. Soluble-salts ppm.
 - 12. Presence and quantities of problem materials including salts and metals cited in the Standard protocol. If such problem materials are present, provide additional recommendations for corrective action.
 - 13. Other deleterious materials, including their characteristics and content of each.
- E. Organic-Matter Content:** Analysis using loss-by-ignition method according to SSSA's "Methods of Soil Analysis - Part 3-Chemical Methods."

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F. Recommendations: Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated to produce satisfactory planting soil suitable for healthy, viable plants indicated. Include, at a minimum, recommendations for nitrogen, phosphorous, and potassium fertilization, and for micronutrients.

1. Fertilizers and Soil Amendment Rates: State recommendations in weight per 1000 sq. ft. for 6-inchdepth of soil.
2. Soil Reaction: State the recommended liming rates for raising pH or sulfur for lowering pH according to the buffered acidity or buffered alkalinity in weight per 1000 sq. ft. for 6-inchdepth of soil.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with state and Federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Do not move or handle materials when they are wet or frozen.
4. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

PART 2 - PRODUCTS

2.1 PLANTING SOILS SPECIFIED ACCORDING TO PERFORMANCE REQUIREMENTS

A. Planting-Soil Type 1: Existing, on-site surface soil, with the duff layer, if any, retained; and stockpiled on-site; modified to produce viable planting soil. Using preconstruction soil analyses and materials specified in other articles of this Section, amend existing, on-site surface soil to become planting soil complying with the following requirements:

1. Particle Size Distribution by USDA Textures: Classified as sandy loam or loam soil according to USDA textures.
2. Percentage of Organic Matter: Minimum 5 to 8 percent by volume.
3. Soil Reaction: pH of 6 to 7.
4. Fertility: N,P, K, Mg, and Ca in amounts recommended by the testing laboratory for the turf types and plant groups to be installed.
5. RCRA Metals: Below maximum limits established by the CT DEEP.
6. Phytotoxicity: Below phytotoxicity limits established by SSSA.

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B. Planting-Soil Type 2: Imported, naturally formed soil from off-site sources and consisting of sandy loam or loam soil according to USDA textures; and modified to produce viable planting soil. Amend imported soil with materials specified in other articles of this Section to become planting soil complying with the following requirements:

1. Sources: Take imported, unamended soil from sources that are naturally well-drained sites where topsoil occurs at least 4 inches deep, not from agricultural land, 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: Minimum of 4 percent organic-matter content, friable, and with sufficient structure to give good tilth and aeration. Clean soil to be 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 1 ½" in any dimension.
3. Percentage of Organic Matter: Minimum 5 to 8 percent by volume.
4. Soil Reaction: pH of 6 to 7.
5. Fertility: N, P, K, Mg, and Ca in amounts recommended by the testing laboratory for the turf types and plant groups to be installed.
6. RCRA Metals: Below maximum limits established by the CT DEEP.
7. Phytotoxicity: Below phytotoxicity limits established by SSSA.

2.2 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C602, 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 sieve and a minimum of 75 percent passing through a No. 60 sieve.
 2. Form: Provide lime in form of ground dolomitic limestone.
- B. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent elemental sulfur, with a minimum of 99 percent passing through a No. 6 sieve and a maximum of 10 percent passing through a No. 40 sieve.
- C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
- D. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C33/C33M.

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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. Feedstock: Limited to leaves.
 - 2. Reaction: pH of 5.5 to 8.
 - 3. Soluble-Salt Concentration: Less than 4 dS/m.
 - 4. Moisture Content: 35 to 55 percent by weight.
 - 5. Organic-Matter Content: 40 to 60 percent of dry weight.
 - 6. Particle Size: Minimum of 98 percent passing through a 1-inch sieve.

2.4 FERTILIZERS

- A. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- B. 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: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.
- C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.
- D. Chelated Iron: Commercial-grade FeEDDHA for dicots and woody plants, and commercial-grade FeDTPA for ornamental grasses and monocots.

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.
- C. Proceed with placement only after unsatisfactory conditions have been corrected.

3.2 PREPARATION OF UNAMENDED, ON-SITE SOIL BEFORE AMENDING

- A. Excavation: Excavate soil from designated area(s) to a depth of 6 inches and stockpile until amended.

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- 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 combined maximum of 8 percent by dry weight of stones, roots, plants, sod, clay lumps, and pockets of coarse sand.
- D. Screening: Pass unamended soil through a 2-inch sieve to remove large materials.

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 4 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 - 1. Apply, add soil amendments, and mix approximately half the thickness of unamended soil over prepared, loosened subgrade according to "Mixing" Paragraph below. Mix thoroughly into top 2 inches of subgrade. Spread remainder of planting soil.
- C. Mixing: Spread unamended soil to total depth of 6 inches, 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. 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 and sulfur with dry soil before mixing fertilizer.
 - b. Mix fertilizer with planting soil no more than seven days before planting.
- D. Compaction: Compact each blended lift of planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D698 except rain garden/detention basin bottom mix.
- 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 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Perform the following tests and inspections:
 - 1. Performance Testing: For each amended planting-soil type, demonstrating compliance with specified performance requirements. Perform testing according to "Soil-Sampling Requirements" and "Testing Requirements" articles.
- C. Soil will be considered defective if it does not pass tests and inspections.

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- D. Prepare test and inspection 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.

3.5 PROTECTION

- A. Protection Zone: Identify protection zones according to Section 015639 "Temporary Tree and Plant Protection."
- 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. Erection of sheds or structures.
 - 6. Impoundment of water.
 - 7. Excavation or other digging unless otherwise indicated.
- C. If planting soil or subgrade is overcompacted, disturbed, or contaminated by foreign or deleterious materials or liquids, remove the planting soil and contamination; restore the subgrade as directed by Architect and replace contaminated planting soil with new planting soil.

3.6 CLEANING

- A. Protect areas adjacent to planting-soil preparation and placement areas from contamination. Keep adjacent paving and construction clean and work area in an orderly condition.
- B. 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 329115

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SECTION 329117 - STRUCTURAL SOIL FOR PLANTINGS

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.

1.2 SUMMARY

A. Section Includes:

1. Furnish and install Structural Soil for plantings below pavements as indicated on the drawings.
2. Furnish and install Geotextile fabric at structural soil trenches as indicated in the drawings.
3. Furnish and install PVC distribution pipe for aeration and supplemental irrigation within the structural soil trenches as indicated in the drawings. This includes perforated and non-perforated pipe, fittings, slotted drainage covers, pipe cleaner and PVC cement as well as any other materials or labor to complete the distribution piping as indicated in the drawings.

B. Related Requirements:

1. Section 311000 "SITE CLEARING" for removal of existing site elements and preparation for pavements.
2. Section 321243 "POROUS FLEXIBLE PAVING" for preparation and installation of porous flexible paving over Structural Soil for Plantings.
3. Section 329115 "SOIL PREPARATION (PERFORMANCE SPECIFICATION)" for planting soils at tree pits.
4. Section 329300 "PLANTS" for planting in tree pits.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include recommendations for application and use.
2. Include test data substantiating that products comply with requirements.
3. Include sieve analyses for aggregate materials.
4. Material Certificates: For each type of imported soil and soil amendment and fertilizer before delivery to the site, according to the following:
 - a. Manufacturer's qualified testing agency's certified analysis of standard products.
 - b. Analysis of fertilizers, by a qualified testing agency, made according to AAPFCO methods for testing and labeling and according to AAPFCO's SUIP #25.

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- c. Analysis of nonstandard materials, by a qualified testing agency, made according to SSSA methods, where applicable.
- B. Samples: For each bulk-supplied material, 1-gal. volume of each in sealed containers labeled with content, source, and date obtained. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of composition, color, and texture.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For each testing agency.
- B. Field Quality-Control Submittals.

1.6 QUALITY ASSURANCE

- A. Qualifications:
- B. 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.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction soil analyses on existing, on-site soil and imported soil.
 - 1. Notify Architect seven days in advance of the dates and times when laboratory samples will be taken.
- B. Preconstruction Soil Analyses: For each unamended soil type, perform testing on soil samples and furnish soil analysis and a written report containing soil-amendment and fertilizer recommendations by a qualified testing agency performing the testing according to "Soil-Sampling Requirements" and "Testing Requirements" articles.
 - 1. Have testing agency identify and label samples and test reports according to sample collection and labeling requirements.

1.8 SOIL-SAMPLING REQUIREMENTS

- A. General: Extract soil samples according to requirements in this article.
- B. Sample Collection and Labeling: Have samples taken and labeled by Contractor in presence of Landscape Architect under the direction of the testing agency.
 - 1. Number and Location of Samples: Minimum of three representative soil samples from varied locations for each soil to be used or amended for landscaping purposes.
 - 2. Procedures and Depth of Samples: According to USDA-NRCS's "Field Book for Describing and Sampling Soils."
 - 3. Division of Samples: Split each sample into two, equal parts. Send half to the testing agency and half to Owner for its records.
 - 4. Labeling: Label each sample with the date, location keyed to a site plan or other location system, visible soil condition, and sampling depth.

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1.9 TESTING REQUIREMENTS

- A. General: Perform tests on soil samples according to requirements in Section 329115.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with state and Federal laws if applicable.
- B. Bulk Materials:
 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 3. Do not move or handle materials when they are wet or frozen.
 4. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

PART 2 - PRODUCTS

2.1 GEOTEXTILE

- A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made 100% Spunbonded Polypropylene; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
 1. Tensile Strength: 73(lbs)
 2. Puncture Strength (lbs): 23
 3. Air Opening Size (equivalent sieve): 30/40
 4. Air Opening Size (mm): 0.52
 5. Trap Tear (lbs): 35
 6. Air Permeability (cm/sec): 10x10-2
 7. Flux (gal/ft²/min): 200
 8. Permitivity (sec-1): 3.0
 9. Color: Black

2.2 STRUCTURAL SOILS FOR PLANTINGS

- A. CU Structural Soil®: Imported, manufactured soils from off-site sources meeting the requirements of CU Structural Soil, as licensed by Ameriq and distrusted by Dunning Sand and Gravel, Farmington, CT; or Grillo Services, Milford, CT; or Read Custom Soils, Wareham, MA.:
 1. CU Structural Soil
 - a. Clay Loam
 - 1) Soil shall be a “loam” with a minimum clay content of 20% or a “clay loam” based on the “USDA classification system” as determined by mechanical analysis (ASTM D-422) and it shall be of uniform composition, without

adixture of subsoil. It shall be free of stones, lumps, plants and their roots, debris and other extraneous matter. It shall not contain toxic substances harmful to plant growth. Clay loam shall contain not less than 2% or more than 5% organic matter as determined by the loss on ignition of oven-dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 degrees F., plus or minus 9 degrees.

- 2) Mechanical analysis for the loam or clay loam shall be as follows:
 - a) Textural Class % of Total Weight
 - b) Gravel less than 5%
 - c) Sand 20-45%
 - d) Silt 20-50%
 - e) Clay 20-40%
- 3) Chemical analysis: Meet, or be amended to meet the following criteria:
 - a) pH between 5.5 to 6.5.
 - b) Percent organic matter 2% - 5% by dry weight.
 - c) Adequate nutrient levels.
 - d) Soluble salt less than 1.0 mmho/cm.
 - e) Cation Exchange Capacity (CEC) greater than 10.
 - f) Carbon/Nitrogen ratio less than 33:1.
- 4) Loam or clay loam shall not come from USDA - classified prime farmland.
- b. Fertilizer (if needed)
 - 1) Should nutrient analysis suggest that the loam or clay loam need additional nutrients, it shall be amended by CU Structural Soil licensed producer.
- c. Sulfur (if needed)
 - 1) Sulfur shall be a commercial granular, 96% pure sulfur, with material and analysis appearing on the labeled container.
 - 2) Sulfur used to lower pH shall be a ferrous sulfate formulation.
 - 3) Application rates shall be dependent on soil test results.
- d. Lime (if needed)
 - 1) Agricultural lime containing a minimum of 85% carbonates.
 - 2) Application rates shall be dependent on soil test results.
- e. Crushed Stone
 - 1) The size of the crushed stone shall be 0.75 inches to 1.5 inches allowing for up to 10% being greater than 1.5 inches, and up to 10% less than 0.75 inches.
 - 2) Acceptable aggregate dimensions will not exceed 2.5:1.0 for any two dimensions.
 - 3) Minimum 90% with two or more fractured faces.
 - 4) Results of Aggregate Soundness Loss test shall not exceed 18%.
 - 5) Losses from LA Abrasion tests shall not exceed 40%.
- f. Hydrogel
 - 1) Hydrogel shall be a coated potassium propenoate-propenamide copolymer (Gelscape® Hydrogel Tackifier) as manufactured by Amereq, Inc. 800-832-8788.
- g. Water
 - 1) The installing contractor shall be responsible to furnish his own supply of water (if needed) free of impurities, to the site.
- h. CU-Structural Soil®
 - 1) A uniformly blended urban tree mixture of crushed stone, clay loam and Gelscape® Hydrogel Tackifier, as produced by an Amereq-licensed company, mixed in the following proportion:

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	Material	Unit of Weight
a)	specified crushed Stone	100 units dry weight
b)	specified clay loam	20 – 25 units (to achieve minimum CBR of 50)
c)	Gelscape® Hydrogel Tackifier	0.035 units dry weight
d)	moisture	ASTM D698/AASHTO T-99 optimum moisture

2.3 DISTRIBUTION PIPING

- A. 4" schedule 40 PVC piping, both perforated (with filter sleeve) and non-perforated and all necessary fittings, slotted drain covers, cleaning solutions and PVC cement as required to complete the distribution systems at the locations and to the dimensions indicated in the Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. All areas to receive CU-Structural Soil® shall be inspected by the installing contractor before starting work and all defects such as incorrect grading, compaction, and inadequate drainage shall be reported to the engineer prior to beginning this work.
- B. Coordinate with Porous Flexible Paving Installer, Site Contractor, and Landscape Contractor to confirm limits and depths of structural soil, adjacent #57 stone and planting soil for tree pits.

3.2 DELIVERY, STORAGE, AND HANDLING

- A. Delivered CU-Structural Soil® shall be at or near optimum compaction moisture content as determined by AASHTO T 99 (ASTM D 698) and should not be placed in frozen, wet or muddy sites. Protect CU-Structural Soil® from exposure to excess water and from erosion at all times. Do not store CU-Soil™ unprotected. Do not allow excess water to enter site prior to compaction. If water is introduced into the CU-Soil™ after grading, allow water to drain to optimum compaction moisture content

3.3 CU-SOIL™ MIXING AND QUALITY CONTROL TESTING

- A. All CU-Structural Soil® mixing shall be performed at the licensed producer's yard using appropriate soil measuring, mixing and shredding equipment of sufficient capacity and capability to assure proper quality control and consistent mix ratios. No mixing of CU-Structural Soil® at the project site shall be permitted. Maintain adequate moisture content during the mixing process. Soils and mix components shall easily shred and break down without clumping. Soil clods shall easily break down into a fine crumbly texture. Soils shall not be overly wet or dry. The licensed producer shall measure and monitor the amount of soil moisture at the mixing site periodically during the mixing process.

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- B. Raw materials shall be mixed off-site, only at the licensed producer's facility, on a flat asphalt or concrete paved surface to avoid soil contamination.
- C. Should the independent laboratory test results of the clay loam reveal a need to amend it, to meet specifications, the amending materials should be added to the clay loam following the rates and recommendations provided by Amereq.

3.4 UNDERGROUND UTILITIES AND SUBSURFACE CONDITIONS

- A. The installing contractor shall notify the engineer of any subsurface conditions which will affect the contractor's ability to install the CU-Soil™.
- B. The installing contractor shall locate and confirm the location of all underground utility lines and structures prior to the start of any excavation.
- C. The installing contractor shall repair any underground utilities or foundations damaged during the progress of this work.

3.5 SITE PREPARATION

- A. Do not proceed with the installation of the Structural Soil material until all curb footings and utility work in the area have been installed. For site elements dependent on Structural Soil for foundation support, postpone installation of such elements until immediately after the installation of Structural Soil.
- B. Excavate and compact the proposed subgrade to depths, slopes and widths as shown on the drawings. Maintain all required angles of repose of the adjacent materials as shown on the drawings. Do not over excavate compacted subgrades of adjacent pavement or structures.
- C. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope parallel to the finished grade and/or toward the subsurface drain lines as shown on the drawings.
- D. Clear the excavation of all construction debris, trash, rubble and any foreign material. In the event that fuels, oils, concrete washout silts or other material harmful to plants have been spilled into the subgrade material, excavate the soil sufficiently to remove the harmful material. Fill any over excavation with approved fill and compact to the required subgrade compaction.
- E. Do not proceed with the installation of Structural Soil until all utility work in the area has been installed. All subsurface drainage systems shall be operational prior to installation of Structural Soil.
- F. Protect adjacent walls, walks and utilities from damage. Use $\frac{1}{2}$ " plywood and/or plastic sheeting as directed to cover existing concrete, metal and masonry work and other items as directed during the progress of the work.
 - 1. Clean up all trash and any soil or dirt spilled on any paved surface at the end of each working day.
 - 2. Any damage to the paving or architectural work caused by the installing contractor shall be repaired, as directed by the engineer.

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3.6 GEOTEXTILE

- A. Place geotextile on the bottom and sides of structural soil trenches as indicated in the Drawings.

3.7 PVC DISTRIBUTION PIPES AND FITTINGS

- A. Install distribution pipes at the locations, elevations and dimensions indicated in the Drawings.
- B. Installation of a portion of the structural soil is required to support the distribution piping.

3.8 INSTALLATION OF STRUCTURAL SOIL

- A. Install Structural Soil in 6 inch lifts and compact each lift.
 1. Include 6 inch lift at area below tree rootballs.
 2. Coordinate placement of structural soil with the Installers of the #57 stone base for porous flexible paving and planting soil for tree pits.
- B. Compact all materials to at least 95% Proctor Density from a standard compaction curve AASHTO T 99 (ASTM D 698). No compaction shall occur when moisture content exceeds maximum as listed herein. Delay compaction if moisture content exceeds maximum allowable and protect Structural Soil during delays in compaction with plastic or plywood as directed by the engineer.
- C. Bring Structural Soil to finished grades as shown on the drawings. Immediately protect the Structural Soil from contamination by toxic materials, trash, debris, water containing cement, clay, silt or materials that will alter the particle size distribution of the mix with plastic or plywood as directed by the engineer.
- D. The engineer may periodically check the material being delivered, prior to installation for color and texture consistency with the approved sample provided by the installing contractor as part of the submittal for Structural Soil. If the engineer determines that the delivered Structural Soil varies significantly from the approved samples, the engineer shall contact the licensed producer.
- E. Engineer shall ensure that the delivered Structural Soil was produced by the approved soil licensee by inspecting weight tickets showing source of material.
- F. Soil should not be stockpiled long-term. Any Structural Soil not installed immediately should be protected by a tarp or other waterproof covering.

3.9 FINE GRADING

- A. After the initial placement and rough grading of the Structural Soil but prior to the start of fine grading, the installing contractor shall request review of the rough grading by the engineer. The installing contractor shall set sufficient grade stakes for checking the finished grades.
- B. Adjust the finish grades to meet field conditions as directed. Provide smooth transitions between slopes of different gradients and direction. Fill all dips with Structural Soil and remove any bumps in the overall plane of the slope. The tolerance for dips and bumps in Structural Soil areas shall be a 3" deviation from the plane in 10'. All fine grading shall be inspected and

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approved by the engineer prior to the installation of other items to be placed on the Structural Soil.

3.10 CLEAN-UP

- A.** Upon completion of the Structural Soil installation operations, clean areas within the contract limits. Remove all excess fills, soils and mix stockpiles and legally dispose of all waste materials, trash and debris. Remove all tools and equipment and provide a clean, clear site. Sweep, do not wash, all paving and other exposed surfaces of dirt and mud until the paving has been installed over the Structural Soil material. Do no washing until finished materials covering Structural Soil material are in place.

END OF SECTION 329117

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SECTION 329300 - PLANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plant materials.
2. Fertilizers.
3. Mulches.
4. Herbicides and pesticides.
5. Tree-stabilization materials.
6. Landscape edgings.
7. Maintenance strip stone
8. Geotextile fabric
9. Tree-watering devices.

B. Related Requirements:

1. Section 015639 "Temporary Tree and Plant Protection" for protecting, trimming, pruning, repairing, and replacing existing trees to remain that interfere with, or are affected by, execution of the Work.
2. Section 329115 "Soil Preparation (Performance Specification)" planting soils.

1.2 DEFINITIONS

A. **Backfill:** The earth used to replace or the act of replacing earth in an excavation.

B. **Balled and Burlapped Stock:** Plants dug with firm, natural balls of earth in which they were grown, with a ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.

C. **Central Leader:** A continuation of the main trunk located more or less in the center of the crown, beginning at the lowest main branch (scaffold) and extending to the top of the tree. Also referred to as the Dominant Leader.

D. **Codominant:** Two or more vigorous, upright branches or stems of relatively equal size that originate from a common point, usually where the leader was lost or removed.

E. **Container-Grown Stock:** Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.

F. **Crown:** The portion of a tree beginning at the lowest main (scaffold) branch extending to the top of the tree.

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- G. Finish Grade: Elevation of finished surface of planting soil.
- H. Included Bark: Bark embedded in the union between a branch and the trunk or between two or more stems that prevents the formation of a normal branch bark ridge.
- I. Nursery: A place where young trees and plants are grown commercially for sale. Not included in this definition are horticultural distribution centers and plant re-wholesalers.
- J. Planting Area: Areas to be planted.
- K. 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 91 15 "Soil Preparation (Performance Specification)" for drawing designations for planting soils.
- L. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.
- M. 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.
- N. Scaffold Branches: Large main branches that form the main structure of the crown.
- O. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.
- P. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.3 Trunk: The main stem of a tree, beginning at the root collar and ending at the lowest main scaffold branch.

1.4 REFERENCE STANDARDS

- A. American Horticulture Industry Association d/b/a AmericanHort. Ph. (614) 487-1117. www.AmericanHort.org.
 - 1. ANSI Z60.1: American Standard for Nursery Stock (2014).

1.5 COORDINATION

- A. Coordination with Turf and seeded Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.
 - 1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

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1.6 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.7 ACTION SUBMITTALS

A. Nursery Source Tagging Submittals

1. Nursery Sources: Within 30-days of the Contract start, submit a list of all proposed nursery sources for approval, confirming the availability of plant varieties, sizes, forms, and quantities indicated in the Contract Documents. For field-grown trees and plants, specified as "balled and burlapped", include photographs of the available plant blocks to confirm that the nurseries have a sufficient selection of satisfactory plants available for tagging. Provide the names and telephone numbers for the nurseries' representatives.
 - a. Substitutions: Substitutions of plant material will not be permitted unless approved in writing by the Landscape Architect. If any specified plants are not available at the time when needed to meet the project schedule, submit a statement documenting the nursery sources investigated and providing proposals for equivalent plants of the nearest available size or similar variety. Substitutions will not be allowed if the Landscape Architect identifies alternate nursery sources within a 600 mile radius of the project site.
 - b. Container grown plants shall not be substituted for plants designated "B&B" on the Plant Schedule, unless approved in writing by the Landscape Architect.
 - c. Quantities: Quantities shown on the Plant Schedule are for information only. Provide every plant shown on the Drawings. In the event of a discrepancy between the Planting Plans and the written quantities in the Plant Schedule, the Planting Plan shall govern.
2. Planting Schedule: Submit the projected planting schedule, including nursery visits, digging, delivery, storage and installation dates for review and approval. Schedule the dates for each type of landscape work during normal seasons for such work in each area of the site. Correlate with specified maintenance periods to provide maintenance until conclusion of the planting establishment and maintenance period. Revise schedule to keep current, subject to the Landscape Architect's approval.
3. Nursery Visit Schedule: Coordinate with the Landscape Architect and the proposed nurseries to arrange nursery visits. The final schedule for nursery visits shall be submitted not later than the November 30 preceding the scheduled installation of the plants.

B. Product Data: For each type of product.

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
2. Plant Photographs: Include color photographs in digital format of each required species and size of plant material as it will be furnished to Project. Take photographs from multiple angles depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 10 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the full scientific name and horticultural variety of the plant, plant size, and name of the growing nursery.
 - a. Field-grown trees and shrubs:
 - 1) Specimen trees: Three photographs of every individual specimen tree, taken from multiple angles.

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- 2) Trees and shrubs to be furnished in quantities of 10 or less: At least three photographs of a typical plant taken from multiple angles, plus photographs showing overall views of the blocks from which the plants are to be obtained.
- 3) Trees and shrubs to be furnished in quantities greater than 10: Photographs of the average plant, the best quality plant, and the worst quality plant; plus photographs showing overall views of the blocks from which the trees are to be obtained.
 - b. Container-grown trees: Three photographs of each individual tree.
 - c. Container-grown shrubs and vines: One photograph of one typical plant.
 - d. Perennials and grasses: Photographs are not required.

C. Samples for Verification: For each of the following:

1. Organic Mulch: 1-quart volume of each organic mulch required; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.

1.8 INFORMATIONAL SUBMITTALS

- A. Field Quality-Control Reports: Percolation tests for tree pits. Include the following:
 1. Tree identification number matching the plans.
 2. Date of test.
 3. Time when water was added to tree pit to start percolation test.
 4. Time with photo documentation showing increments of testing with water level in tree pit.
 5. Identification of tester.
- B. Qualification Statements: For landscape Installer. Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.
- C. Product Certificates: For each type of manufactured product, from manufacturer, and complying with manufacturer's certified analysis of standard products.
- D. Pesticides and Herbicides: Product label and manufacturer's written application instructions specific to Project.
- E. Sample Warranty: For special warranty.

1.9 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before expiration of required maintenance periods.

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1.10 QUALITY ASSURANCE

- A. Installer Qualifications:** A qualified landscape installer whose work has resulted in successful establishment of plants.
 - 1. Professional Membership: Member in good standing of either the National Association of Landscape Professionals or AmericanHort.
 - 2. Experience: Five years' experience in landscape installation in addition to requirements in Section 014000 "Quality Requirements."
 - 3. Installer's Field Supervision: Maintain an experienced full-time supervisor on Project site when work is in progress.
 - 4. Personnel Certification: Installer's field supervisor certified in one of the following categories from the National Association of Landscape Professionals:
 - a. Landscape Industry Certified Technician - Exterior.
 - b. Landscape Industry Certified Horticultural Technician.
 - 5. Pesticide Applicator: State licensed, commercial.
- B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.**
- C. Measurements:** Measure in accordance with ANSI Z60.1. Do not prune to obtain required sizes.
 - 1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
 - 2. Other Plants: Measure with stems, petioles, and foliage in their normal position.
- D. Plant Material Inspection and Tagging:** It is the prerogative of the Architect to inspect and select all plant material at the grower's nursery prior to digging and upon delivery to the project site, for compliance with requirements for genus, species, variety, cultivar, size, and quality. Architect may also observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and may reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.
 - 1. Plants are subject to inspection and selection for overall form, vigor, and condition by the Architect with the Installer at the nursery source or place of growth. Plants designated as "balled and burlapped" shall be field-grown, and shall not be dug until inspected, approved and sealed by the Architect.
 - 2. The Installer shall accompany the Architect on all source inspections, and shall make all necessary arrangements, provide transportation, and pay all expenses including travel, food, and lodging.
 - 3. Coordinate with approved nurseries and with the Architect to schedule the Architect's nursery visits, to secure approved plants, and to confirm digging and shipping dates in conformance with the approved planting schedule. Arrange nursery visits as far in advance of the scheduled installation as possible, which will typically occur during the period running from September through February preceding the installation. In northern and snow-belt nurseries that are expected to become inaccessible during the winter,

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tagging shall be scheduled for completion prior to the onset of winter conditions. All tagging shall be completed by February 28. Summer and fall digging of deciduous plants will not be permitted without the Architect's approval.

4. All plants shall be delivered to the site with the Architect's permanent seals intact.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. 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 if applicable.
- B. Bulk Materials:
 1. Do not dump or store bulk materials near structures, utilities, or walkways and pavements; or on existing turf areas or plants.
 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 3. Accompany each delivery of bulk materials with appropriate certificates.
- C. All plants shall be prepared and packed, and protected to ensure arrival at the site in good condition. They shall arrive fresh and properly dug, in sound, healthy, vigorous condition with healthy and well-developed tops and root systems, and with all parts moist and showing active green cambium when cut.
- D. 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.
- E. Handle planting stock by root ball.
- F. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
 1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.
- G. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.
- H. 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.
 1. Set balled stock on ground and cover ball with mulch.
 2. Do not remove container-grown stock from containers before time of planting.

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3. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly wet condition.

1.12 FIELD CONDITIONS

- A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.
- B. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Preliminary Acceptance. Planting shall progress only under favorable weather conditions and will not be permitted when the ground is frozen or excessively moist.
 1. Plant within the following recommended periods to provide optimal conditions for successful recovery from transplanting stresses.
 - a. Plant deciduous plants: April 1 to May 30, and August 15 until the ground freezes.
 - b. Spring planting may be extended until June 15 if a well-monitored irrigation system is in use.
 - c. Plant evergreen plants: April 1 to June 15, and August 15 to October 15.
 - d. Perennials and ornamental grasses: April 1 to May 30, and September 1 to September 15.
 - e. Bulbs: From September 1 until the ground freezes.
 2. If special conditions exist to justify a variance in the above planting dates, submit a written request to the Landscape Architect stating the special conditions and the proposed variance. Describe techniques in addition to those specified herein that will be employed to prevent dieback and mortality. No waiver of the plant guaranty will be granted for planting performed out-of-season.
- C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions in accordance with manufacturer's written instructions and warranty requirements.
- D. Watering: The Installer shall bear sole responsibility for furnishing and applying all irrigation water, irrespective of whether or not an irrigation system is installed or operable. The Installer shall ensure that all irrigation water is applied at the proper frequency, coverage, and in proper amounts to fulfill the plant establishment and maintenance requirements of the Contract. The Installer's responsibility for all watering shall begin upon delivery of plants the site, and shall continue through the end of the Warranty Period.
 1. If not irrigation system is available, or if an available irrigation system is unsatisfactory to the Installer's needs, then the Installer shall furnish and apply all irrigation water.
 2. If an irrigation system is made available for the Installer's use, and if the Installer elects to utilize this irrigation system; then the Installer shall accept total responsibility for ensuring that the system is satisfactorily adjusted and operated while utilized by the Installer.
- E. If an irrigation system is to be provided or design/built under this Contract, and if the Installer elects to utilize this irrigation system; then the Installer shall coordinate with the irrigation

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designer, installer, and operator, and shall accept total responsibility for ensuring that the system is satisfactorily adjusted and operated while utilized by the Installer.

1.13 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
 - b. Structural failures, including plantings falling or blowing over.
 - c. Faulty performance of tree stabilization and edgings.
 - d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 2. Warranty Periods: From date of Preliminary Acceptance of planting or upon Substantial Completion of the contract, whichever occurs later.
 - a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months, except that deciduous plants in a dormant condition on the date the warranty commences will be warranted for an additional period extending through June 1 of the next following spring
 - b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.
 - 3. Include the following remedial actions as a minimum:
 - a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
 - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period. Replace plants that have bark scald; foliage of abnormal density, size, and color; or that have more than 25 percent dead or dying branches and branch tips.
 - c. Provide extended warranty for period equal to original warranty period, for replaced plant material.

1.14 ACCEPTANCE

- A. The Landscape Architect will inspect all plant material for acceptance upon written request of the Installer. The request shall be received at least 10 calendar days before the anticipated date of inspection.
- B. Acceptance of plant material will be granted for general conformance to the specified size, character, and quality, but will not relieve the Installer of responsibility for full conformance to the Contract Documents, including correct species.
- C. Upon completion and re-inspection of all repairs or renewals necessary in the judgment of the Landscape Architect, the Landscape Architect will certify in writing that the plant material has been preliminarily accepted.

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1.15 FINAL INSPECTION AND FINAL ACCEPTANCE

- A. At the end of the Maintenance Period and upon written request of the Installer, the Landscape Architect will inspect all plant material for final acceptance. The request shall be received at least 10 calendar days before the anticipated date of inspection. Upon completion and re-inspection of all repairs and renewals necessary in the judgment of the Landscape Architect at that time, the Landscape Architect will certify in writing that the plant material has received final acceptance.

PART 2 - PRODUCTS

2.1 PLANT MATERIALS

- 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.
 1. Trees with damaged, crooked, or multiple leaders; with tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); with crossing trunks; with cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots are unacceptable.
 2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
 3. Plants shall have been grown under climatic conditions similar to those of the project site.
 4. Balled and burlapped plants shall be moved as solid units having firm natural balls of soil of sufficient size to encompass the fibrous and feeding root system to ensure full and prompt plant recovery. Plants with loose, manufactured, cracked, broken, or undersized balls will be rejected.
- B. Form and Structure: Unless indicated otherwise in Plant List shown on Drawings, deciduous and evergreen trees shall comply with the following;
 1. Habit of growth shall be typical of the species or variety; heavy, symmetrical, well branched and proportioned, and densely foliated when in leaf.
 2. Trees shall have a single, relatively straight vertical trunk and central leader. Deciduous shade trees shall be free of major branches up to a height of at least 6-feet unless otherwise specified. Evergreen and clump-form trees shall have dense compact growth branched to the ground unless otherwise specified.
 3. Trees shall be free of codominant stems and vigorous, upright branches that compete with the central leader. If the original leader has been headed, a new leader at least one-half of the diameter of the original leader shall be present.
 4. Main branches shall be well-distributed along the central leader, and not clustered together. They shall form a balanced crown appropriate for the cultivar or species.
 5. Branch diameter shall be no larger than two-thirds (one-half is preferred) the diameter of the central leader measured 1 inch above the branch.
 6. The attachment of the largest branches (scaffold branches) shall be free of included bark.

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- C. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.
- D. 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.
- E. Labeling: Label at least one plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant.
- F. If formal arrangements or consecutive order of plants is indicated on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.

2.2 FERTILIZERS

- A. Planting Tablets: Tightly compressed chip-type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
 - 1. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients.
- B. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb of ectomycorrhizal fungi, 33 percent hydrogel, and maximum of 5.5 percent inert material.

2.3 MULCHES

- A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:
 - 1. Type: Double-shredded softwood bark composed primarily of pine and spruce bark. Aged not less than 9 months. Sample to be approved.
 - 2. Color: Natural, un-dyed.

2.4 HERBICIDES AND PESTICIDES

- A. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- B. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.
- C. Pesticides: Registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended in writing by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

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2.5 TREE-STABILIZATION MATERIALS

A. Trunk-Stabilization Materials:

1. Upright and Guy Stakes: Rough-sawn, sound, new hardwood, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated, pointed at one end.
2. Guys and Tie Wires: ASTM A641/A641M, Class 1, galvanized-steel wire, two-strand, twisted, 0.106 inch in diameter.
3. Tree-Tie Webbing: UV-resistant polypropylene or nylon webbing with brass grommets.
4. Flags: Standard surveyor's plastic flagging tape, white, 6 inches long.
5. Proprietary Staking-and-Guying Devices: Proprietary stake or anchor and adjustable tie systems to secure each new planting by plant stem; sized as indicated and in accordance with manufacturer's written instructions.

2.6 LANDSCAPE EDGINGS

2.7 EDGE RESTRAINTS

A. Aluminum Edge Restraints: Manufacturer's standard extruded-aluminum edging 3/16 inch thick by 5-1/2 inches high with loops pressed from face to receive stakes at 12 inches o.c., and aluminum stakes 12 inches long for each loop.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Curv-Rite Inc.
 - b. Permaloc Corporation.
 - c. Sure-loc Edging Corporation.

B. Finish: Aluminum edge restraint and stakes to be mill finish by the manufacturer.

2.8 MAINTENANCE STRIP STONE

A. Crushed stone to be used for maintenance strips.

B. Hard, durable, smooth stone, washed free of loam, sand, clay and other foreign substances.

1. Stone Sizes: 3/4-inch crushed stone.
2. Color: to be selected by Landscape Architect, blend of tans and greys to complement building finishes.

2.9 GEOTEXTILE

A. For separation and drainage, complying with Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction Form 818, M.08.01-19.

B. Staples for use in securing geotextile: 4" x 1" x 4" wire staple.

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2.10 TREE-WATERING DEVICES

- A. Slow-Release Watering Device: Standard product manufactured for drip irrigation of plants and emptying its water contents over an extended time period; manufactured from UV-light-stabilized nylon-reinforced polyethylene sheet, PVC, or HDPE plastic.
 - 1. Color: green.

2.11 MISCELLANEOUS PRODUCTS

- A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix in accordance with manufacturer's written instructions.
- B. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.
- C. Deer Repellant: Commercial product with documented deer-deterrent properties.
- D. Planter Drainage Gravel: Washed, sound crushed stone or gravel complying with ASTM D448 for Size No. 8.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive plants, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.
 - 1. 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 soil within a planting area.
 - 2. Verify that plants and vehicles loaded with plants can travel to planting locations with adequate overhead clearance.
 - 3. Suspend planting operations during periods of excessive soil moisture until moisture content reaches acceptable levels to attain required results.
 - 4. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove soil and contamination as directed by Architect and replace with new planting soil.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Coordinate installation of plantings with other Site Installers and Contractors for proper sequencing to minimize damage to any installed improvements.

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3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Architect's acceptance of layout before excavating or planting. Make adjustments as directed.
 1. Plant locations on the Drawings are approximate and are to be used only as a guide. Installer shall accurately stakeout plant locations and bed outlines. Do not begin planting excavations until the Landscape Architect has approved or adjusted the stakeouts. Prior to installation, modify plant locations within the project area as directed by the Architect without additional cost to the Owner.
 2. Unless otherwise indicated, massed plantings and rows of shrubs, perennials, and grasses are to be installed in a staggered triangular or diagonal configuration. Straight, square rows will not be accepted.

3.3 PLANTING AREA ESTABLISHMENT

- A. General: Prepare planting area for soil placement and mix planting soil in accordance with Section 329115 "Soil Preparation (Performance Specification)."
- B. Placing Planting Soil: Place manufactured planting soil over exposed subgrade.
- C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- D. Application of Mycorrhizal Fungi: At time directed by Architect, broadcast dry product uniformly over prepared soil at application rate in accordance with manufacturer's written instructions.

3.4 EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits.
 1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
 2. Excavate approximately three times as wide as ball diameter for balled and burlapped and container-grown stock.
 3. Do not excavate deeper than depth of root ball, measured from the root flare to the bottom of root ball.
 4. If area under the plant was initially dug too deep, add soil to raise it to correct level and thoroughly tamp the added soil to prevent settling.

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5. Maintain angles of repose of adjacent materials to ensure stability. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
6. Maintain supervision of excavations during working hours.
7. Keep excavations covered or otherwise protected when unattended by Installer's personnel.

B. Continuous Planting Beds for Shrubs:

1. Excavate shrub beds to a minimum depth of 18" with sides sloping inward at a 45-degree angle. Loosen subgrade by dragging with teeth of bucket 3" to 6" deep. Install first lift of planting soil immediately and do not allow loosened subgrade to become compacted.
2. Install planting soil in 2 equal lifts. Compact each lift to a minimum of 75 percent and a maximum of 82 percent of Standard Proctor Density. Scarify between lifts by dragging with the teeth of bucket.
3. Excavate circular planting pits in continuous beds aft the planting soil has been installed in continuous beds.

C. Backfill Soil: Subsoil and topsoil removed from excavations may not be used as backfill soil unless otherwise indicated.

D. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.

1. Hardpan Layer: Drill 6-inch-diameter holes, 24 inches apart, into free-draining strata or to depth of 10 ft., whichever is less, and backfill with free-draining material.

E. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.

F. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

3.5 TREE, SHRUB, AND VINE PLANTING

A. Inspection: At time of planting, verify that root flare is visible at top of root ball in accordance with ANSI Z60.1. If root flare is not visible, remove soil in a level manner from root ball to where the top-most root emerges from the trunk. After soil removal to expose root flare, verify that root ball still meets size requirements.

B. Roots: Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

C. Balled and Burlapped Stock: Set each plant plumb and in center of planting pit or trench with root flare 3 inches above adjacent finish grades.

1. Backfill: Planting soil Type 1, 2 or 3.
2. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.

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3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
 - a. Quantity: According to manufacturer's written recommendations.
5. Continue backfilling process. Water again after placing and tamping final layer of soil.

D. Container-Grown Stock: Set each plant plumb and in center of planting pit or trench with root flare 2 inches above adjacent finish grades.

1. Backfill: Planting soil Type 1, 2 or 3.
2. Carefully remove root ball from container without damaging root ball or plant.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
 - a. Quantity: According to manufacturer's written recommendations.
5. Continue backfilling process. Water again after placing and tamping final layer of soil.

E. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of root ball.

3.6 TREE, SHRUB, AND VINE PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape unless otherwise directed by Architect.
- B. Do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.
- C. Make clean cuts as close as possible to the trunk or parent branch without cutting into the branch collar or leaving a stub.
- D. Do not apply pruning paint to wounds.

3.7 INSTALLATION OF TREE-STABILIZATION MATERIALS

- A. Trunk Stabilization by Upright Staking and Tying: Install trunk stabilization as follows unless otherwise indicated:
 1. Upright Staking and Tying:

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- a. Stake trees of 2- through 5-inch caliper. Stake trees of less than 2-inch caliper only as required to prevent wind tip out. Use a minimum of two stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend to the dimension indicated on Drawings above grade. Set vertical stakes and space to avoid penetrating root balls or root masses.
2. Support trees with two strands of tie wire, connected to the brass grommets of tree-tie webbing at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.

B. Trunk Stabilization by Staking and Guying: Install trunk stabilization as follows unless otherwise indicated on Drawings. Stake and guy trees more than 14 ft. in height and more than 3 inches in caliper unless otherwise indicated.

1. Proprietary Staking and Guying Device: Install staking and guying system sized and positioned as recommended by manufacturer unless otherwise indicated and in accordance with manufacturer's written instructions.

3.8 GROUND COVER AND PLANT PLANTING

- A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated on Drawings in even rows with triangular spacing.
- B. Use planting soil Type 1, 2 or 3 for backfill.
- C. Dig holes large enough to allow spreading of roots.
- D. For rooted cutting plants supplied in flats, plant each in a manner that minimally disturbs the root system but to depth not less than two nodes.
- E. Work soil around roots to eliminate air pockets and leave slight saucer indentation around plants to hold water.
- F. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- G. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.9 INSTALLATION OF MULCHES

- A. 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 average thickness, with a radius around trunks or stems. Do not create a mulch cone or place mulch within 6 inches of trunks or stems.
 2. Organic Mulch in Planting Areas: Apply 2-inch average thickness of organic mulch over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.

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3.10 INSTALLATION OF LANDSCAPE EDGINGS

- A. Steel Edging: Install steel edging where indicated in accordance with manufacturer's written instructions. Anchor with steel stakes spaced approximately 30 inches apart, driven below top elevation of edging.
- B. Shovel-Cut Edging: Separate mulched areas from turf areas, curbs, and paving with 45-degree, 4- to 6-inch-deep, shovel-cut edge.
- C. Mow-Strip Installation:
 1. Excavate for mow strip as indicated on Drawings.
 2. Compact subgrade uniformly beneath mow strip.
 3. Apply nonselective, pre-emergent herbicide that inhibits growth of grass and weeds.
 4. Install steel edging, delineating the edge of mow strip.
 5. Install geotextile fabric before stone surfacing, covering area of mow strip, and overlapping and pinning edges of barrier at least 6 inches and in accordance with manufacturer's written instructions.
 6. Place indicated thickness of mineral mulch, fully covering weed barrier.
 7. Rake mulch to uniform surface level with adjacent finish grades.

3.11 INSTALLATION OF MAINTENANCE STRIP

- A. Excavate to lines, grades and depths as specified on the Drawing.
- B. Compact subgrade uniformly beneath areas to receive aggregate surfacing.
- C. Install edging where indicated and according to manufacturer's written instructions. Anchor with stakes to hold edge restraints in place during and after aggregate installation and spaced according to manufacturer's written instructions, driven below top elevation of edging.
- D. Install geotextile, covering area to receive aggregate surfacing and wrap up sides as indicated on Drawings, over-lapping and pinning edges of geotextile at least 6 inches and according to manufacturer's written instructions.
- E. Place indicated thickness of aggregate fully covering the geotextile. Rake aggregate to a uniform surface level with adjacent finish grades, unless otherwise indicated on Drawings.

3.12 INSTALLATION OF TREE-WATERING DEVICES

- A. Provide one device for each tree.
- B. Place device on top of the mulch at base of tree stem and fill with water in accordance with manufacturer's written instructions.

3.13 APPLICATION OF HERBICIDES AND PESTICIDES

- A. Pre-Emergent Herbicides (Selective and Nonselective): Apply to tree, shrub, and ground-cover areas in accordance with manufacturer's written instructions. Do not apply to seeded areas.

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- B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written instructions.
- C. Apply pesticides and other chemical products and biological control agents according to authorities having jurisdiction and in accordance with manufacturer's written instructions. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

3.14 PLANT MAINTENANCE

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.
- B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- C. Keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices acceptable to authorities having jurisdiction. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
- D. Heavily water woody plants in late fall, after leaf drop and before the ground freezes.
- E. Provide early spring clean-up of perennial and ornamental grass beds before new growth starts. Cut back and remove dead top growth, repair damage, remove weeds, refresh mulch, and re-edge beds.
- F. Protect plants from deer damage, including regularly monitoring deer activity and timely applications of deer repellants and barriers.
- G. Upon Final Acceptance at end of Maintenance Period, remove tree-stabilization devices and planting saucers. Dress with mulch.

3.15 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Tests and Inspections:
 1. Perform tree pit percolation tests.
 2. Tree pit construction will be considered defective if it does not pass percolation tests and inspections.
 3. Do not proceed with planting in tree pits until satisfactory percolation is demonstrated.
- C. Prepare test and inspection reports.

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3.16 REPAIR AND REPLACEMENT

- A.** Repair or replace existing or new trees and other plants that are damaged by construction operations, in a manner approved by Architect.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours, if approved.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.

- B.** Remove and replace trees that are more than 25 percent dead or in unhealthy condition before end of corrections period or are damaged during construction operations that Architect determines are incapable of restoring to normal growth pattern.
 - 1. Provide new trees of same size as those being replaced for each tree of 6 inches or smaller in caliper size.
 - 2. Species of Replacement Trees: Same species being replaced.

3.17 CLEANING AND PROTECTION

- A.** During planting, keep adjacent paving and construction clean and work area in an orderly condition. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

- B.** Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

- C.** 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.

- D.** After installation and before Preliminary Acceptance, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

- E.** Remove any temporary irrigation systems for plant establishment within 18 months of the start of the Maintenance Period.

3.18 MAINTENANCE SERVICE

- A.** Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:
 - 1. Maintenance Period: 12 months from date of Preliminary Acceptance or upon Substantial Completion of the contract, whichever occurs later.

- B.** Maintenance Service for Ground Cover and Other Plants: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin

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maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:

1. Maintenance Period: 12 months from date of Preliminary Acceptance or upon Substantial Completion of the contract, whichever occurs later.

END OF SECTION 329300

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SECTION 334000 – STORM DRAINAGE

1.1 RELATED DOCUMENTS

- A.** The Contractor, Subcontractors, and/or suppliers providing goods or services referenced in or related to this Section shall also be bound by the Documents identified in Division 01 Section "Summary", Paragraph 1.1A, entitled "Related Documents."

1.02 TRENCH EXCAVATING AND BACKFILLING

A. Quality Assurance

1. Testing of compacted fill materials shall be performed by an independent testing laboratory.
2. When work of this section or portions of work are completed, the contractor notify their testing laboratory to perform density tests. Do not proceed with additional portions of work until results have been verified.
3. If, during progress of work, tests indicate that compacted materials do not meet specified requirements, notify the Inspector as to direction to proceed. If required by the Inspector, remove the defective work, replace and retest.
4. Ensure compacted fills are tested before proceeding with placement of surface materials.
5. Examine existing and finish grades as shown on grading plan and excavation and fill as indicated on plans and elevations. Protect and maintain site boundaries and project limits during construction. If disturbed, destroyed or exceeded, repair as directed.

B. Protection

1. Protect bench marks, monuments, other reference points, existing structures, roads, sidewalks, paving, curbs, overhead and underground utilities against damage from equipment and vehicular or foot traffic.
2. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods as required to sustain excavated areas.
3. Protect the bottom of excavations and soil around and beneath utilities from frost.
4. Grade around excavation to prevent surface water run-off into excavated area.

C. Materials

1. Fill: Usable material excavated within the limits of work conforming to Article M.02.06 Grading "A" of Form 814A.
2. Pipe Bedding: Conform to Article M.08.01-21 of Form 814A.

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3. Sand: Conform to Article M.03.01-2 of Form 814A.
4. Crushed Stone: Conform to Article M.01.01 of Form 814A for the size indicated on the plans.
5. Bank Run Gravel: Conform to Article M.02.06 Grading "A" of Form 814A.
6. Processed Gravel: Conform to Article M.02.06 Grading "C" of Form 814A.

D. Stripping and Stockpiling Topsoil

1. Reusable topsoil shall be stripped and stockpiled for use in finish grading. Stockpile only soil, which conforms to Section 4.5.2. Topsoil shall be fertile, friable agricultural soil with a loam texture class capable of sustaining vigorous plant growth and suitable for growth of grass, neither excessively alkaline, nor acidic, and free from topsoil, clay lumps, gravel, brush, weeds, and objectionable material.
2. Install all perimeter silt fence, sedimentation basins and other required erosion controls prior to stripping topsoil.
3. Stockpile topsoil so that natural drainage is not obstructed and no off-site sediment damage shall result.
4. Side slopes of the stockpile shall not exceed a 2:1 slope.
5. Test stockpiled topsoil immediately following stockpiling operations and provide test results prior to spreading topsoil.
6. Seed stockpiled topsoil with temporary grass seed of the type and at the rate indicated in Section 4.5.3 within 10 days of the formation of the stockpile.
7. Install silt fence around perimeter of stockpiled topsoil.
8. No topsoil shall be excavated, graded or worked in frozen or muddy condition.
9. Dispose of unsuitable material off site in a legal manner.

E. Removing Existing Pavement Surfaces

1. No excavation shall be made until existing paved surfaces have been neatly saw-cut. Pavement, which is weakened or destroyed beyond the limits indicated, shall be re-cut and trimmed.
2. All pavement removal within state highways shall be in strict accordance with all requirements of the DOT. Conditions of permits for excavation within established rights-of-way shall be strictly observed and the Contractor shall assume full responsibility for violations thereof.

F. Earth Excavation

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1. Excavation shall be in open cut with sheeting provided in areas shown on the plans or as required.
2. When materials encountered are not suitable for the utility or when it is found desirable or necessary to go to additional depth, the excavation shall be carried to an additional depth.

G. Site Contamination

1. The suspicion of, or unanticipated discovery of, contaminated ground during the excavation, or other work task under this contract, shall be reported immediately to the DEP and the Department. The Contractor, at all times, shall exercise caution to protect workmen, observers, and residents from harm. The Contractor shall provide all reasonable and necessary assistance to the DEP and the Department to ascertain the nature and source of ground contamination.

H. Protection of Work

1. Provide safe working conditions for the protection of men, materials and equipment involved in the work, and to protect the public, adjacent structures, utilities, poles, pipe lines, duct, conduit, streets and other public or private property from cave-ins, slides, settlement or other damage.
2. Contractor shall assume full responsibility for compliance with all local codes or State and Federal laws which pertain to safe working conditions for the protection of men, materials and equipment during excavation.
3. Existing pipes, poles, wires, fences, curbings, property-line markers, and other structures, which must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from injury. Should such items be damaged, they shall be restored by the Contractor, without compensation, to at least as good a condition as that in which they were found immediately before the work was begun.
4. Cooperate closely with all utility companies involved and to ascertain the exact locations of all utilities prior to excavation. Existing utilities will be protected from damage during construction, and if damaged, shall be repaired. Note that it is generally not the policy of the local utilities to mark locations of services on private property. Therefore, it is the responsibility of the Contractor to locate utilities on the site.
5. Power-driven excavating machinery shall be handled with care to prevent damage to shade trees, particularly to overhanging branches. Branches shall not be cut off.
6. Dig up, handle, protect and properly reset signs, posts, guard rails and the like along the line of or adjacent to the work.
7. Utility poles or other structures in close proximity to trench excavations must be tied back, braced or otherwise temporarily supported to the satisfaction of the utility company. Costs for providing such support, or damages resulting from inadequate or insufficient support, shall be the Contractor's sole responsibility and no separate compensation will be made.

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8. Damage to electric poles, or their attachments, underground duct lines, manholes, conduits or their components caused by the Contractor shall be repaired by the controlling utility agency.

I. Care and Restoration of Property

1. Do not use or operate tractors, bulldozers, or other power-operated crawler equipment on paved surfaces; the treads or wheels of which are so shaped as to cut or otherwise injure such surfaces without providing proper protection for the pavement.
2. Replace in kind, all granite, concrete or bituminous curbing removed. Granite or pre-cast concrete curbing shall be set plumb and true to the lines and grades established and shall be backed up with materials equal to those removed. Existing cast-in-place or bituminous curbing which is damaged or destroyed, or pre-cast concrete or granite curbing which is damaged, and is not scheduled for removal, shall be replaced with new curbing equal to that removed.
3. All surfaces, which have been injured by the Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately before work was begun. Suitable materials and methods shall be used for such restoration.
4. The restoration of existing property or structures shall be done as promptly as practicable and shall not be left until the end of the construction period.

J. Disposal of Surplus and Unsuitable Excavated Materials

1. Dispose of material off-site in a legal manner.

K. Dust Control

1. Conduct operations and maintain the area of activities, including sweeping and sprinkling of area as necessary, so as to minimize the creation and dispersion of dust. If it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and spread the material as directed.

L. Sheeting and Shoring

1. Provide sheeting and shoring conforming to Section 4.1.11.

M. Dewatering

1. Contractor shall at all times keep the excavation free from water. The water shall be disposed of by the Contractor in accordance with the General Conditions and applicable laws and regulations.
2. Contractor shall provide all necessary pumps, dams, drains, ditches, flumes, well points, and other means for excluding and removing water from trench excavations, and for preventing the slopes from sliding or caving in. Contractor shall satisfactorily remove all water, which interferes with the work. The Contractor shall sufficiently dewater trenches to completely dry out and solidify the foundation below the bottom of the pipe to whatever

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depth is necessary to provide a firm, solid, completely dry foundation on which to lay the pipe.

3. Sediment laden water shall not be pumped off-site. It shall be filtered through a sediment fence, sediment basin, "dirt bag" or other approved filtration system prior to being discharged.

N. Backfilling

1. As the various pipes or utilities are installed, refill the space outside and around the pipe walls with approved materials to the depths, and widths, and as shown on the plans. All forms, bracing, and lumber shall be removed before backfilling.
2. Frozen material shall not be placed in the backfill nor shall backfill be placed upon frozen material. Previously frozen material shall be removed or shall be otherwise treated as required before new backfill is placed.
3. Backfill shall be placed in lifts no greater than 6" and shall be well tamped or otherwise thoroughly compacted to 95 percent of maximum dry density as determined by *ASTM* test D1157, Method D, by mechanical compactors and/or vibrators before additional lifts are placed.
4. Backfill shall be placed and compacted in a manner so as not to damage any waterproofing materials applied to the outside of any structure. Any damage caused to waterproofing shall be repaired at the Contractor's expense.
5. If necessary to ensure proper compaction by tamping or rolling, the material shall first be wet by sprinkling. However, no compaction by tamping or rolling shall be done when the material is too wet either from rain or too great an application of water to be compacted properly. At such times, the work will be suspended until the previously placed and new materials have dried out sufficiently to permit proper compacting, or such other precautions shall be taken as may be necessary to obtain proper compaction.
6. Care shall be taken that stones and lumps do not become nested and that all voids between stones shall be completely filled with fine material.
7. All voids left by the removal of sheeting shall be completely backfilled with suitable materials and thoroughly compacted.

1.03 TRENCH ROCK EXCAVATION

A. Explosives

1. If explosives are used, obtain all necessary permits and licenses.
2. Explosives must be carefully transported, stored, handled and used. Keep on the job only such quantities of explosives as may be needed for the work underway and only during such time as they are being used. Explosives shall be stored in a secure manner in locked containers and separate from all tools. Caps and detonators shall be stored separately from other explosives. When the need for explosives is ended, all such materials remaining on

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the job shall be promptly removed from the site. Care must be taken that no explosives, caps or detonators are stolen or get into the hands of unauthorized persons or left unguarded.

B. Blasting Log

1. An accurate blasting log must be maintained. The Contractor shall record in the log, for each shot; the location, number of holes, depth, spacing, amount of explosive per hole; number, type and delay interval of blasting caps used; horizontal distance to existing structures and utilities (sewer, water, gas, etc.); and the date and exact time of the blast.
2. The log shall include a sketch for each shot showing the location of every blasting cap and its delay period and comments regarding any property damage or unusual results.

C. Blasting

1. A pre-blast survey is required for all new and existing structures, which could be affected by blasting.
2. An on-site seismologist shall be employed during all blasting operations.
3. Give at least 24 hours notice and a schedule of blasting operations to the operating official, company or companies leasing, owning or responsible for pipes, conduits, poles, wires, or any other public or private utilities which may be endangered by the blasting.
4. When blasting is necessary, it shall be done in accordance with all Town Ordinances, State Statutes and other pertinent regulations and under the direction of the Fire Marshal. Such ordinances, regulations and orders shall not, however, relieve the Contractor of any responsibility for damages caused by him or by his employees.
5. Prior to the firing of blasts, all persons in the vicinity shall be given ample warning. All blasts shall be well covered and provisions shall be made to protect all pipes, conduits, sewers and structures, and all persons or property along and adjacent to the site of the work.
6. If damage is incurred by adjacent properties, blasting shall cease until the extent of the damage has been documented.
7. If damage occurs to any portion of structures or to the materials surrounding or supporting the same through blasting shall rebuild or repair the structures and replace the material surrounding or supporting the same.
8. If any damage occurs to any existing utility through blasting, the controlling utility company may do the repairs.

D. Shattered Trench Rock

1. If trench rock below normal depth is shattered due to operations of the Contractor, and the Engineer considers such shattered trench rock to be unfit, the shattered rock shall be removed and the excavation shall be backfilled with fill as required.

E. Excess Trench Rock Excavation

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1. If trench rock is excavated beyond the limits indicated on the drawings, the excess excavation, whether resulting from overbreakage or other causes shall be backfilled using bank run gravel.

F. Splitting

1. Drilling and splitting trench rock by hydraulic means (or some other approved method) to remove it or to make it smaller, for more manageable pieces to be removed by machinery is allowable.

G. Disposal

1. Excavated trench rock may be used for fill in embankment areas as directed.
2. Excess excavated trench rock shall be disposed of off-site in a legal manner.

1.04 CATCH BASINS AND DRAINAGE MANHOLES

A. Materials

1. Catch Basin and Manhole blocks and pre-cast units: Conform to Article M08.02 of Form 814A.
2. Frames and grates: Conform to DOT drawing number 507-K. Frames and grates shall be galvanized, Type A.
3. Crushed Stone: Conform to Article M.01.01 of Form 814A for the size indicated on the plans.
4. Mortar: Conform to Article M.11.04 of Form 814A.

B. Construction Methods

1. Excavate and backfill in accordance with Section 4.4.1.
2. Place crushed stone base to the size and thickness as shown on the plans.
3. Set pre-cast sump or pour concrete slab to the proper elevation.
4. All concrete block and pre-cast units shall be laid in full mortar beds.
5. Inside joints of concrete blocks are to be pointed flush.
6. Inlet and outlet pipes shall extend through the walls for a sufficient distance beyond the outside surface to allow for satisfactory connections. The concrete and mortar shall be constructed around them neatly to prevent leakage along their outer surfaces.
7. Pipe shall be cut flush with the inside face of the wall, or as shown on the plans.
8. Set top to "top of frame" grade as shown on plans.

Bid #1165 McMahon Wintonbury Library Children's Garden, Site and Parking improvements

BLOOMFIELD PUBLIC LIBRARY

MCMAHON WINTONBURY LIBRARY RENOVATIONS

C. Cleaning Catch Basins

1. During installation, use every precaution to keep drainage pipes free of foreign materials.
2. After all site work is completed, including spreading of topsoil and seeding, clean debris from all catch basins.

1.05 DRAINAGE PIPE

A. Materials

1. Reinforced concrete pipe (RCP): Conform to Article M.08.01 (6) of Form 814A. Pipe shall be Class IV unless otherwise specified.
2. High Density Polyethylene Pipe (HDPE): Conform to *AASHTO M294*, (Type "S").

B. Construction Methods

1. Excavate and Backfill in accordance with Section 4.4.1.
2. Pipe bedding shall be rounded to accommodate the bottom quadrant of the pipe. The interior of the pipe shall be clean when it is lowered into the trench.
3. Pipe laying shall begin at the downstream end. No pipe shall be placed unless a suitable outlet is provided. Batter boards shall be placed at intervals of not over 25' or other suitable control shall be used to eliminate sag in the line during installation.
4. Bell ends shall be placed upstream with the spigot ends fully inserted into the adjacent bell end.
5. Any piping, which is not in true alignment, shows settlement or is otherwise unsatisfactorily bedded, shall be taken up and re-laid.

C. Cleaning Piping

1. During installation, use every precaution to keep pipes free of foreign materials.
2. After all site work is completed, including spreading of topsoil and seeding, clean debris from all lines.

1.06 UNDERDRAINS

A. Materials

1. Slotted Reinforced Concrete Pipe (RCP): Conform to Article M.08.01 (10) of Form 814A. Pipe shall be Class IV unless otherwise specified.
2. Perforated High Density Polyethylene Pipe (HDPE): Conform to *AASHTO M294*, (Type "S").

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3. Crushed Stone: Conform to Article M.08.03 of Form 814A for the size indicated on the plan.

4. Geotextile fabric: Conform to Article M.08.01 (26) of Form 814A

B. Construction Methods

1. Excavate and Backfill in accordance with Section 4.4.1.

2. A geotextile filter fabric shall be used to completely encapsulate the underdrain system.

3. The dimensions of the trench shall be as shown on the plans or as directed. Where the bottom of the trench is unstable, sufficient unstable material shall be removed and replaced with crushed stone or gravel to stabilize the trench bottom.

4. Place fabric and 6" of crushed stone under the pipe. Place pipe with openings down.

5. Pipe laying shall begin at the downstream end. No pipe shall be placed unless a suitable outlet is provided. Batter boards shall be placed at intervals of not over 25' or other suitable control shall be used to eliminate sag in the line during installation.

6. Bell ends shall be placed upstream with the spigot ends fully inserted into the adjacent bell ends.

7. Any piping, which is not in true alignment, shows settlement or is otherwise unsatisfactorily bedded, shall be taken up and re-laid.

8. Backfill pipe to 12" above the top of pipe with crushed stone. Lay filter fabric over stone to completely enclose system. Lap the filter fabric a minimum of 6".

C. Cleaning Piping

1. During installation, use every precaution to keep pipes free of foreign materials.

2. After all site work is completed, including spreading of topsoil and seeding, clean debris from all lines.

1.07 FLARED ENDS

A. Material

1. Reinforced Concrete Flared Ends: Conform to Article M.08.01-22 of Form 814A.

2. HDPE flared ends shall not be used.

3. Processed Gravel; Conform to Article M.02.06 Grading "C" of Form 814A.

4. Mortar: Conform to Article M.11.04 of Form 814A.

B. Installation

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1. Flared ends shall be placed on a prepared gravel base to the grades and alignment shown on the plans.
2. When using HDPE pipe, reinforced concrete flared ends shall still be used. The HDPE pipe shall be mortared into the concrete flared end.

1.08 RIPRAP

A. Material

1. Riprap: Conform to Article M.12.02 of Form 814A for the size shown on the plan.
2. Processed Gravel: Conform to Article M.02.06 Grading "C" of Form 814A.
3. Geotextile: Conform to Article M.08.01-26 of Form 814A.

B. Preparation

1. The area to be protected by riprap shall be accurately shaped prior to placing any geotextile, processed gravel, or riprap. Processed gravel and the geotextile shall be placed on the prepared area and compacted to the depth, lines and grades indicated on the plans.

C. Installation

1. The riprap shall be placed to its full course thickness in one operation in such a manner as to produce a reasonably well graded mass of rock without causing displacement of the underlying material. Placing the material by methods likely to cause segregation of the various stone sizes will not be permitted.
2. The finished surface shall be free from pockets of small stones and clusters of large stones. Rearranging of individual stones by mechanical or hand methods will be required to the extent necessary to obtain a reasonably well graded distribution of the specified stone size.

1.09 CONCRETE HEADWALLS AND ENDWALLS

A. Material

1. Concrete:
 - a. Cement shall meet *ASTM C150* or *C595* Type II.
 - b. Mixing water shall be clean and free from injurious amounts of oils, acids, alkalis, organic materials or other deleterious substances in accordance with *ACI 318*.
 - c. Air-entraining admixture shall conform to *ASTM C260*.
 - d. Any other admixtures shall only be used if approved by the Engineer.
 - e. Concrete shall have the following properties:

Bid #1165 McMahon Wintonbury Library Children's Garden, Site and Parking improvements

BLOOMFIELD PUBLIC LIBRARY

MCMAHON WINTONBURY LIBRARY RENOVATIONS

- i. Materials shall be proportioned to produce concrete with a minimum compressive strength of 3,500 psi at 28 days.
- ii. The air content shall be 5% by volume with a tolerance of \pm 2%.
- iii. Maximum size of aggregate shall be 3/4".
- iv. Minimum cement content shall be 520 pounds per cubic yard.
- v. Concrete shall be delivered at the minimum slump necessary for efficient mixing, placing and finishing. The maximum slump shall be 4" with a tolerance of \pm 1".
- vi. The concrete shall be batched and mixed in accordance with *ASTM C94*.

2. Reinforcing

- a. Reinforcing steel shall be deformed reinforcing bars meeting *ASTM A 615* and have a minimum yield strength of 60,000 psi.

B. Forming, placing steel, pouring and finishing

1. All form work, forming, steel placement, pouring, curing and finishing shall be in accordance with *ACI 318-89*. Except that all exposed edges shall have a 1" chamfer and all exposed surfaces shall have a hand rubbed finish.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 33 40 00

TOWN OF BLOOMFIELD, CONNECTICUT



BID SUBMITTAL PACKAGE

FOR

McMahon Wintonbury Library
Children's Garden, Site and Parking
Improvements

Town Bid #1165

BIDDER QUALIFICATION STATEMENT

McMahon Wintonbury Library Children's Garden, Site and Parking Improvements

Public Bid Number 1165

Bloomfield, Connecticut

INSTRUCTIONS:

1. All questions must be answered and requests fulfilled, and the data given must be clear and comprehensive; respond with "none" as applicable or where a request or question does not apply.
2. Additional sheets, to be attached to this statement, shall be used to provide list information, explanation information, or any other such information that includes multiple line or item responses, or as otherwise is necessary or makes sense. The number and text of the relevant question/request is to be repeated prior to the subject response on any additional sheet. It is requested that only total responses be included on additional sheets; please refrain from starting a response on the supplied form and completing it on an additional sheet. Appropriate portions of Federal, State, or other standard forms may be used, providing that all requested information is accounted for in such form.
3. The Bidder may submit any additional information as may be determined thereby to provide a better understanding of its qualifications or as otherwise desired thereby.
4. In the appropriate locations at the end hereof, the Statement must be signed by a responsible person authorized to execute such document for the subject Bidder, and under whose direction the Statement was prepared; and the subject signature shall be appropriately notarized.
5. "Parent company", and any derivatives thereof, shall mean not only a party or entity that holds a direct controlling interest in the Bidder, but any and all parties or entities that are above the applicant in a chain of control or ownership.
6. Requests, not to exceed 25% for any response, not to contact the owner of a previous or current project, if accompanied by an adequate, in the opinion of the Purchasing Agent, explanation therefore, will be honored to the degree that the same does not interfere with the Town's ability to make an adequate determination of a Bidder's qualifications.
7. Where a qualification statement is requested for a subcontractor, then this form, blank, may be copied, or a blank electronic version used, and filled out in accordance with these instructions by the subcontractor. In such case, all references to "Bidder" shall mean and be interpreted as, "Subcontractor".
8. Confidentiality: All information submitted as part of a Bidder's Qualification Statement is subject to disclosure under the Connecticut Freedom of Information Act as amended and judicially interpreted. A bidder's responses may contain financial, trade secret or other data that it claims should not be public (the "Confidential Information"). Bidders must identify specifically in the pages and portions of its bid or additional information that contain the claimed Confidential Information by visibly marking all such pages and portions. Provided that the Bidder complies with the Town as described in this section, the Town shall, to the extent permitted by law, protect from unauthorized disclosure of such Confidential Information.

REQUESTS AND RESPONSES:

9. Name of Bidder: _____

Address: _____

Primary Contact: _____

Phone Numbers: _____

Email Address: _____

10. Type of business organization (as registered), State and date of registration:

11. No. of years in business under present name: _____ (Please list any previous names.)

12. List the names and business addresses of any parent companies, subsidiaries, or affiliates of your organization.

13. List the primary types of work your business is engaged in – be specific and detailed. (e.g. don't just respond "construction"; list the various types of construction.)

14. List the names, titles, and detailed addresses of your organization's officials or employees, or their spouses that have an ownership interest or other financial involvement in your organization. In addition, list the names and detailed addresses of all others, individual or entity, that have an ownership interest in your organization of 5% or greater.

15. List the names of any person or entity listed in response to #14 above, and all applicable cases thereto, that has a 5% or greater ownership, other significant financial involvement, or is an employee, officer, or director for or with any other construction-related entity, (including, but not limited to, construction firms, consultants, sureties, manufacturers, or suppliers.) Include the name, address, and manner of involvement for any such other entity.

16. Has your organization, a parent company, or a subsidiary or affiliate of your organization ever failed to complete any work awarded to you? _____ (If "yes", explain all instances and include all project information [as requested in #21 below] for each relevant project.)

17. Has your organization a parent company, or a subsidiary or affiliate of your organization ever been barred or suspended from bidding, been denied the award of a contract, or had a contract prematurely terminated, for any reason, by any Federal, State, or Municipal entity in any jurisdiction? _____ (Explain all instances, if 'yes', and include the name of the jurisdiction, agency, and project involved as well as the time frame.)

18. Within the last 5 years, has any officer or partner in your organization been an officer or partner in any organization that has failed to complete any awarded work? _____ (Explain all instances, if 'yes'.)
19. Have any liens or lawsuits of any kind been filed against your organization, officer and/or partner in association with any of your contracts or work? _____ (Explain all instances if 'yes'.)
20. List the surety companies that have bonded you in the last 5 years, including the type of work and amount of bond.
21. List the significant projects that your organization has completed in the last 5 years, including owner, owner contact name and title, type of work, amount of your contract, date started, and date completed.
22. List all of the current contracts that your organization is currently performing or for which you are under contract but have yet to commence work, including owner, owner contact name and title, type of work, amount of your contract, status, actual or anticipated start date, and anticipated date of completion.
23. List the equipment owned, or anticipated to be acquired via purchase or rental, by your organization or anticipated subcontractors that are anticipated to be available for use on this Contract. Include the ownership status, (e.g. Bidder, subcontractor, rental, to be purchased, etc.), type (including purpose, size, and significant features, as appropriate), make, model, and age.
24. List the names and relevant experience, including years engaged, of principal members of your organization and supervisors and other key personnel anticipated to be involved in this Project. Be specific and detailed.
25. Provide at least three trade references that are familiar with the type of work performed and the character of your organization. Provide name, title, name and location of organization, nature and length of relationship, contact phone numbers and email address. You may use persons or organizations listed previously.
26. Appropriately date and sign, duly notarized, this Statement on the following page.

Dated this _____ day of _____, _____

Bidder's Official Name and Address:

By: _____
Name: _____

Title: _____

(Note: the above signature must be notarized below)

NOTARY'S CERTIFICATE:

STATE OF _____)
COUNTY OF _____)

_____, being duly sworn,
deposes and says that he/she is _____ of
_____, and that the
answers to the foregoing questions and all statements therein are true and correct.
Subscribed and sworn before me this _____ day of _____,

Notary Public

My Commission Expires:

BID FORM

**McMahon Wintonbury Library
Children's Garden, Site and Parking Improvements
Public Bid Number 1165
Bloomfield, Connecticut**

ARTICLE 1 - Bid Submittal

1.01 This Bid for the project identified above, and prepared in accordance with and pursuant to the Bid Documents for said project as issued by the Town of Bloomfield, CT, is hereby submitted to said Town of Bloomfield by the Bidder named in Article 4 hereof.

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Owner in the form included in the Bid Documents to perform all Contract Work as specified or indicated in the Bid Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bid Documents.

ARTICLE 2 - Bidder's Representations and Acknowledgements

In submitting this Bid, the undersigned Bidder hereby represents and acknowledges:

2.01 The Bidder has examined and carefully studied all of the Bid Documents, as enumerated in the Bid Instructions and Information section of the Project Manual (aka the "Bid Instructions"), the other related data identified in the Bid Documents, and the following Addenda (please fill in as appropriate), receipt of which is hereby acknowledged:

Addendum No.

Addendum Date

Addendum No.

Addendum Date

2.02 The Bidder acknowledges that the Bid Documents represent the governing terms and conditions with respect to this Bid and any Contract that may arise herefrom. Bidder understands and accepts **all** of the terms and conditions of the Bid Documents, and its obligations and responsibilities thereunder with respect to this Bid in the event all or some portion of the Project Work is awarded to the Bidder, and acknowledges that any reiteration herein is only for emphasis.

2.03 The Bidder accepts all of the terms and conditions of the Bid Instructions, including without limitation those dealing with the disposition of Bid security and that this Bid will remain subject to

acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of the Owner.

2.04 In particular, the Bidder has prepared this Bid Proposal in accordance with the requirements of the Bid Instructions, and any applicable provisions of any Bid Addendum (which provisions are also considered part of the Bid Instructions); the Bidder has taken all of the actions and made all of the judgments and determinations for which it is responsible in accordance with the Bid Instructions, or as otherwise necessary for proper preparation of its Bid Proposal; and, the Bidder agrees to abide by all of the provisions of the Bid Instructions with respect to the Bid process.

2.05 The Bidder has obtained or viewed and carefully studied all information included in the Bid Documents and all additional or supplementary information made available or otherwise identified through the bidding process, or otherwise known and available to the Bidder, with regards to any examinations, investigations, explorations, tests, studies, or other data concerning existing conditions (at-, above-, or sub-surface and including [but not limited to] Underground Facilities) at or contiguous to the Site.

2.06 The Bidder has considered the information known to the Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

2.07 The Bidder has determined that 1) the information contained in the Bid Documents is generally sufficient to convey the intent of the Town with respect to the Project Work and the final product(s) contemplated to arise therefrom; 2) the drawings, specifications, and other such information included in the Bid Documents and otherwise ascertained by the Bidder provide sufficient information and detail to construct and complete the subject Project Work and facilities proposed therein for the function(s), appearance(s), quality, and other standards contemplated by the Bid Documents and the Town as presented thereby, and to a reasonable, high-quality standard as would be generally accepted and expected for such work and facilities; 3) the time set forth in the Bid Documents for the prosecution of the Project Work is reasonable and sufficient for the same and to meet the standards set forth in the Bid Documents; and, 4) the bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for such prosecution, construction, and completion.

2.08 The Bidder has given the Town written notice of any errors, conflicts, ambiguities, or discrepancies discovered in the Bid Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

2.09 The Bidder acknowledges that the Town reserves the rights set forth in Article 9 and Paragraphs 1.02, 14.05, 15.06, and 18.03 of the Bid Instructions, and otherwise set forth therein.

2.10 The Bidder acknowledges that the organization of the Bid, including [but not limited to] any itemization of the Bid, the selection of Bid Items therein, and any quantities represented therefor, is at the discretion of the Town and for the convenience of the Town in evaluating and comparing the submitted Bids and administering the Contract.

2.11 The Bidder has fully completed the Bidder Qualifications Statement in accordance with Paragraph 4.02 of the Bid Instructions and as otherwise appropriate based on the information requested therein.

2.12 The Bidder has clearly noted any exceptions, stipulations, substitutions, or conditions it may have to the Bid Documents in its submitted Bid Proposal; and, the Bidder understands that any or all of the same may render the submitted Bid to be considered as unresponsive by the Town and thereby be cause for rejection.

2.13 The submitted Bid Proposal is genuine and not made in the interest of or on behalf of any undisclosed party, and is not associated with any agreement or rules of any group, association, organization, or corporation not represented therein.

2.14 The Bidder has not participated in, or sought to participate in, in any manner, any collusion of any sort with respect to this Public Bid; and that the Bidder has promptly reported to the Town any attempt by any other party to involve it in collusion of any sort or to any degree with respect thereto. The Bidder has also complied with the provisions of Article 5 of the Bid Instructions with respect to any involvement in collusion with respect to this Bid by any prospective subcontractors, suppliers, and any other such entity as may have been involved in providing pricing information for, or to any other significant degree with, the preparation of this Bid.

2.15 With respect to this Lump Sum Bid, the Bidder acknowledges:

- a) The Lump Sum Bid Amount set forth below includes all plant, labor, material, supplies, equipment, and other facilities necessary for, and incidental to, the construction of the subject Project, complete, fully functional, and properly finished, in strict conformance with and as required by the Drawings, Specifications, all addenda issued by the Owner, and all other Bid Documents, and for the use (or uses) and appearance intended by the Owner;
- b) The quantities for individual construction items are to be determined by the Bidder; and,
- c) Any changes in the Project scope shall be mutually agreed upon by the Owner and the successful Bidder. Should the Project scope be increased due to events and/or conditions not under the control and/or responsibility of the successful Bidder and not anticipated and/or evident in the Bid Documents and/or at the time of the Bid, then any additional work required will be paid for as extra work through a Change Order as set forth in the Bid Documents. Should the Project scope be decreased, an equitable credit, mutually agreed upon and determined by the best suitable means, will be taken by the Town and established through a Change Order.

ARTICLE 3 - Basis of Bid:

**McMahon Wintonbury Library Children's Garden, Site and Parking Improvements
Public Bid Number 1165**

The total amount of the Bidder's lump sum Bid is:

Lump Sum Bid Price for Base Bid	\$ _____
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Bid Alternates:

Alternate 1 (Add) Play Field Equipment and Structures (Lump Sum price for all work contained in Section 116800)	\$ _____
Alternate 2 (Add) Site Furnishings (Lump Sum price for all work contained in Section 323300)	\$ _____
Alternate 3 (Deduct) Exterior Rough Carpentry (Lump Sum price for all work contained in Section 061063)	\$ _____
Alternate 4 (Deduct) Lump Sum Price to substitute all Extruded Mountable Concrete Curb with Bituminous Concrete Curb	\$ _____
Alternate 5 (Deduct) Lump Sum Price for: (4) Boulders Type 1	\$ _____
Alternate 6 (Deduct) Lump Sum Price for: (7) Boulders Type 2	\$ _____
Alternate 7 (Deduct) Lump Sum Price for: (14) Boulders Type 3	\$ _____
Alternate 8 (Deduct) Lump Sum Price for: (2) Boulders Type 4	\$ _____

Unit Pricing for changes in work:

Unit Price #1 – Concrete Walk (per square foot) Section 321313 Concrete paving	\$ _____ per SF
Unit Price #2 – Planting Soil for Seeded Lawn (per square yard) Section 329115 – Soil Preparation	\$ _____ per SY

ARTICLE 4 - Time of Completion

4.01 The Bidder agrees that the Work will be substantially complete within the number of calendar days indicated in Paragraph 1.07 of the Bid Instructions.

4.02 The Bidder accepts the provisions for liquidated damages as set forth in Paragraph 1.11 of the Bid Instructions.

ARTICLE 5 - Attachments to this Bid

5.01 Fully completed Bidder Qualifications Statement with appropriate attachments.

5.02 Required Bid security.

ARTICLE 5 – SIGNATURE PAGE

4.01 This Bid is submitted on behalf of: (note – copy page as necessary to accommodate all signers.)

Entity Name: _____ (SEAL
HERE)

Entity Type (as registered): _____

Business Address: _____

Federal Tax ID No. _____

Signed on (date): _____
(write out – do not abbreviate)

By: _____
(Signature of authorized individual – attach evidence of authority to sign for Bidder)

Name: _____
(Typed or printed)

Title: _____

(Note: the above signature must be notarized below)

NOTARY'S CERTIFICATE:

STATE OF _____)
COUNTY OF _____)

_____, being duly sworn,
deposes and says that he/she is _____ of
_____, and that

he/she understands and hereby makes the representations and acknowledgements contained herein on behalf
of, and that, to the best of his/her knowledge, the Bid Prices included herein represent those determined
through the careful Bid preparation by, the Entity named above.

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

Notary Public
My Commission Expires:

STATE OF CONNECTICUT
Certificate of Compliance with
Connecticut General Statute Section 31 - 57b

I hereby certify that all of the statements herein contained below have been examined by me, and to the best of my knowledge and belief are true and correct.

The _____ HAS HAS NOT
(Check Applicable)
Company Name

been cited for three (3) or more willful or serious violations of any Occupational Safety and Health (OSHA) Act or of any standard, order or regulation promulgated pursuant to such act, during the three year period preceding the solicitation, provided such violations were cited in accordance with the provisions of any State Occupational Safety and Health Act of 1970, and not abated within the time fixed by the citation and such citation has not been set aside following appeal to the appropriate agency of court having jurisdiction or HAS HAS NOT (Check Applicable) received one or more criminal convictions related to the injury or death of any employee in the three-year period preceding the solicitation.

The list of violations (if applicable) is attached.

(*Name of Firm, Organization or Corporation*)

Signed: _____
Written Signature: _____

Name Typed: _____ *(Corporation Seal)* _____

Title: _____
(*Title of Above Person, typed*)

Dated: _____

State of _____)

County of _____) *ss:* _____ *A.D., 20* _____

)

Sworn to and personally appeared before me for the above, _____,
(*Name of Firm, Organization, Corporation*)

Signer and Sealer of the foregoing instrument of and acknowledged the same to be the free act and deed of
_____, and his/her free act and deed as
(*Name of Person appearing in front of Notary or Clerk*)

_____.
(*Title of Person appearing in front of Notary or Clerk*)

My Commission Expires: _____ *(Notary Public)* _____ *(Seal)*

TOWN OF BLOOMFIELD
BIDDER'S NON-COLLUSION AFFIDAVIT
BID NO. 1165

McMahon Wintonbury Library
Children's Garden, Site and Parking Improvements
Bloomfield, Connecticut

The undersigned bidder, having fully informed himself/itself regarding the accuracy of the statements made herein, certifies that:

- 1) the bid is genuine; it is not a collusive or sham bid;
- 2) the bidder developed the bid independently and submitted it without collusion with, and without any agreement, understanding, communication or planned common course of action with, any other person or entity designed to limit independent bidding or competition;
- 3) the bidder, its employees and agents have not communicated the contents of the bid to any person not an employee or agent of the bidder and will not communicate the bid to any such person prior to the official opening of the bid; and
- 4) no elected or appointed official or other officer or employee of the Town of Bloomfield is directly or indirectly interested in the bidder's bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

The undersigned bidder further certifies that this statement is executed for the purpose of inducing the Town of Bloomfield to consider its bid and make an award in accordance therewith.

Legal Name of Bidder

(signature)

Bidder's Representative, Duly Authorized

Name of Bidder's Authorized representative

Title of Bidder's Authorized Representative

Date

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

Notary Public
My Commission Expires:

(Acknowledgement if a Corporation)

State of Connecticut)
) ss:
County of Hartford)

On this the _____ day of _____, 20__ before me personally came and appeared

say that he/she is the _____ of _____, the
corporation described in and which executed the foregoing instrument; that he/she knows
the seal of the corporation; that one of the impressions affixed to said instrument is an
impression of such seal; that it was so affixed by order of the directors of said corporation,
and that s/he signed her/his name thereto by like order.

(Notary Seal)

Commissioner of the Superior Court
Notary Public
My commission expires:

(Acknowledgement of a Partnership)

State of Connecticut)
) ss:
County of Hartford)

On this the _____ day of _____, 20__ before me personally came and appeared

say that he/she is the _____ of _____, the
partnership described in and which executed the foregoing instrument and he/she
acknowledged to me that he/she executed the same as and for a free act of said
partnership.

(Notary Seal)

Commissioner of the Superior Court
Notary Public
My commission expires:

(Acknowledgement of a Proprietorship)

State of Connecticut)
) ss:
County of Hartford)

On this the _____ day of _____, 20____ before me personally came and appeared

and who executed the foregoing instrument and acknowledged that he/she executed the
same as his/her free act and deed.

(Notary Seal)

Commissioner of the Superior Court
Notary Public
My commission expires: