



BID #2027-02
STRATFORD ARBORETUM PROJECT
KETCHAM ROAD & PHILO STREET

SEALED submissions are subject to the standard instructions set forth on the attached sheets. Any modifications must be specifically accepted by the Town of Stratford.

Released: Thursday, 30th July, 2026

Phillip Ryan, Purchasing Agent

Bidder:

Doing Business As (Trade Name)

Address

Town / State / Zip

Title (Mr /Ms)

Signature

Telephone

E-mail

Sealed bids will be received by the Purchasing Department at the office of the Purchasing Agent, 2725 Main Street, Room 104, Stratford, Connecticut 06615, up to:

10:00AM, Tuesday, 25th August, 2026

NOTE:

1. Bidders are to complete all requested data in the upper right corner of this page and must return this page with their bid proposal.
2. No bid shall be accepted from, or contracts awarded to, any person/company who is in arrears to the Town of Stratford upon debt, or contract or who has been within the prior five (5) years, a defaulter as surety or otherwise upon obligations to the Town of Stratford.
3. Submissions are to be submitted in a sealed envelope and clearly marked “BID #2027-02” on the outside of the envelope, including all outer packaging, such as, DHL, FedEx, UPS, etc.

offering more from forest to shore

INVITATION TO BID

The Town of Stratford ("Town") is seeking competitive bids from qualified contractors with proven industry experience to provide labor, materials, tools, equipment, and all else necessary, to perform the work as delineated in the Contract Documents prepared by SLR International Corporation, 195 Church Street, New Haven, CT 06510.

1. Project is paid for in part by CT-DEEP Urban Green & Community Garden (UGCG) Grant Program; Connecticut Department of Public Health (CT-DPH) Block Grant Award; and CT-DEEP Long Island Sound Ecosystems Grant.
2. Contractors must comply with State Prevailing Fair Wage Provisions (for new construction projects over \$1,000,000.00 and remodel/repair projects over \$100,000.00 – C.G.S. 31-53(g)).
3. Performance bond covering 100% of the contract price is required for contracts over \$100,000.00 (C.G.S. 49-41).
4. Contractor must comply with DAS Contractor Prequalification requirements (>\$1,000,000.00).

The contractor who is selected to perform this State project must comply with CONN. GEN. STAT. §§ 4a-60, 4a-60g, and 46a-68b through 46a-68f. This contract is subject to state contract compliance requirements, including nondiscrimination statutes and spending allocation goals. There is \$1,065,970 in state-funding for this project. State law requires project-specific goals be set for this project based on the project's needs and available Small Business Enterprises ("SBEs") and Minority Business Enterprises ("MBEs"). The SBE goal for this project is 9.26%. The MBE goal for this project is 5.56%. The selected contractor must demonstrate good faith effort to meet the spending allocation goals.

REQUESTS FOR INFORMATION (RFI) / ADDENDA

Direct requests in writing to: Town of Stratford, Purchasing Department
Attention: Phillip Ryan, Purchasing Agent
E-mail: PRyan@townofstratford.com

NOTE: Written requests for information will not be accepted after 12:00PM on Friday, 14th August, 2026.

Response will be in the form of an addendum that will be posted approximately Thursday, 20th August, 2026 at the close of business to the Purchasing Department website: <https://www.stratfordct.gov/page/purchasing-department>

It is the responsibility of each bidder to retrieve addenda from the website. Any contact about this bid between a Bidder and any other Town official and/or department manager and/or Town of Stratford employee, other than as set forth above, may be grounds for disqualification of that Bidder. No questions or clarifications shall be answered by phone, in person or in any other manner than specified above. Addenda will not be mailed, e-mailed or faxed out.

BID BOND / BID SECURITY

A five (5) percent bid bond or equal approved security as stated per the Terms and Conditions must be submitted with the proposal. Any bid submitted without such security will be excluded from the bidding process. No exceptions.

CHECKLIST

The following must be submitted with proposal:

- ☐ Cover page, completed and signed.
- ☐ Bid Form(s)
- ☐ Addenda acknowledged on Bid Form, or submitted if requested.
- ☐ Bid Bond or Equal Approved Security.
- ☐ Non-Collusion Affidavit
- ☐ AIA Document A305 – Contractor's Qualification Statement.
- ☐ List of five (5) equivalent projects completed within the last three (3) years.
(Include project and reference contact information for each.)
- ☐ List of all subcontractors identifying each trade, hourly rates, location, and Tax ID number.
- ☐ Identify any exceptions that may apply. These must be itemized and attached to the proposal form.
- ☐ Contractor Prequalification Statement. (>\$1,000,000.00).
- ☐ Update Bid Statement. (>\$1,000,000.00).
- ☐ This contract is subject to state spending allocation goals and contract compliance requirements enforced by CHRO.
- ☐ W9 Form.

The Bidder hereby certifies that any and all defects, errors, inconsistencies or omissions of which he/she is aware, either directly or by notification from any material supplier found in the Contract Documents are listed herewith in this Bid Form.

Name _____ Title _____ Signature _____ Date _____

Stratford Coastal Botanical Garden and Arboretum
Town of Stratford, Connecticut

BID ITEMS			
Item Number	Estimated Quantity	Description of Item With Proposal Price in Words	Total (In Figures)
1	1	General Conditions, Mobilization, per Lump Sum _____ Dollars and _____ Cents	\$ _____
2	1	Maintenance and Protection of Traffic, per Lump Sum _____ Dollars and _____ Cents	\$ _____
2a	1	Traffic Control, per Estimated Cost <u> Fifty Thousand </u> Dollars and _____ Cents	\$ <u> 50,000 </u>
3	10,000	Strip, Stockpile and Screen Topsoil, per Square Yard _____ Dollars and _____ Cents	\$ _____
4	1	Construction Staking, per Lump Sum _____ Dollars and _____ Cents	\$ _____
5	1,263	Sawcut Bituminous Concrete, per Linear Feet _____ Dollars and _____ Cents	\$ _____
6	646	Remove Bituminous Concrete Pavement, per Square Yard _____ Dollars and _____ Cents	\$ _____
7	1,103	Remove Bituminous Curb, per Linear Feet _____ Dollars and _____ Cents	\$ _____

Stratford Coastal Botanical Garden and Arboretum
Town of Stratford, Connecticut

BID ITEMS			
Item Number	Estimated Quantity	Description of Item With Proposal Price in Words	Total (In Figures)
8	438	Remove Concrete Walk, per Square Yard _____ Dollars and _____ Cents	\$ _____
9	10	Tree Removal, per Each _____ Dollars and _____ Cents	\$ _____
10	14,270	Selectively Clear & Grub Vegetation, per Square Foot _____ Dollars and _____ Cents	\$ _____
11	4	Tree/Shrub Protection, per Each _____ Dollars and _____ Cents	\$ _____
12	1,300	Sedimentation Control Fence, per Linear Feet _____ Dollars and _____ Cents	\$ _____
13	14	Inlet Protection, per Each _____ Dollars and _____ Cents	\$ _____
14	1	Construction Entrance, per Each _____ Dollars and _____ Cents	\$ _____
15	1	Earth Excavation, per Lump Sum _____ Dollars and _____ Cents	\$ _____
16	2	Test Pit, per Each _____ Dollars and _____ Cents	\$ _____

Stratford Coastal Botanical Garden and Arboretum
Town of Stratford, Connecticut

BID ITEMS

Item Number	Estimated Quantity	Description of Item With Proposal Price in Words	Total (In Figures)
17	4,571	Bituminous Concrete (Roadway and Parking Areas), per Square Foot _____ Dollars and _____ Cents	\$ _____
18	267	Temporary Pavement, per Square Yard _____ Dollars and _____ Cents	\$ _____
19	1,970	Concrete Sidewalk (5" thick), per Square Foot _____ Dollars and _____ Cents	\$ _____
20	200	Concrete Sidewalk Ramp, per Square Foot _____ Dollars and _____ Cents	\$ _____
21	3,610	Integral Concrete Sidewalk and Curb, per Square Foot _____ Dollars and _____ Cents	\$ _____
22	206	Thickened Sidewalk for Bench/Bus Shelter Pad, per Square Foot _____ Dollars and _____ Cents	\$ _____
23	5	Detectable Warning Strip, per Each _____ Dollars and _____ Cents	\$ _____
24	427	Concrete Curb, per Linear Feet _____ Dollars and _____ Cents	\$ _____
25	685	Stabilized Stone Dust Walk, per Square Yard _____ Dollars and _____ Cents	\$ _____

Stratford Coastal Botanical Garden and Arboretum
Town of Stratford, Connecticut

BID ITEMS

Item Number	Estimated Quantity	Description of Item With Proposal Price in Words	Total (In Figures)
26	950	White Epoxy Striping 4", per Linear Feet _____ Dollars and _____ Cents	\$ _____
27	60	White Epoxy Striping 12", per Linear Feet _____ Dollars and _____ Cents	\$ _____
28	280	White Epoxy Striping 18", per Linear Feet _____ Dollars and _____ Cents	\$ _____
29	3	Relocate Stop Signs, per Each _____ Dollars and _____ Cents	\$ _____
30	240	Mulch for Planting Beds, per Cubic Yard _____ Dollars and _____ Cents	\$ _____
31	724	Wood Fiber Mulch, per Square Foot _____ Dollars and _____ Cents	\$ _____
32	1,093	Crushed Stabilized Slipper Shell, per Square Foot _____ Dollars and _____ Cents	\$ _____
33	946	Landscape Edge Restraint, per Linear Feet _____ Dollars and _____ Cents	\$ _____
34	8	Benches (backed), per Each _____ Dollars and _____ Cents	\$ _____
35	1	Bike Racks, per Each _____ Dollars and _____ Cents	\$ _____

Stratford Coastal Botanical Garden and Arboretum
Town of Stratford, Connecticut

BID ITEMS			
Item Number	Estimated Quantity	Description of Item With Proposal Price in Words	Total (In Figures)
36	2	Trash receptacle, per Each _____ Dollars and _____ Cents	\$ _____
37	300	6' HT. Solid Board Fence, per Linear Feet _____ Dollars and _____ Cents	\$ _____
38	1	GBT Bus Shelter Installation, per Lump Sum _____ Dollars and _____ Cents	\$ _____
39	1	Educational Signage - single post, per Each _____ Dollars and _____ Cents	\$ _____
40	395	15" RCP, per Linear Feet _____ Dollars and _____ Cents	\$ _____
41	50	4" PVC Sleeves for future Lighting or Irrigation, per Linear Feet _____ Dollars and _____ Cents	\$ _____
42	1	Drywell Yard Drain, per Each _____ Dollars and _____ Cents	\$ _____
43	5	Double Type C Catch Basin Type 1, per Each _____ Dollars and _____ Cents	\$ _____
44	1	Convert Catch Basin to Manhole, per Each _____ Dollars and _____ Cents	\$ _____
45	2	Abandon Manhole, per Each _____ Dollars and _____ Cents	\$ _____

Stratford Coastal Botanical Garden and Arboretum
Town of Stratford, Connecticut

BID ITEMS			
Item Number	Estimated Quantity	Description of Item With Proposal Price in Words	Total (In Figures)
46	3	Catch Basins (new), per Each _____ Dollars and _____ Cents	\$ _____
47	1,400	StormCrete 24" Precast Porous Concrete Gutter, per Square Foot _____ Dollars and _____ Cents	\$ _____
48	1	Tree Tag/Sign, per Lump Sum _____ Dollars and _____ Cents	\$ _____
49	47	Shade Trees, per Each _____ Dollars and _____ Cents	\$ _____
50	27	Ornamental Trees, per Each _____ Dollars and _____ Cents	\$ _____
51	29	Evergreen Trees, per Each _____ Dollars and _____ Cents	\$ _____
52	140	Shrubs, per Each _____ Dollars and _____ Cents	\$ _____
53	362	Perennials, per Each _____ Dollars and _____ Cents	\$ _____
54	6,014	Lawn - Seed, per Square Yard _____ Dollars and _____ Cents	\$ _____
55	1,244	Over Seed Existing Lawn, per Square Yard _____ Dollars and _____ Cents	\$ _____

BID ITEMS			
Item Number	Estimated Quantity	Description of Item With Proposal Price in Words	Total (In Figures)
56	6,014	Furnish and Place 6" Topsoil for Lawn Areas, per Square Yard _____ Dollars and _____ Cents	\$ _____
57	892	Furnish and Place 12" Topsoil for Planting Beds, per Cubic Yard _____ Dollars and _____ Cents	\$ _____
TOTAL BID PRICE:			
In Words			In Figures
_____ Dollars and _____ Cents			\$ _____

NON-COLLUSION AFFIDAVIT

State of _____:

County of _____:s.s.

I state that I am the _____ of _____
(TITLE) (NAME OF MY FIRM)

and that I am authorized to make this affidavit on behalf of my firm, and its owners, directors, and officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

- (1) The price(s) and amount of this bid have been arrived at independently and without consultation communication or agreement with any other contractor, bidder/proposer or potential bidder/proposer.
- (2) Neither the price(s) nor the amount of this bid/rfp, and neither the approximate price(s) nor approximate amount of this bid/rfp, have been disclosed to any other firm or person who is a bidder/proposer or potential bidder/proposer, and they will not be disclosed before bid/rfp opening.
- (3) No attempt has been made or will be made to induce any firm or person to refrain from bidding/proposing on this contract, or to submit a bid/proposal higher than this bid/rfp, or to submit any intentionally high or noncompetitive bid/rfp or other form of complementary bid/rfp.
- (4) I fully understand that more than one offer from an individual, firm partnership; corporation or association under the same or different name will be rejected. Reasonable grounds for believing that a bidder/proposer is interested in more than one bid/rfp for the work contemplated may cause rejection of all bids/rfps in which the bidder/proposer is interested. Any or all bidders/proposers will be rejected if there is any reason for believing that collusion exists among the bidders/proposers. Participants in such collusion may not be considered in the future offers for the same work. Each bidder/proposer by submitting a bid/proposal certifies that it is not a part to any collusive action.
- (5) The bid/rfp of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid/proposal.

- (6) _____its affiliates, subsidiaries, officers,
(NAME OF MY FIRM)
directors and employees are not currently under investigation by any governmental agency and have not in the last four years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding/proposing on any public contract, except as follows:
I state that _____ understands and acknowledges that
(NAME OF MY FIRM)
the above representations are material and important, and will be relied on by the Town of Stratford in awarding the bid/proposal for which this is submitted. I understand and my firm

NON-COLLUSION AFFIDAVIT

understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from the Town of Stratford of the true facts relating to the submission of bids/proposals for this contract.

- (7) I agree to furnish and deliver all services on the date and time agreed on by _____ and the Town of Stratford once the

(NAME OF MY FIRM)

Contract is signed. Furthermore, there will not be any cancellations to the Town of Stratford. If a bidder/proposer submits a bid/proposal on any services he/she will be responsible for delivering that service at the bid/proposal cost, in accordance with the attached above specifications, which were submitted with this bid/proposal and upon which the bid/proposal was made.

- (8) In submitting this bid/proposal, the undersigned declares that this is made without any connection with any persons making another bid/proposal on the same contract; that the bid/proposal is in all respects fair and without collusion, fraud or mental reservation; and that no official of the Town, or any person in the employ of the Town, is directly or indirectly interested in said bid/proposal or in the supplies or work to which it relates, or in any portion of the profits thereof.
- (9) The undersigned further understands that the above declarations are material representations to the Town of Stratford made as a condition to the acceptance of the bid/proposal. If found to be false, the Town of Stratford retains the right to reject said bid/proposal and rescind any resultant contract and/or purchase order and notify the undersigned accordingly, thereby declaring as void said bid/proposal and contract or purchase order.

CONTINUED >>>

VENDOR INFORMATION. (Please print the following)

VENDOR NAME

ADDRESS

TELEPHONE

FAX #

E-MAIL

WEB SITE

AUTHORIZED SIGNATURE

TITLE

- (10) By signing this bid/proposal the bidder/proposer understands and agrees to the attached terms, conditions, and specifications, including Collusion among Bidders / Proposers Employment Discrimination by the Contractor Prohibited.

SIGNATURE

SWORN AND SUBSCRIBED TO BEFORE ME, A NOTARY PUBLIC, IN AND FOR THE
COUNTY OF _____ AND THE STATE OF _____

THIS

DAY OF _____, YEAR _____

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

**PURCHASING DEPARTMENT
TOWN OF STRATFORD
INSTRUCTIONS FOR BIDDERS
TERMS AND CONDITIONS OF BID**

BID PROPOSALS

Bid proposals are to be submitted in a sealed envelope and clearly marked on the outside “BID #2027-02” including all outer packaging such as DHL, FedEx, UPS, etc. All prices and notations must be printed in ink or typewritten. No erasures are permitted. Bid proposals are to be in the office of the Purchasing Department, Town Hall, 2725 Main Street, Room 104, Stratford, Connecticut, prior to date and time specified, at which time they will be publicly opened.

RIGHT TO ACCEPT / REJECT

AFTER REVIEW OF ALL FACTORS, TERMS AND CONDITIONS, INCLUDING PRICE, THE TOWN OF STRATFORD RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS, OR ANY PART THEREOF, OR WAIVE DEFECTS IN SAME, OR ACCEPT ANY PROPOSAL DEEMED TO BE IN THE BEST INTEREST OF THE TOWN OF STRATFORD.

POWER OF REJECTION

The Mayor shall have the power to reject all bids and to advertise again.

QUESTIONS

Questions concerning conditions, bidding guidelines and specifications should only be directed in writing to:

Mr. Phillip Ryan, Purchasing Agent: PRyan@townofstratford.com

Inquiries must reference date of bid opening, requisition or contract number, and must be received no later than as indicated in the bid documents prior to date of bid opening. Failure to comply with these conditions will result in the bidder waiving the right to dispute the bid specifications and conditions.

BID BOND

The BID BOND furnished, as bid security, must be duly executed by the bidder as principal. It must be in the amount equal to five percent (5%) of the total estimated bid, as guarantee that, in case the contract is awarded to the bidder, the bidder will, within ten days thereafter, execute such contract and furnish a Performance Bond and Payment Bond.

Small businesses may elect to obtain an irrevocable letter of credit or cashier's check in lieu of the Bid Bond. Such surety must also be in an amount equal to at least five percent (5%) of the total estimated bid.

All bid bonds shall be written by a surety company or companies licensed in the State of Connecticut, and shall have at least an A-VII policy holders rating, as reported by A.M. Best Rating Services, or otherwise deemed acceptable by the Town. The Town always reserves the right to reject surety companies, if an approved surety bond cannot be provided, the bidder shall be deemed non-responsive.

A complete list of certified surety companies can be accessed on the U.S. Government Department of Treasury website: https://www.fiscal.treasury.gov/fsreports/ref/suretyBnd/c570_a-z.htm

NOTE: Failure to provide a Bid Bond or equivalent security is not cause for a waiver defect. Any bid not accompanied by such security will be excluded from consideration.

PRICES

Prices quoted must be firm, for acceptance by the Town of Stratford, for a period of ninety (90) days. Prices shall include all applicable duties. Bidders shall be required to deliver awarded items at prices quoted in their original bid.

F.O.B. DESTINATION

Prices quoted shall be net, delivered to destination. Bids quoting other than F.O.B. Destination may be rejected.

PERFORMANCE AND LABOR AND MATERIAL BOND

The successful bidder, within seven (7) business days after notification of award, will be required to furnish Performance and Labor and Material Bond provided by a company authorized to issue such bonds in the State of Connecticut, or Certified Check or properly executed Irrevocable Letter of Credit equal to a hundred per cent (100%) of the award.

In the event that the Contractor were required to provide evidence of insurance and a performance bond does not do so before beginning work, the Town of Stratford reserves the right to withhold payment from such supplier until the evidence of insurance and performance bond has been received by the Town.

All payment and performance bonds shall be written by a surety company or companies licensed to issue bonds in the State of Connecticut, and shall have at least an A-VIII policy holders rating, as reported by A.M. Best Rating Services, or otherwise deemed acceptable by the Town. The Town always reserves the right to reject surety companies, if approved surety bonds cannot be provided the contract shall be terminated.

A complete list of certified surety companies can be accessed on the U.S. Government Department of Treasury website: https://www.fiscal.treasury.gov/fsreports/ref/suretyBnd/c570_a-z.htm

BOND REQUIREMENT – NON-RESIDENT CONSTRUCTION CONTRACTORS

Overview: The law requiring nonresident construction contractors to furnish security for Connecticut taxes arising from jobs performed in Connecticut has been changed in the following major ways:

- Under the law as amended, there are two classes of nonresident contractors: verified and unverified. A nonresident prime or general contractor may gain verified status and thus eliminate the requirement to file a surety bond with the Department of Revenue Services (DRS), and a nonresident subcontractor may become verified and thus eliminate the requirement for the prime or general contractor to hold back a portion of the amount owed the subcontractor under the contract.
- Under the law as amended, a single surety bond for 5% of the entire project price is required to be filed with DRS by an unverified prime or general contractor where the contract price for the entire project is \$250,000.00 or more. A person doing business with an unverified prime or general contractor for such a project must obtain proof that such contractor has filed a bond with DRS, but is no longer required to withhold an amount from payment due such contractor under the contract.
- A prime or general contractor must hold back 5% of the amount due an unverified subcontractor until the subcontractor obtains and furnishes AU-968, *Certificate of Compliance*, from DRS. An AU-968 authorizes the prime or general contractor to release all or a portion of the amounts held back from payment to the unverified subcontractor.

Prior law required compliance with one of three options to secure payment of Connecticut taxes for each contract with a nonresident prime or general contractor and with a nonresident subcontractor: (i) a nonresident contractor could furnish DRS a guarantee bond for 5% of the total contract price; or (ii) a nonresident contractor could furnish DRS a cash bond for 5% of the total contract price; or (iii) persons doing business with nonresident contractors would be required to withhold 5% of the total contract price and deposit it with DRS. This law meant that compliance with the law was required for each subcontract for a single project to real property in Connecticut. As under prior law, owners or tenants of residential real property are excluded from the requirements of Conn. Gen. Stat. §12-430(7).

More information may be obtained from: <https://portal.ct.gov/drs/publications/special-notice/2012/sn-2012-2>

PERMITS

The contractor shall be responsible for securing all necessary permits, state and local, and as required by the Town of Stratford.

PAYMENT PROCEDURES

No voucher, claim or charge against the Town shall be paid without the approval of the Director of Finance for correctness and legality.

PAYMENT PERIOD

The Town of Stratford shall put forth its best effort to make payment within thirty days (30) after delivery of the item acceptance of the work, or receipt of a properly completed invoice, whichever is later. Payment period shall be net thirty days (30) unless otherwise specified. For projects that do not require a performance or bid bond, The Town of Stratford reserves the right to retain five percent (5%) of total bid amount, which is payable ninety (90) days after final payment or acceptance of the work.

THE CONTRACTOR

The Contractor for the work described shall be thoroughly familiar with the requirements of all specifications, and the actual physical conditions of various job sites. The submission of a proposal shall be construed as evidence that the Contractor has examined the actual job conditions, requirements, and specifications. Any claim for labor, equipment, or materials required, or difficulties encountered which could have been foreseen had such an examination been carefully made will not be recognized.

ASSIGNMENT OF CONTRACT

No contract may be assigned or transferred without the consent of the Town of Stratford.

AWARD OF BIDS

Contracts and purchases will be made or entered into with the lowest responsible bidder meeting specifications, except as otherwise specified in the invitation. If more than one item is specified in the invitation, the Town of Stratford reserves the right to determine the low bidder on an individual basis or on the basis of all items included in the Invitation for Bids, unless otherwise expressed by the Town.

The Town will be reviewing proposals to ensure contractors/individuals/suppliers/vendors are not debarred or suspended.

The System for Award Management (SAM.gov):

<https://sam.gov/content/home>

CT Department of Labor:

https://portal.ct.gov/dol/knowledge-base/articles/wage-and-workplace-standards/debarment-lists?language=en_US

BIDDING FOR PUBLIC WORK OR IMPROVEMENT

Any public work or improvement costing more than twenty-five thousand (\$25,000.00) dollars shall be executed by contract except where specified work or improvement is authorized by the council based on detailed estimates submitted by the department authorized to execute such work or improvement.

All contracts for more than twenty-five thousand (\$25,000.00) dollars shall be awarded to the lowest responsible bidder, after public advertisement and competition, as may be prescribed by ordinance.

The Mayor shall establish reasonable regulations for prefiling sub bids on construction contracts where it is anticipated that the contracting party shall subcontract all or a portion of the work to be done.

Any public work or improvement costing more than twenty-five thousand (\$25,000.00) dollars shall be executed by contract except where specified work or improvement is authorized by the Council based on detailed estimates submitted by the Department authorized to execute such work or improvement. All contracts under this section shall be awarded by the Town Council to the lowest responsible bidder, after public advertisement as specified above.

NONUSE OF WASTES

- A. All bids and contracts related to the retention of services to construct or maintain any publicly owned and/or maintained road or real property within the Town of Stratford shall include a provision stating that no materials containing natural gas or oil waste shall be utilized in providing such a service.
- B. All bids and contracts related to the purchase or acquisition of materials to be used to construct or maintain any publicly owned and/or maintained road or real property within the Town of Stratford shall include a provision stating that no materials containing natural gas or oil waste shall be provided to the Town of Stratford.
- C. The following statement, which shall be a sworn statement under penalty of perjury, shall be included in all bids related to the purchase or acquisition of materials to be used to construct or maintain any publicly owned and/or maintained road or real property within the Town of Stratford and all bids related to the retention of services to construct or maintain any publicly owned and/or maintained road or real property within the Town of Stratford:

"We ____ hereby submit a bid for materials, equipment and/or labor for the Town of Stratford. The bid is for bid documents titled _____. We hereby certify under penalty of perjury that no natural gas waste or oil waste will be used by the undersigned bidder or any contractor, subcontractor, agent or vendor agent in connection with the bid; nor will the undersigned bidder or any subcontractor, agent or vendor agent thereof apply any natural gas waste or oil waste to any road or real property within the Town of Stratford as a result of the submittal of this bid if selected."

CHANGE ORDERS

Approval Required: Except as specified herein, when any public work or improvement has been executed by contract, no changes in the terms, conditions or scope of said contract nor deviations from the specifications made a part of that contract which would result in any way in an increase in the cost of that contract to the Town shall be allowed except by the approval of the Council.

Review: Any request for change orders shall first be considered by an appropriate committee appointed and then referred to the Council for appropriate action.

Mayor's Approval: Notwithstanding any provision to the contrary herein, the Mayor, acting upon the advice of the Town Engineer, shall have the authority to approve any such changes or deviations without the approval of the Council, provided that the cost of any such changes or deviations does not exceed the sum of \$5,000.00 and further provided that, in the opinion of the Mayor, due to extraordinary conditions, unforeseen contingencies, market conditions or the nature of the requested change, it would not be feasible or in the best interest of the Town to delay approval of the requested change.

GUARANTEE

Equipment, materials and/or work executed shall be guaranteed for a minimum period of one (1) year against defective material and workmanship. The cost of all labor, materials, shipping charges and other expenses in conjunction with the replacement of defective equipment, and/or unsatisfactory work, shall be borne by the Contractor.

CATALOGUE REFERENCE

Unless expressly stated otherwise, any and all reference to commercial types, sales, trade names and catalogues are intended to be descriptive only and not restrictive; the intent is to indicate the kind and quality of the articles that will be acceptable. Bids on other equivalent makes, or with reference to other catalogue items will be considered. The bidder is to clearly state exactly what will be furnished. Where possible and feasible, submit an illustration, descriptive material, and/or product sample.

OSHA

The bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder will further certify that all items furnished under this project will conform and comply with Federal and State of Connecticut OSHA standards. The successful bidder will agree to indemnify and hold harmless the Town of Stratford for any and all damages that may be assessed against the Town.

LIFE CYCLE COSTING

Where applicable, Life Cycle Costing will be used as a criterion for awarding bids. This is a method of calculating total cost of ownership of an item over the life of the product, which may include operation and maintenance expenses, transportation, salvage value, and/or disposal costs.

INSURANCE

The Contractor shall not commence any work under the Contract until all insurance required by this section has been obtained and Certificates of Insurance and any other evidence of required coverage requested by the Town, including a copy of the policy itself, have been received and approved by the Town.

Such policies shall stipulate that no coverage can be changed or canceled, including for non-payment of premium, unless the Town has had thirty (30) days prior notice in writing. Certificates of renewals or changes in policies shall be delivered to the Owner at least thirty (30) days prior to the expiration of the policy.

All insurance issuers chosen by the Contractor must be licensed to do business in the State of Connecticut and rated A- or better by A.M. Best Rating Services.

The Town always reserves the right to reject insurance companies, if approved insurance policies cannot be provided the contract shall be terminated.

The insurance requirements set forth below are minimum limits of coverage only and in no way limit the Contractor's liability.

The following insurance is required to be maintained in full force until all work required by the contract has been fully completed, except that Products/Completed Operations coverage shall be maintained for five (5) years.

Worker's Compensation: The Contractor shall carry Worker's Compensation and Employer's Liability Insurance in the form and in such amounts as may be currently required to comply with the Labor Laws of the State of Connecticut. Statutory Limits.

Automobile Insurance: The Contractor shall carry and maintain during the life of the Contract a policy with a combined single limit of \$1,000,000.00 and rider CA9948 or equivalent.

This policy shall include all liability of the Contractor arising from the operation of all self-owned motor vehicles used in the performance of the Contract; and shall also include a “non-Ownership” provision covering the operation of motor vehicles not owned by the Contractor, but used in the performance of the work.

Commercial General Liability:

- Per Occurrence Limit: \$1,000,000
- Aggregate Limit: \$3,000,000
- Bodily Injury and Property Damage Limit: \$5,000,000
- Products/Completed Operations Limit: \$1,000,000

This policy shall include Subcontractor's Liability coverage, protecting the Contractor and the Town against liability arising out of the activities of Subcontractors engaged by him/her in the performance of the work.

Umbrella Policy: An umbrella policy in the amount of \$5,000,000.00 covering general liability, auto liability, and employer liability is required.

Waiver of Subrogation: Waiver of subrogation is required on all policies.

Additional Insureds: The Town of Stratford, its officers, officials, employees, agents, boards, and commissions shall be named as Additional Insureds. The coverage shall be primary and non-contributory and contain no special limitations on the scope of protection afforded to the Town of Stratford. A waiver of subrogation applies under general liability, auto liability and workers compensation.

The coverage shall be primary and non-contributory and contain no special limitations on the scope of protection afforded to the Town of Stratford. A waiver of subrogation applies under general liability, auto liability and workers compensation.

Subcontractor's Insurance: Each Subcontractor engaged by the Contractor to perform any work under the Contract shall obtain all insurance required of the Contractor in the same amounts and subject to the same provisions specified above for the Contractor, including the Additional Insured requirement. Certificates of Insurance shall be submitted to the Contractor and the Town and approved by the Town, before commencing any work.

HOLD HARMLESS

Contractor shall defend, indemnify, and hold harmless the Town of Stratford, its officers, employees, agents or volunteers, from and against any and all claims and demands of any nature for any loss, damage or injury which any person may suffer by reason of, or in any way arising out of, this Agreement, unless caused by the sole negligence of the Town.

FEDERAL, STATE, AND LOCAL LAWS

All applicable Federal, State and local laws, rules and regulations of all authorities having jurisdiction over the locality of the project shall apply to the contract and are deemed to be included herein. If the total amount of the project, including any current or future change orders, exceeds \$100,000.00 all work is to be done in accordance with Connecticut Department of Labor (CT-DOL) rules and regulations. More information may be obtained from: www.ctdol.state.ct.us

The Davis-Bacon and Related Acts, shall apply to contractors and subcontractors performing on federally funded or assisted contracts in excess of \$2,000.00 for the construction, alteration, or repair (including painting and decorating) of public buildings or public works. More information may be obtained from: <https://www.dol.gov/whd/govcontracts/dbra.htm>

NOTE: The Town shall apply the most current wage decision applicable at the time of contract award.

It is the Contractor's responsibility to obtain work classifications not included in the Wage Decisions package.

CONFLICT OF INTEREST

No officer or employee or member of any elective or appointive board, commission, committee or council of the Town, whether temporary or permanent, shall have or acquire any financial interest gained from a successful bid, direct or indirect, in any project, matter, contract or business within his/her jurisdiction or the jurisdiction of the board, commission, committee or council of which he/she is a member. Nor shall the officer / employee / member have any financial interest, direct or indirect, in any contract or proposed contract for materials or services to be furnished or used in connection with any project, matter or thing which comes under his/her jurisdiction or the jurisdiction of the board, commission, committee or council of which he/she is a member.

SCOPE OF WORK / SITE INSPECTIONS

The bidder declares that the scope of the work has been thoroughly reviewed and any questions resolved (see above for name and number of individual to contact for questions). If applicable, the bidder further declares that the site has been inspected as called for in the specifications (q.v.).

EXCEPTION TO SPECIFICATIONS

No protest regarding the validity or appropriateness of the specifications or of the Invitation for Bids will be considered, unless the protest is filed in writing with the Purchasing Agent prior to the closing date for the bids. All bid proposals rendered shall be considered meeting the attached specifications unless exceptions are noted on a separate page dated and signed by the bidder.

UNLESS OTHERWISE NOTED

It will be assumed that all terms and conditions and specifications will be complied with and will be considered as part of the Bid Proposal.

TAX EXEMPT

Federal Tax Exemption 06-6002103.

Exempt from State Sales Tax under State General Statutes Chapter 219-Section 12-412 Subsection A.

SUPPLEMENTAL

- A. Performance bond covering 100% of the contract price is required for contracts over \$100,000.00 (C.G.S. 49-41).
- B. Project is paid for in part by CT-DEEP Urban Green & Community Garden (UGCG) Grant Program; Connecticut Department of Public Health (CT-DPH) Block Grant Award; and CT-DEEP Long Island Sound Ecosystems Grant.
- C. Contractors must comply with State Prevailing Fair Wage Provisions (for new construction projects over \$1,000,000.00 and remodel/repair projects over \$100,000.00 – C.G.S. 31-53(g)). See more information below.
- D. Contractor must comply with DAS Contractor Prequalification requirements, if applicable over \$1,000,000.00.

PREVAILING WAGES:

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 (h) of this section, 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.

**COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES (CHRO)
NON-DISCRIMINATION CONTRACT LANGUAGE**

Pursuant to Connecticut General Statutes Section 4a-60 and except as provided in section 10a-151i of the General Statutes, every contract to which a state agency or political subdivision of the state, including a municipality or quasi-public agency, is a party to shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, sexual orientation, gender identity or expression, status as a veteran, status as a victim of domestic violence, status as a victim of sexual assault or status as a victim of trafficking in persons, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut; and the contractor further agrees to take affirmative action to ensure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, sexual orientation, status as a veteran, status as a victim of domestic violence, status as a victim of sexual assault or status as a victim of trafficking in persons, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved;

(2) The contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an “affirmative action-equal opportunity employer” in accordance with regulations adopted by the Commission on Human Rights and Opportunities;

(3) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(4) The contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, 46a-68e, 46a-68f and 46a-86; and

(5) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56.

DAS PREQUALIFICATION OF BIDDERS:

- A. Municipal contracts for the construction or renovation of a public works project, where the estimated value is \$1,000,000.00 or greater, will need to comply with C.G.S. Sec. 4b-91. In such cases the contractors must be pre-qualified by the State of Connecticut Department of Administrative Services (DAS). When applicable, this requirement will need to be included in the Invitation to Bid as a prerequisite for selecting the Lowest Responsible and Qualified Bidder.
- B. "Prequalification" means prequalification issued by DAS to bid on a contract or perform work pursuant to a contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or any other public work by the state or a municipality.
- C. It is permissible to use AIA form A305, Contractor's Qualification
 - i. Statement, as a prerequisite to bidding, provided prequalification.
 - ii. Does not prevent minority/women owned firms from bidding.
 - iii. Consult your architect.

LEGISLATIVE CHANGE:

Effective October 1, 2023 DAS Construction Contractor Prequalification Program

- Contractors bidding on a contract for work for the state or a municipality that is estimated to cost more than \$1,000,000 and is funded, in whole or in part, by state funds must be prequalified. Effective October 1, 4a-100 of the general statutes is increasing the requirement for prequalification for projects from \$500,000 to \$1,000,000.
- Responses to solicitations over \$500,000 but under \$1,000,000 will not require DAS Prequalification, however, the solicitation will require the bidder to provide specific information including, but not limited to, business organization information, legal administrative procedures, qualification status, and workforce development initiatives.

FUNDER

CT-DEEP Urban Green & Community Garden (UGCG) Grant Program	\$281,840.00
Connecticut Department of Public Health (CT-DPH) Block Grant Award	\$116,630.00
CT-DEEP Long Island Sound Ecosystems Grant	\$667,500.00

Project: Stratford Arboretum

Minimum Rates and Classifications for
Heavy/Highway Construction

ID#: 26-8308

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: 2027-02

Project Town: Stratford

State#:

FAP#:

Project: Stratford Arboretum

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	50.21	30.01
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	46.09	36.29
2) Carpenters, Piledrivermen	44.48	29.74
2a) Diver Tenders	44.48	29.74
2b) Divers Effluent	67.52	29.74
3) Divers	52.94	29.74
03a) Millwrights	45.14	30.24
03b) Carpenter-Welder	44.98	29.74
03c) Carpenter: Working with creosote lumber or acid	45.48	29.74

As of: July 27, 2026

4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	61.85	27.65
4a) Painters: Brush and Roller	41.17	27.65
4b) Painters: Spray	44.17	27.65
4bc) Painters: Spray Helper	42.17	27.65
4c) Painters: Steel Only	43.17	27.65
4d) Painters: Blast	46.17	27.65
4de) Painter: Blast Helper	42.17	27.65
4e) Painters: Tanks, Tower and Swingstage etc.	43.17	27.65
4f) Elevated Tanks (60 feet and above)	50.17	27.65
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)	50.0	36.97+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	45.25	46.62 + 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)	52.08	36.80
----LABORERS-----		
8) Group 1: General Laborers and concrete specialist	37.0	30.47

As of: July 27, 2026

8) Group 1a: Acetylene Burners (Hours worked with a torch)	38.0	30.47
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	37.25	30.47
10) Group 3: Pipelayers	37.5	30.47
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	37.5	30.47
12) Group 5: Toxic waste removal (non-mechanical systems)	39.0	30.47
13) Group 6: Blasters	38.75	30.47
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	40.0	30.47
Group 8: Traffic control signalmen	22.2	30.47
Group 9: Hydraulic Drills	37.75	30.47
Group 10: Toxic Waste Removers A or B With PPE	40.0	30.47
----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	39.23	30.47 + a
13b) Brakemen, Trackmen, Miners' Helpers and all other men	38.26	30.47 + a

As of: July 27, 2026

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

14) Concrete Workers, Form Movers, and Strippers	38.26	30.47 + a
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15) Form Erectors	38.59	30.47 + a
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----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers, Miners Helpers	38.26	30.47 + a
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17) Laborers Topside, Cage Tenders, Bellman	38.15	30.47 + a
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18) Miners	39.23	30.47 + a
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----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ---
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18a) Blaster	45.72	30.47 + a
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19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	45.52	30.47 + a
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20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	43.54	30.47 + a
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21) Mucking Machine Operator, Grout Boss, Track Boss	46.31	30.47 + a
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----TRUCK DRIVERS----(*see note below)

Block Truck	39.98	33.00 + a
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2 Axle	38.66	33.00 + a
Helpers	36.16	33.00 + a
Three Axle Trucks; Two Axle Mixer	38.77	33.00 + a
Three Axle Mixer	38.83	33.00 + a
Four Axle	38.89	33.00 + a
Four Axle Mixer	40.69	33.00 + a
5 Axle	38.89	33.00 + a
5 Axle Mixer	40.69	33.00 + a
Heavy Duty Trailer (40 tons and over)	41.16	33.00 + a
Heavy Duty Trailer (up to 40 tons)	39.89	33.00 + a
Snorkle Truck	39.04	33.00 + a
Swivel Dump and Tack Truck	38.89	33.00 + a
Euclids and Semi Trailer	38.94	33.00 + a

----POWER EQUIPMENT OPERATORS----

As of: July 27, 2026

Group 1: Crane Handling or Erecting Structural Steel or Stone, Hoisting Engineer (2 drums or over), Caisson Drilled Shaft over 14". (Trade License Required)	60.66	30.95 + a
Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and over.	55.6	30.95 + a
Group 2: Cranes (100 ton rate capacity and over). (Trade License Required)	60.24	30.95 + a
Group 2a: Cranes (under 100 ton rated capacity), Magni Type-360 Rotating Forklift.	59.2	30.95 + a
Group 2b: Excavator over 2 cubic yards; Pile Driver (\$3.00 premium when operator controls hammer), HF-1 Forklift, Drills with self contained power units, Micropile up to 14 inches helical pile.	55.17	30.95 + 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)	54.13	30.95 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper), Goldhofer.	53.61	30.95 + 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)	52.78	30.95 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller, Geothermal Drill.	52.78	30.95 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	52.35	30.95 + 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)	51.89	30.95 + a

As of: July 27, 2026

Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine, Rigger Foreman.	51.34	30.95 + 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).	50.74	30.95 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	47.91	30.95 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	47.91	30.95 + a
Group 12: Wellpoint Operator.	47.82	30.95 + a
Group 13: Compressor Battery Operator.	47.04	30.95 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	45.45	30.95 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	44.89	30.95 + a
Group 16: Maintenance Engineer and Articulating End Dump.	43.99	30.95 + a
Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator., Portable Grout Plant Operator, Portable Water Filtration Plant Operator.	49.95	30.95 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license), Rigger, Signalman.	46.6	30.95 + a
Surveyor: Chief of Party	50.21	30.95 + a

As of: July 27, 2026

Surveyor: Assistant Chief of Party	46.3	30.95 + a
Surveyor: Instrument Man	44.55	30.95 + a
Surveyor: Rodman or Chairman	38.34	30.95 + 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

As of: July 27, 2026

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	52.07	20.62
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----DREDGING----

Class A1: Mechanical Dredge Operator	48.48	17.32+a+b
Class B1: Maintenance Engineer	41.93	16.87+a+b
Class C1: Mate/Welder	38.38	16.62+a+b
Class D: Deckhand	30.86	16.09+a+b

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 journeyman 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
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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.



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What is the Prevailing Wage Bid Package?

 Date: August 16, 2023

Read time: 1 minutes

Prevailing Wage Bid Package

- [Prevailing Wage Law Poster](#) (PDF)
- [Section 31-53b](#): Construction safety and Health Course. Proof of completion required for employees on public building projects.
 - [Informational Bulletin - The 10-Hour OSHA Construction Safety and Health Course](#) (PDF)
- [Notice For All Mason Contractors](#) (PDF)
- [CT General Statute 31-55a](#)
- [Contracting Agency Certification Form](#) (PDF)
- [Contractors Wage Certification Form](#) (PDF)
- [Payroll Certification - Public Works Projects](#)
- [Information Bulletin - Occupational Classifications](#) (PDF)
- [Footnotes](#) (Rev. 07/25) (PDF)

[Prevailing Wage Information](#) >

Wage and workplace standards

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CT Department of Labor



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United States
Mast: (Full)

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Mast: (Full)

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STRATFORD ARBORETUM TOWN OF STRATFORD, CT

Located at Ketcham Road and Philo Street, Stratford, CT

March 16, 2026

Prepared for:
Town of Stratford

Prepared by:
SLR International Corporation
195 Church Street, 7th Floor
New Haven, CT 06510
www.slrconsulting.com

**STRATFORD ARBORETUM
STRATFORD, CONNECTICUT**

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- 01 56 39 – TEMPORARY TREE AND PLANT PROTECTION

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- 32 91 15 – PLANTING SOIL
- 32 92 00 – TURF AND GRASSES
- 32 93 00 – PLANTS

DIVISION 33 – UTILITIES

- 33 05 13 – MANHOLES AND STRUCTURES
- 33 40 00 – STORM DRAINAGE UTILITIES

END OF SECTION

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**SECTION 01 11 00
SUMMARY OF WORK**

PART 1 - GENERAL

1.1 DESIGN STANDARD

- A. All work shall comply with **Town of Stratford Standard Specifications and Details**.

1.2 PROJECT/WORK IDENTIFICATION

- A. The name of the project is "**Stratford Arboretum**" and is located at **Ketcham Road and Philo Street, Stratford Connecticut 06615**.
- B. The Work of this Contract has been identified in these Technical Specifications as prepared by **SLR Consulting, Inc.** dated: **October 2025**.
- C. Any reference to Owner shall mean the **Town of Stratford** (also referred to as the "Town").
- D. SLR Consulting, Inc. (SLR) is the Owner's Representative (also referred to as the "Project Engineer" and "Landscape Architect") for this project.
- E. The **Ms. Kelly Kerrigan, Environmental Conservation Superintendent** is the Town's Project Representative for this project.
- F. Any reference to the Engineer shall mean the Project Representative, unless expressly stated otherwise.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. The general intent of the Work is:
1. Remove and dispose of the existing pavements, clear site.
 2. Install new sidewalks, walking trail, and road repair.
 3. Install new site amenities including benches, bike racks, bus shelter, fence, trash receptacle and signage.
 4. Install manholes and new drainage structures.
 5. Install new landscaping including perennials, lawn and trees.
- B. The following outline generally describes the proposed Scope of Work:
1. **Demolition/site clearing:** Remove and dispose of asphalt paving. Clear and grub dead and invasive vegetation. Protect structures and trees to remain.
 2. **Earthwork:** Cut and fill soil areas associated sidewalks. Reshape, supplement, and compact existing subbase for bituminous concrete pavement. Reshape and compact subgrade for new pavements. Reshape, supplement and compact, as necessary turf grass areas and proposed landscape areas. Perform trenching associated with underground site infrastructure.
 3. **Pavements:** Prepare subbase, base and finished surface for pavements including bituminous concrete roadway, concrete walk, and stabilized stone dust walk.

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4. **Exterior Improvements:** Furnish and install new site amenities, and landscape.

C. Construct Work under a fixed price contract.

1.4 COORDINATION

A. General Contractor shall coordinate Work of the various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.

B. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

1.5 WORK BY OTHERS

A. Work associated with installation of Bus Shelter. This is not NIC (not in contract) and is the responsibility of the Town of Stratford.

1.6 CONTRACTOR USE OF PREMISES

A. Contractor shall have full use of the area of renovation for execution of work.

B. Coordinate the use of the premise and access to areas outside of area of renovation under direction from the Town including working hours, required shut-downs, deliveries, contractor parking, and traffic control.

C. Assume full responsibility for protection and safekeeping of products under this Contract.

D. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION 01 11 00

**SUMMARY OF WORK
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**STRATFORD ARBORETUM
STRATFORD, CONNECTICUT**

**SECTION 01 41 04
SPECIAL INSPECTIONS AND STRUCTURAL TESTING**

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Special Inspections and Structural Testing shall be in accordance with Section 1704 of the Connecticut State Building Code.

1.2 QUALIFICATIONS

- A. The Special Inspector shall be a Professional Engineer licensed in the State of Connecticut who is approved by the Structural Engineer of Record (SER) and Building Official.
- B. The testing laboratory shall be NVLAP accredited and approved by the Structural Engineer of Record (SER) and Building Official.
- C. The testing laboratory shall maintain a full time Professional Engineer licensed in the State of Connecticut on staff who shall stamp and sign all test reports. The Professional Engineer shall be responsible for the training of the testing technicians and shall be in responsible charge of the field and laboratory testing operations.
- D. Special Inspections shall be performed by inspectors who are either Professional Engineers (P.E.) or Engineers-in-Training (EIT) with an education and background in structural engineering except as indicated below.
 - 1. Special Inspections of soils and foundations may be performed by inspectors who are either Professional Engineers (P.E.) or Engineers-in-Training (EIT) with an education and background in geotechnical engineering.
 - 2. Technicians performing tests of concrete shall be ACI certified Concrete Field Testing Technicians - Grade 1.
 - 3. Inspectors performing inspections of concrete work may be ACI certified Concrete Construction Inspectors in lieu of being a P.E. or EIT.
 - 4. Technicians performing tests or inspections of welds shall be AWS Certified Welding Inspectors. Technicians performing ultrasonic testing shall also be certified as an ASNT-TC Level II or Level III technician.
 - 5. Technicians performing standard tests described by specific ASTM Standards shall have training in the performance of such tests and must be able to demonstrate either by oral or written examination competence for the test to be conducted. They shall be under the supervision of a Professional Engineer and shall not be permitted to independently evaluate test results.

1.3 SUBMITTALS

- A. The Special Inspector and Testing Laboratory shall submit to SER and Building Official for review a copy of their qualifications which shall include the names and qualifications of each of the individual inspectors and technicians who will be performing inspections or tests.

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- B. The Special Inspector and Testing Laboratory shall disclose any past or present business relationship or potential conflict of interest with the Contractor or any of the Subcontractors whose work will be inspected or tested

1.4 PAYMENT

- A. The Owner shall engage and pay for the services of the Special Inspector and Testing Laboratory.
- B. If any materials which require Special Inspections are fabricated in a plant which is not located in Connecticut, the Contractor shall be responsible for the travel expenses of the Special Inspector or Testing Laboratory.
- C. The Contractor shall be responsible for the cost of any retesting or reinspection of work which fails to comply with the requirements of the Contract Documents

1.5 CONTRACTORS RESPONSIBILITIES

- A. The Contractor shall cooperate with the Special Inspector and his agents so that the Special Inspections and testing may be performed without hindrance.
- B. The Contractor shall notify the Special Inspector or Testing Laboratory at least twenty-four (24) hours in advance of a required inspection or test.
- C. The Contractor shall provide incidental labor and facilities to provide access to the work to be inspected or tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.
- D. The Contractor shall keep at the project site the latest set of construction drawings, field sketches, approved shop drawings, and specifications for use by the inspectors and testing technicians.
- E. The Special Inspection program shall in no way relieve the Contractor of this obligation to perform work in accordance with the requirements of the Contract Documents or from implementing an effective Quality Control program.
- F. The Contractor shall be solely responsible for construction site safety.

1.6 LIMITS OF AUTHORITY

- A. The Special Inspector or Testing Laboratory may not release, revoke, alter, or enlarge on the requirements of the Contract Documents.
- B. The Special Inspector or Testing Laboratory will not have control over the Contractor's means and methods of construction.
- C. The Special Inspector or Testing Laboratory shall not be responsible for construction site safety.
- D. The Special Inspector or Testing Laboratory has no authority to stop the work.

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1.7 STATEMENT OF SPECIAL INSPECTIONS

- A. The Statement of Special Inspections will be prepared by the Structural Engineer of Record (SER).
- B. CEPP/SEC Form 101 - 2004 shall be used for the Statement of Special Inspections.
- C. The Statement of Special Inspections shall be submitted with the application for Building Permit..

1.8 RECORDS AND REPORTS

- A. Detailed reports shall be prepared for each inspection or test. Reports shall include:
 - 1. Date of test or inspection
 - 2. Name of inspector or technician
 - 3. Location of specific areas tested or inspected
 - 4. Description of test or inspection and results
 - 5. Applicable ASTM standard
 - 6. Weather conditions
 - 7. Professional Engineer's stamp and signature
- B. Interim reports shall be submitted at the end of each week which include reports for all inspections and tests performed that week.
- C. Reports shall be addressed to the Building Official with copies sent to the SER, Architect, and Contractor.
- D. Any discrepancies from the Contract Documents found during a Special Inspection shall be immediately reported to the Contractor. If the discrepancies are not corrected, the Special Inspector shall notify the SER and Building Official.
- E. The Test Laboratory shall immediately notify the SER by telephone or fax of any test results which fail to comply with the requirements of the Contract Documents.
- F. Reports shall be submitted within seven (7) days of the inspection or test. Hand written reports may be submitted if final typed copies are not available.
- G. At the completion of the work requiring Special Inspections, each inspection agency and testing laboratory shall provide a statement to the Special Inspector that all work was completed in substantial conformance with the Contract Documents and that all appropriate inspections and tests were performed.

1.9 FINAL REPORT OF SPECIAL INSPECTIONS

- A. The Final Report of Special Inspections shall be completed by the Special Inspector and submitted to the SER and Building Official prior to the issuance of a Certificate of Use and Occupancy.
- B. CEPP /SEC Form 102 - 2001 shall be used for the Final Report of Special Inspections.

SPECIAL INSPECTIONS AND STRUCTURAL TESTING

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- C. The Final Report of Special Inspections will certify that all required inspections have been performed and will itemize any discrepancies which were not corrected or resolved.

1.10 SCHEDULE OF INSPECTIONS AND TESTS

- A. Required inspections and tests are described in the Schedule of Special Inspections and in the individual Specification Sections for the items to be inspected or tested.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 41 04

**STRATFORD ARBORETUM
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**SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS**

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS, which are hereby made a part of this section of the specifications.

1.2 REQUIREMENTS: include but are not limited to the following:

- A. Hoisting Equipment and Machinery
- B. Maintenance of Access
- C. Construction Equipment
- D. Dust Control
- E. Noise Control
- F. Site Enclosure Fence
- G. Temporary Sanitary Facilities
- H. Temporary Electricity and Lighting
- I. Temporary Water
- J. Delivery of Materials
- K. Shut down Notice
- L. Barricades, Warning Signs and Lights
- M. Traffic Ways
- N. Cleaning during Construction
- O. Transportation and Handling

1.3 HOISTING EQUIPMENT AND MACHINERY

- A. All hoisting equipment and machinery required for the proper and expeditious prosecution and progress of the work shall be furnished, installed, operated and maintained in safe condition by the Contractor for the use of all Subcontractors material and/or equipment delivered to the designated hoisting area except that which is specifically required to be provided by the Subcontractors themselves and is so stated in each appropriately related Section of the Specifications. All costs for hoisting operation services shall be borne by the Contractor unless specifically excepted in the Contract Documents.

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1.4 CONSTRUCTION EQUIPMENT

- A. The Contractor shall furnish and maintain all equipment such as scaffolding, ladders, ramps, chutes, etc., as required for the proper execution of the work, unless specifically included under the work of other trades.
- B. All such apparatus, equipment and construction shall meet all requirements of the Labor Law and other State and Local Laws applicable thereto.

1.5 DUST CONTROL

- A. The Contractor shall provide adequate means for the purpose of preventing dust caused by construction operations throughout the period of the construction contract in accordance with the Town of Stratford Dust Ordinance. The Contractor shall clean all surfaces that, in the opinion of the Engineer or Project Manager, have become contaminated with dust due to construction operations.
- B. This provision does not supersede any specific requirements for methods of construction or applicable general conditions set forth in the contract articles with added regard to performance obligations of the Contractor.

1.6 NOISE CONTROL

- A. Work must be scheduled and performed in such a manner as to not interfere the operations of adjacent properties. Construction work that is deemed by the Owner to be excessively noisy may be required to be done during non-normal working hours and at no additional expense to the Owner. All work should be conducted in accordance with the Town of Stratford Noise Control Ordinance.
- B. Develop and maintain a noise abatement program and enforce strict discipline over all personnel to keep noise to a minimum.
- C. Execute construction work by methods and by use of equipment which will reduce excess noise.
 - 1. Manage vehicular traffic and scheduling to reduce noise.

1.7 SITE ENCLOSURE FENCE

- A. Provide a site enclosure fence to enclose the entire project site or portion determined sufficient to accommodate construction operations, material storage area(s) and contractor parking. Install fence in a manner that will prevent general public from entering construction site. Location of site enclosure fence shall be approved by the Engineer.
- B. Provide a minimum 6-foot high chain-link fence erected in a substantial manner and truly straight and plumb. Provide 0.120-inch thick, galvanized 2-inch chain-link fabric fencing with galvanized steel pipe posts, 1-1/2" for line posts and 2-1/2" for corner posts. Provide gates at locations as shown or approved by the Engineer. Provide cross-braced gates hung on heavy pivots or hinges. Provide drop rod and locking mechanism. Provide keys to the Owner, Resident Engineer and Police. No destruction of existing pavements to remain will be allowed.
- C. Existing fence to remain can be used as part of site enclosure. Any openings shall be securely closed.
- D. Maintain fence until Final Completion of project. Remove fence and restore site when directed by the Engineer.

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1.8 TEMPORARY SANITARY FACILITIES

- A. The Contractor shall provide suitable, single occupant toilet units of the chemical type. Provide units properly vented and fully enclosed with a polyester or similar non-absorbent shell. Locate toilet units within project construction fence or provide similar protection to deter vandalism.

1.9 TEMPORARY ELECTRICITY AND LIGHTING

- A. Power and lighting may be taken from the power company's nearest pole with temporary poles, if needed, to extend the line to project. If permanent power lines have been installed before beginning project, then temporary lines can be brought in from the last pole. Upon completion of the project, remove temporary lines.
- B. Provide service required for construction with branch wiring and distribution boxes located to provide power and lighting by construction-type extension cords. Provide service to and connect general contractor's and owner's field offices.
- C. All costs of temporary power and lighting shall be paid by the Contractor.

1.10 TEMPORARY WATER

- A. Water for construction purposes may be taken from the existing service. The Contractor shall provide connections, meter and pipe to the water main or nearest hydrant, subject to the approval of the Owner. Upon completion of work, the Contractor shall remove the temporary connections and back fill if necessary. If new water service is installed before construction is complete, the new system may be used provided it is returned to the Owner in as-new condition. The Contractor shall pay for water used, as metered.

1.11 DELIVERY OF MATERIALS

- A. All Materials shall be delivered to the Contractor's or Sub-Contractor's property if the Contractor's representative is not present at the project site to receive them.

1.12 SHUT DOWN NOTICE

- A. The Contractor shall notify the Owner at least seven (7) working days in advance, of the need to shut down or modify any utilities. If, due to emergencies or staffing shortages, personnel are unable to provide the required shut down or modifications, the contractor shall reschedule their work at no cost to the Owner.

1.13 BARRICADES, WARNING SIGNS, AND LIGHTS

- A. Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and public of possible hazards. Where appropriate and needed, provide lighting including flashing red and amber lights.

1.14 TRAFFIC WAYS

- A. The Contractor may use on site paved roads and parking areas. Public rights-of-way shall not be blocked by standing trucks, parked cars, material storage, construction operations or in any other manner unless previously approved in writing by the owner.

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- B. Contractor is to make arrangements to use flagmen to maintain traffic flow. Costs to be paid for by the Contractor.
- C. Public roads and existing paved roads, drives and parking areas on Owner's property shall be kept free from scrap or debris due to construction operations and any damage to their surface caused by the Contractor shall be repaired by the contractor at their own expense.
- D. If the Work of the Contract affects public use of any street, road, highway or thoroughfare, the contractor shall confer with the police authority having jurisdiction to determine if and how many police are needed for public safety, in addition to any barriers and signals that may be needed. The Contractor will be responsible for payment of any needed police services.

1.15 CLEANING DURING CONSTRUCTION

- A. Unless otherwise specified under the various trade Sections of the Specifications, the Contractor shall perform clean-up operations during construction as herein specified,
- B. Control accumulation of waste materials and rubbish; periodically dispose of off site, The Contractor shall bear all costs, including fees resulting from such disposal.
- C. Maintain project in accordance with all local, State and Federal Regulatory Requirements,
- D. Store volatile wastes in covered metal containers, and remove from premises.
- E. Prevent accumulation of wastes which create hazardous conditions.
- F. Provide adequate ventilation during use of volatile or noxious substances.
- G. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.
- H. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
- I. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.
- J. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and windblown debris, resulting from construction operations.
- K. Provide on-site containers for collection of waste materials, debris, recycling and rubbish. All contains are to be covered.
- L. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas off the construction site.
- M. Handle material in a controlled manner with as few handlings as possible, do not drop or throw materials from heights.

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- N. Schedule cleaning operations so that dust and other contaminants resulting from cleaning will process will not damage surrounding surfaces.

1.16 TRANSPORTATION AND HANDLING

- A. Materials and equipment shall be delivered, stored and handled to prevent intrusion of foreign matter and damage by weather or breakage. Packaged materials shall be delivered and stored in original, unbroken packages.
- B. All materials must be stored within the Contract Limit Lines.
- C. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct and products are undamaged.
- D. Packages, materials and equipment showing evidence of damage will be rejected and replaced at no additional cost to the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 50 00

**STRATFORD ARBORETUM
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**SECTION 01 56 39
TEMPORARY TREE AND PLANT PROTECTION**

PART 1 - GENERAL

1.1 SUMMARY

- A. The scope of work includes all labor, materials, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with protection of existing trees and other plants as shown on the drawings and as specified herein.
 - 1. Provide tree and plant protection fencing.
 - 2. Provide protection of root zones and above ground tree and plants
 - 3. Remove tree protection fencing and other protection from around and under trees and plants.
 - 4. Clean up and disposal of all excess and surplus material.

1.2 RELATED DOCUMENTS AND REFERENCES

- A. Related Documents:
 - 1. Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section
 - 2. Section - Plants
 - 3. Section – Turf & Grasses
- B. References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the specification to the extent required by the references thereto. In the event that the requirements of the following referenced standards and specification conflict with this specification section the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail.
 - 1. ANSI A 300 (Part 5) – Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current editions.
 - 2. Glossary of Arboricultural Terms, International Society of Arboriculture, Champaign IL, most current edition.

1.3 VERIFICATION

- A. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

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1.4 PROTECTION OF WORK, PROPERTY AND PERSON

- A. The Contractor shall protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

1.5 DEFINITIONS

- A. Reasonable and reasonably: When used in this specification is intended to mean that the conditions cited will not affect the establishment or long term stability, health or growth of the plant. This specification recognizes that plants are not free of defects, and that plant conditions change with time. This specification also recognizes that some decisions cannot be totally based on measured findings and that profession judgment is required. In cases of differing opinion, the Owner's Representative expert shall determine when conditions within the plant are judged as reasonable.
- B. Shrub: Woody plants with mature height approximately less than 15 feet.
- C. Tree and Plant Protection Area: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and defined by a circle centered on the trunk with each tree with a radius equal to the crown dripline unless otherwise indicated by the owner's representative.
- D. Tree: Single and multi-stemmed plants, with anticipated mature height approximately greater than 15 feet or any plant identified on the plans as a tree.

1.6 PRE-CONSTRUCTION CONFERENCE – Tree Removal and Protection

- A. Schedule a pre-construction meeting with the Owner's Representative at least fourteen (14) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.
 - 1. The following Contractors shall attend the preconstruction conference:
 - a. General Contractor
 - b. Installer of tree and plant protection measures
 - c. Earthwork Contractor
 - d. Tree Warden, if any
- B. Prior to this meeting, mark all trees and plants to remain and or be removed as described in this specification for review and approval by the Owner's Representative and Tree Warden.

1.7 QUALITY ASSURANCE

- A. Contractor qualifications:
 - 1. All pruning, branch tie back, tree removal, root pruning, and fertilizing required by this section shall be performed by or under the direct supervision of Connecticut-licensed Arborist Submit aforementioned individual's qualifications for approval by the Owner's Representative.

PART 2 - PRODUCTS

2.1 WOOD CHIPS

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- A. Wood Chips from an arborist chipping operation with less than 20% by volume green leaves. Chips stockpiled from the tree removal process may be used.

2.2 TREE PROTECTION FENCING

- A. **PLASTIC MESH FENCE:** Heavy - duty orange plastic mesh fencing fabric 48 inches wide. Fencing shall be attached to metal "U" or "T" post driven into the ground of sufficient depth to hold the fabric solidly in place with out sagging. The fabric shall be attached to the post using attachment ties of sufficient number and strength to hold up the fabric without sagging. The Owner's Representative may request, at any time, additional post, deeper post depths and or additional fabric attachments if the fabric begins to sag, lean or otherwise not present a sufficient barrier to access.
- B. Submit product data for approval.

PART 3 - EXECUTION

3.1 SITE EXAMINATION

- A. Examine the site, tree, plant and soil conditions. Notify the Owner's Representative in writing of any conditions that may impact the successful Tree and Plant Protections that is the intent of this section.

3.2 COORDINATION WITH PROJECT WORK

- A. The Contractor shall coordinate with all other work that may impact the completion of the work.
- B. Prior to the start of Work, prepare a detailed schedule of the work for coordination with other trades.

3.3 TREE AND PLANT PROTECTION AREA

The Tree and Plant Protection Area is defined as all areas indicated on the site demolition plan or sediment and erosion control plan. The limit shall be the drip line (outer edge of the branch crown) of each tree. When the limits cannot be to the dripline, the protected area shall be reviewed and approved by the project landscape architect.

3.4 PREPARATION

- A. Subsequent to the Notice to Proceed and prior to the preconstruction meeting, layout the limits of the Tree and Plant Protection Area and then alignments of required Tree and Plant Protection Fencing and root pruning. Obtain the Owner's Representative's approval of the limits of the protection area and the alignment of all fencing and root pruning.
- B. Flag all trees and shrubs to be removed by wrapping orange plastic ribbon around the trunk and obtain the Owner's Representative's approval of all trees and shrubs to be removed prior to the start of tree and shrub removal. After approval, mark all trees and shrubs to be removed with orange paint in a band completely around the base of the tree or shrub 4.5 feet above the ground.
- C. Flag all trees and shrubs to remain with white plastic ribbon tied completely around the trunk or each tree and on a prominent branch for each shrub. Obtain the Owner's Representative's approval of all trees and shrubs to be remain prior to the start of tree and shrub removal.
- D. Prior to any construction activity at the site including utility work, grading, storage of materials, or

TEMPORARY TREE AND PLANT PROTECTION

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installation of temporary construction facilities, install all tree protection fencing, and silt fence as required.

3.5 ROOT PRUNING

- A. Prior to any excavating into the existing soil grade within 25 feet of the limit of the Tree and Plant Protection Area or trees to remain, root prune all existing trees to a depth of 24 inches below existing grade in alignments following the edges of the Tree and Plant Protection Area or as directed by the Owner's Representative. Root pruning shall be in conformance with ANSI A300 (part 8) latest edition.
 - 1. Using a rock saw, chain trencher or similar trenching device, make a vertical cut within 2 feet of the limit of grading.
 - 2. After completion of the cut, make clean cuts with a lopper, saw or pruner to remove all torn root ends on the tree side of the excavation, and backfill the trench immediately with existing soil, filling all voids.

3.6 PROTECTION

- A. Protect the Tree and Plant Protection Area at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Owner's Representative of any spills, compaction or damage and take corrective action immediately using methods approved by the Owner's Representative.

3.7 GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE AND PLANT PROTECTION AREA

- A. The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.
- B. In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner's Representative for approval. Remedial actions to reduce the proposed activity impact shall include but shall not be limited to the following:
 - 1. In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.
 - 2. When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut with out the approval of the owners representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

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3. Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices (ANSI A300, part 8) and be performed under supervision of the arborist.
4. Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.
5. Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 8 foot long 2 inch x 6 - inch planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.
6. Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.
 - a. Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.
 - b. Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, rewet the soil as necessary to keep soil moisture near field capacity.
 - c. Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.
 - 1.) The air excavation tool shall be "Air-Spade" as manufactured by Concept Engineering Group, Inc., Verona, PA (412) 826-8800, or Air Knife as manufactured by Easy Use Air Tools, Inc. Allison Park, Pa (866) 328-5723 or approved equal.
 - d. Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.
 - e. Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.
 - f. Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open over night, mist the roots and cover the excavation with black plastic.
 - g. Dispose of all soil in a manner that meets local laws and regulations.

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- h. Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.
- i. Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area.

3.8 PRUNING

- A. Prune any low, hanging branches and vines from existing trees and shrubs that overhang walks, streets and drives, or parking areas as follows:
 - 1. Walks - within 8 feet vertically of the proposed walk elevation.
 - 2. Parking areas - within 12 feet vertically of the proposed parking surface elevation.
 - 3. Streets and drives - within 14 feet vertically of the proposed driving surface elevation.
- B. All pruning shall be done in accordance with ANSI A300 (part 1), ISA BMP Tree Pruning (latest edition).
- C. Perform other pruning task as indicated on the drawings or requested by the Owner's Representative.
- D. Sterilize all pruning tools between the work in individual trees.

3.9 WATERING

- A. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants to be preserved during the entire construction period. Adequate water is defined to be maintaining soil moisture above the permanent wilt point to a depth of 8 inches or greater.
- B. Periodically test the moisture content in the soil within the root zone to determine the water content.

3.10 WEED REMOVAL

- A. During the construction period, control any plants that seed in and around the fenced Tree and Plant Protection area.
 - 1. All plants that are not shown on the planting plan or on the Tree and Plant Protection Plan to remain shall be considered as weeds.
- B. At the end of the construction period provide one final weeding of the Tree and Plant Protection Area.

3.11 CLEAN-UP

- A. During tree and plant protection work, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.
 - 1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.
- B. Once tree protection work is complete, wash all soil from pavements and other structures. Ensure

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that Mulch is confined to planting beds.

- C. Make all repairs to grades, ruts, and damage to the work or other work at the site.
- D. Remove and dispose of all excess Mulch, Wood Chips, packaging, and other material brought to the site by the Contractor.

3.12 REMOVAL OF FENCING AND OTHER TREE AND PLANT PROTECTION

- A. At the end of the construction period or when requested by the Owner's Representative remove all fencing, Wood Chips or Mulch, Geogrids and Filter Fabric, trunk protection and or any other Tree and Plant Protection material.

3.13 DAMAGE OR LOSS TO EXISTING PLANTS TO REMAIN

- A. Any trees or plants designated to remain and which are damaged by the Contractor shall be replaced in kind by the Contractor at their own expense. Trees shall be replaced with a tree of similar species and of equal size or 6 inch caliper which ever is less. Shrubs shall be replaced with a plant of similar species and equal size or the largest size plants reasonably available which ever is less. Where replacement plants are to be less than the size of the plant that is damaged, the Owner's Representative shall approve the size and quality of the replacement plant.
 - 1. All trees and plants shall be installed per the requirements of Specification Section Planting.
- B. Plants that are damaged shall be considered as requiring replacement or appraisal in the event that the damage affects more than 25 % of the crown, 25% of the trunk circumference, or root protection area, or the tree is damaged in such a manner that the tree could develop into a potential hazard. Trees and shrubs to be replaced shall be removed by the Contractor at his own expense.
 - 1. The Owner's Representative may engage an independent arborist to assess any tree or plant that appears to have been damaged to determine their health or condition.
- C. Any remedial work on damaged existing plants recommended by the consulting arborist shall be completed by the Contractor at no cost to the owner. Remedial work shall include but is not limited to: soil compaction remediation and vertical mulching, pruning and or cabling, insect and disease control including injections, compensatory watering, additional mulching, and could include application of tree growth injections.
- D. Remedial work may extend up to two years following the completion of construction to allow for any requirements of multiple applications or the need to undertake applications at required seasons of the year.

END OF SECTION 01 56 39

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**SECTION 02 30 00
SOIL INVESTIGATION DATA**

PART 1 - GENERAL

1.1 SUBSURFACE CONDITIONS

- A. The owner has explored subsurface conditions by having authorized the making of borings and test pits on site.
- B. Factual subsurface information (boring logs, test pit logs, and physical soils laboratory testing) have been included as part of these specifications. The logs describe subsurface conditions encountered at the exploration locations at the time explorations were made. Actual subsurface conditions may vary due to conditions not evident at the time explorations were made, and therefore no warranties, expressed or implied, are made as to accuracy of subsurface information provided herein.
- C. No warranty is made of the continuity of strata or material between the exploration locations. The stratification lines on the logs represent approximate boundaries between soil types. The actual transitions may be gradual.
- D. Boring locations shown on the drawings are approximate only and the Owner makes no representations regarding correctness of such information
- E. Bidders shall make their own deductions of subsurface conditions which may affect methods or cost of construction. Bidders may, at their own expense, and upon applications to the OWNER, conduct additional subsurface testing.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 02 30 00

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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. This Section includes the following:
 - 1. Removing existing tree stumps, plants and grass
 - 2. Clearing and grubbing
 - 3. Stripping and stockpiling topsoil
 - 4. Removal of site amenities
 - 5. Temporary erosion and sedimentation control measures
- B. Related Section
 - 1. Section 312000 Earth Moving
 - 2. Section 329113 Topsoil
 - 3. Section 329200 Turfs and Grasses

1.3 MATERIAL OWNERSHIP

- A. Except for stripped topsoil that will be reused on site or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site. Site amenities the owner seeks to retain shall be confirmed at the preconstruction meeting.

1.4 PROJECT 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 traffic ways if required by authorities having jurisdiction.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Utility Locator Service: Notify utility locator service, "Call Before You Dig" at 1-800-922-4455 for area where Project is located prior to site clearing.

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- D. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

1.5 QUALITY ASSURANCE

- A. Workmen: all workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section
- B. Form 819 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, as amended and latest supplements, shall be used for material compliance and execution of the work in this section.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Topsoil: Shall be reused or removed and disposed of as specified.

2.2 SEDIMENT AND EROSION CONTROL MEASURES

- A. Materials: As specified as on the Contract Drawings.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly flag trees and vegetation to remain or to be relocated.
- 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 UTILITIES

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner' Representative not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Architect's written permission.

3.3 TREE STUMP REMOVAL

- A. Remove all tree stumps indicated by the drawings and specifications, as requiring removal, in a manner that will not damage adjacent improvements to remain or overly compacts the soil.
- B. Remove stumps and immediate root plate from previously cut trees.

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1. The entire stump shall be removed and grind any roots to a total depth of 24 inches below the existing grade. Remove all wood chips produced by the grinding operation and back fill in 8 inch layers with controlled fill of a quality acceptable to the site engineer for fill material under structures, compacted to 95% of the maximum dry density standard proctor. The Owner's Representative shall approve each hole at the end of the stump removal and grinding operation.
 - C. Protect adjacent paving, soil, trees, shrubs, ground cover plantings and understory plants to remain from damage during all tree stump removal operations, and from construction operations. Protection shall include the root system, trunk, limbs, and crown from breakage or scarring, and the soil from compaction.
- 3.4 TOPSOIL STRIPPING
- A. Remove sod and grass before stripping topsoil.
 - B. The site contractor shall strip, screen and stockpile all topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials. While in stockpile, the material shall be sampled and tested by the owner for gradation and organic content. The site contractor shall amend and blend organic material as needed prior to placement. Following every 300 cubic yards of placement, the soil shall be retested by the site contractor and amended as required.
 - C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil in locations required by the construction manager. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
- 3.5 REMOVAL OF SITE AMENITIES
- A. Remove existing site amenities including but not limited to residual paving materials, miscellaneous artifacts and facilities as necessary to facilitate new construction. Materials removed and not designated for re-use will become property of the Contractor and shall be removed and disposed of in a safe and legal manner. Site amenities to be re-installed are to be stored in secure, safe locations until time of reinstallation.
- 3.6 DISPOSAL
- A. Disposal: Remove surplus excavation and soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
 - B. The town will not take ownership of or store any surplus soil materials. Any need to establish an offsite waste storage area (WSA) shall be the sole responsibility of the Contractor and will not result in any additional fee to the town.

END OF SECTION 31 10 00

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**SECTION 31 20 00
EARTH MOVING**

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. This Section includes the following:
 - 1. Preparing subgrade for slabs-on-grade, walks, pavements, lawns and grasses and exterior plantings.
 - 2. Processed aggregate base for footings, bituminous concrete pavements, etc. as indicated on the Contract Drawings.
 - 3. Excavating and backfilling for utility trenches and storm drainage structures.
- B. Related Sections
 - 1. Section 321216 – Asphalt Paving and Markings
 - 2. Section 321313 – Cement Concrete Paving
 - 3. Section 334000 – Storm Drainage Utilities

1.3 DEFINITIONS

- A. Fill: General term for soil materials used to raise existing grades.
- B. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.
- C. Backfill: General term used for soil material used to fill an excavation.
 - 1. Initial Backfill: Backfill placed over excavated subgrade, beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- D. Base Course: Course placed between the subbase course and hot-mix asphalt paving.
- E. Bedding Course: Initial Backfill placed over the excavated subgrade in a trench before laying pipe.
- F. Sand and Gravel: Fill placed over the excavated subgrade before placing crushed stone slab-on-grade base course.
- G. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill per Section 2.07 and Article 2.02.03.

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- H. Drainage Course/Crushed Stone: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- I. Structural Fill: Fill of specified quality placed over the excavated subgrade in the building area, exterior foundation wall backfill, support for slabs and sidewalks, and outside of the zone of crushed stone backfill.
- J. Ordinary Fill: General fill and backfill placed outside the limits of Structural Fill, Sand and Gravel, and Crushed Stone.
- K. Free Draining Material: material per Section 2.08, Article M.02.07 modified as defined under "Products" section.
- L. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- M. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, free draining material, or topsoil materials.
- N. Proof-roll: The application of compactive energy to subgrade for the civil engineer's evaluation of suitability of subgrade for bearing.
- O. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- P. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.
- Q. Unsatisfactory Soils: Materials including but not limited to the following: soil containing ice, snow, roots, sod, rubbish or other deleterious or organic matter; materials non-conforming to the gradations specified for each soil material and not accepted by the Civil Engineer or Architect; materials with a gradation approved by the Civil Engineer or Architect, but that are too saturated to be reused. For subgrades exposed below new foundations, Unsatisfactory Soils include soils that were placed historically by unnatural methods (by man), and not placed and compacted in a quality-controlled manner with documentation, and native undisturbed materials that are too loose/weak to directly support new loads: it may be possible to reuse these particular materials through excavation and replacement in compacted, controlled lifts, at the direction of the Civil Engineer.

1.4 PROJECT CONDITIONS

- A. Visit the site to review all details of the work and working conditions and to verify dimensions in the field including headroom and interferences from adjacent structures. Notify the Landscape Architect in writing of any discrepancy before performing any work.
- B. Consult official records of existing utilities, both surface and subsurface, and their connection to be fully informed on all existing conditions and limitations as they apply to this work and its relation to other construction work.
- C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.
- D. Verify that survey benchmark and intended elevations for work are as indicated.

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1.5 QUALITY ASSURANCE

- A. Workers: all workers shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Form 819 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, as amended and latest supplements, shall be used for material compliance and execution of the work in this section.
- C. Testing and Inspection: Contractor shall be responsible to coordinate with an Owner-selected testing agency or laboratory to schedule testing and inspection service required by these specifications and in compliance with Town of Stratford Standard Specifications and Details, and Form 819 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, as amended and latest supplements. Payment shall be the responsibility of the Owner.

1.6 SUBMITTALS

- A. Pre-excavation Photographs or Videotapes: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth moving operations. Submit before earth moving begins.
- B. Gradation reports of fill materials to be used for the project (prior to delivery of any materials).

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations. Materials shall be free from ice, snow, roots, sod, rubbish or other deleterious or organic matter and shall conform to the gradations specified for each soil material.
- B. Base Course: Course placed between the subbase and hot mix asphalt per CT DOT Form 819 M.05.01 modified as follows:
 - 1. Under Section M.05, 2. Coarse Aggregate, delete the phrase "the coarse aggregate shall not have a loss of more than 50%" and substitute the phrase "the coarse aggregate shall not have a loss of more than 40%".
- C. Subbase Course: Course placed between the subgrade and base course per CT DOT Form 819 M.02.02 Grading "A" and section M.02.06.04 Soundness.
- D. Free Draining Material: Course placed on prepared subgrade beneath the topsoil layer in lawn areas designated on the plans. Material shall be per Section 2.08, Article M.02.07 per CT DOT Form 819 modified as follows:
 - 1. Modify Paragraph M.02.07 to delete the phrase "passing the No. 200 mesh sieve" and substitute the phrase "passing the No. 100 mesh sieve".
- E. Granular Fill: This material shall be used as a foundation for structures, to replace unstable material in slopes, as a foundation for sidewalks and culverts, in shoulders and elsewhere as indicated on the plans,

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required by the specifications or ordered by the Engineer. Granular fill shall conform to CT DOT Form 819 Article M.02.01.

- F. Ordinary Fill: General fill and backfill placed outside the limits of Structural Fill, Sand-Gravel, and Crushed Stone. Ordinary Fill shall be friable soil, free of rubbish, ice, snow, tree stumps, roots, and other organic matter; no stone greater than 8 inches and maximum percent finer than No. 200 sieve of 25 percent.
- G. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe. Bedding Course shall consist of Sand free of silt, clay, loam, and organic matter. Bedding material shall pass a 3/8" sieve, with not more than 10% passing a No. 200 sieve.
- H. Crushed Stone: In areas where Crushed Stone is placed in a total layer thickness greater than 8 inches, wrap Crushed Stone with Filter Fabric.

Sieve Size	Percent Passing by Weight
1-inch	100
3/4-inch	90 - 100
1/2-inch	20 - 55
3/8-inch	0 - 15
No. 4	0 - 5

- I. Sand and Gravel:

Sieve Size	Percent Passing by Weight
4"	100
No. 4	50 - 85
No. 10	40 - 75
No. 40	10 - 35
No. 200	0 - 8

- J. Structural Fill: The specification below should only be used if no Geotechnical recommendation is provided.

Sieve Size	Percent Passing by Weight
6"	100
1"	60 - 100
No. 4	35 - 85
No. 10	25 - 75
No. 20	15 - 60
No. 40	10 - 45
No. 100	5 - 25
No. 200	3 - 10

- K. Filter Fabric: Conform to CT DOT Form 819 Article Section M.08.01, Paragraph 26, non-woven Mirafi 140 Filter Fabric, or approved equivalent.

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2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Identify and flag structures, utilities, sidewalks, pavements, and other facilities and protect from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations. Maintain and protect existing utilities remaining which pass through work area.
- B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."
- C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing." And Division 1 "Temporary erosion and Sediment Control" during earthwork operations.

3.2 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered within a tolerance of plus or minus 1 inch. Unclassified excavated materials may include rock and obstructions. Provide additional excavation as required by the civil engineer. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of unsuitable material or obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION

- A. Excavate to required elevations and dimensions regardless of the character of surface and subsurface conditions encountered within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
- B. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
- C. Excavation for walks and pavements: Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.
- D. Excavation for Utility Trenches: Excavate trenches to indicated gradients, lines, depths, and elevations.
- E. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

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3.4 SUBGRADE EVALUATION

- A. Civil engineer must be present for subgrade evaluation. Notify the Civil Engineer at minimum 5 days prior to subgrade preparation.
- B. The Civil engineer shall observe the reaction of the subgrade during proof-rolling and evaluate suitability for foundation bearing. Proof-roll subgrade with 10 passes of a vibratory drum roller weighing at least 10,000 pounds at the drum or other approved equipment to identify soft pockets and areas of excess yielding. Soft pockets and zones of yielding shall be excavated and proof-rolled again. Do not proof-roll wet or saturated subgrades.
- C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation or change in Contract Time.
- D. Landscape and lawn areas are to be constructed in areas utilized during construction for construction access and material storage. These areas are not considered suitable for landscape or lawn construction until subgrade conditions are properly decompacted.
- E. Preparation of subgrade operations is to be performed in conditions free of mud, frost, snow and ice.
- F. Prior to the commencement of subgrade preparation, the Civil Engineer shall be notified of any potential unsuitable soil conditions and a determination made as to the acceptable nature of the subgrade soils.

3.5 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings as directed by the civil engineer. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used in lieu of structural fill when approved by Architect, without additional compensation or change in Contract Time.
- B. Fill unauthorized excavations under other construction or utility pipe as directed by the civil engineer, Architect, without additional compensation or change in Contract Time.

3.6 STORAGE OF SOIL MATERIALS AND PROTECTION OF SUBGRADE

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust and for protection from precipitation
- B. Dewater to maintain water at least two feet below bottom of all excavations.
- C. Protect all subgrade soils. Excavate disturbed subgrade and backfill in accordance with specifications at Contractor's expense.
- D. Excavate soil and all other materials required to accommodate building foundations, slabs, paving and site structures, and construction operations.
- E. Do not excavate to full depth when freezing temperatures may be expected unless subgrade is protected from freezing or footings or slabs can be placed immediately after excavation is completed and are protected from freezing.
- F. Maintain safe and stable banks.
- G. Excavate in a manner that will not disturb existing foundations. Plans for excavating near existing foundations shall be submitted to the Architect for approval prior to beginning such excavation.

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- H. Correct unauthorized excavations at no additional cost to the Owner or change in Contract Time.
- I. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.7 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Place and compact initial backfill of subbase material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.
 - 1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- D. Place and compact final backfill of satisfactory soil to final subgrade elevation.
- E. Install warning tape directly above utilities, 24 inches above sanitary sewer and 6" above storm sewer.

3.8 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

3.9 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.10 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials as indicated on the plans and as specified in CT DOT Form 819. Compaction shall be performed in accordance with the following:

Minimum compaction for fill and backfill, based on percentage of maximum dry density (as determined by ASTM D1557 or AASHTO T-180 (Modified Proctor), is:

Below Structures	-	95%
Behind Retaining Walls	-	92%
Pavement Base/Subbase	-	95%
Below Pavement Subbase	-	95%
Areas of General Landscaping and At Lawn areas	-	90%

Loose lift thickness for Fill and Backfill and the minimum number of passes of compaction equipment are summarized on the following table:

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Compaction Method	Maximum Stone Size	Maximum Loose Lift Thickness		Minimum Number of Passes	
		Below Structures and Pavement	Less Critical Areas	Below Structures and Pavement	Less Critical Areas
Hand-operated vibratory plate or light roller in confined areas	4"	6"	8"	6	4
Hand-operated vibratory drum rollers weighing at least 1,000#	6"	8"	10"	6	4
Light vibratory drum roller, minimum dynamic force 3,000# per ft. of drum width	6"	10"	14"	6	4
Medium vibratory drum roller, minimum dynamic force 5,000# per ft. of drum width	8"	12"	18"	6	4
Large vibratory drum roller, minimum dynamic force 8,000# per ft. of drum width	10"	16"	24"	6	4

- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure. Uneven backfill outside foundation walls are permitted after slabs or suitable bracing are installed at the tops of the walls.

3.11 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding.

3.12 SUBBASE AND BASE COURSES

- A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase and base course under pavements and walks as follows:
1. Shape subbase and base course to required crown elevations and cross-slope grades.
 2. Compact subbase and base course as specified in Section 3.13.

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3.13 DRAINAGE COURSE

- A. Place free draining course on subgrades free of mud, frost, snow, or ice.
 - 1. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as specified.

3.14 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor will engage an Owner-qualified independent civil engineer and/or testing agency to perform field quality-control testing.
- B. Allow civil engineer and/or testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Footing Subgrade: Footing subgrades shall be evaluated by the civil engineer for suitability for foundation bearing.
- D. When civil engineer and/or testing agency reports show that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained.

3.15 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions at no additional compensation or change in Contract Time.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 31 20 00

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**SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROLS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Work shall include the furnishing of all materials, labor, and equipment to place and maintain erosion controls including but not limited to construction entrance pad, filter fence, erosion control blanket, sediment traps, diversion berms, inlet protection and/or hay bales to control surface water.
- B. Compliance with permit requirements.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Section 31 20 00 – Earth Moving

1.3 QUALITY ASSURANCE

- A. Codes and Standards: All materials and construction methods shall conform to Form 819 - State of Connecticut Department of Transportation "Specifications for Roads, Bridges, Facilities and Incidental Construction" 2024 edition including current supplements, unless otherwise specified herein and the "2024 Connecticut Guidelines for Soil Erosion and Sediment Control."
- B. Workers: all workers shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Grass Seed For Temporary Cover: Select a species appropriate to climate, planting season, and intended purpose. If same area will later be planted with permanent vegetation, do not use species known to be excessively competitive or prone to volunteer in subsequent seasons.
- B. Silt Fence Fabric: Geotextile fabric: shall be a pervious sheet of polypropylene, nylon, polyester, ethylene or similar filaments and shall be certified by the manufacturer or supplier as conforming to the requirements below. The geotextile shall be non-rotting, acid and alkali resistant and have sufficient strength and permeability for the purpose intended, including handling and backfilling operations. Filaments in the geotextile shall be resistant to absorption. The filament network must be dimensionally stable and resistant to de-lamination. The geotextile shall be free of any chemical treatment or coating that will reduce its permeability. The geotextile shall also be free of any flaws or defects which will alter its physical properties. Torn or punctured geotextiles shall not be used. Supporting posts: shall be at least 42 inches long made of either 1.5 inch square hardwood stakes or steel posts with projections for fastening the geotextile possessing a minimum strength of 0.5 pound per linear foot.
 - a. Performance Requirements
 - i. Filtering efficiency ASTM 5141 - 75% (min)

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- ii. Grab tensile strength (lbs.) ASTM D4632 - 100 lbs
 - iii. Elongation @ failure ASTM D4632 - 15 %
 - iv. Mullen burst strength ASTM D3786 - 250 psi
 - v. Puncture strength ASTM 4833 - 50 lbs
 - vi. Apparent opening size ASTM D4751 - no greater than 0.90 mm and no less than 0.60 mm
 - vii. Flow rate ASTM D4491 - 0.2 gal/ft²/min
 - viii. Permativity ASTM D4491 - 0.05 sec. -1 (min)
 - ix. Ultraviolet radiation stability % ASTM-D4355 - 70% after 500 hours of exposure (min)
- C. Hay bales shall be made of hay with forty pounds minimum weight and one hundred twenty pounds maximum weight. Wood stakes shall be a minimum of 1 inch by 1-inch normal size by a minimum of 3 feet long.
- D. Broken stone for construction entrance shall be 1 inch to 2 inch broken stone.
- E. Inlet Protection as detailed on drawings.
- a. Manufacturers
 - i. Filtrexx® Soxx™ Technology - Compost Filter Sock or approved equal.
 - ii. ACF Environmental – Silt Sack or approved equal.
 - iii. FLEXSTORM® Catch Basin & Curb Inlet Filters or approved equal.

PART 3 – EXECUTION

3.1 GENERAL

- A. Install products according to manufacturer's written instructions.

3.2 EXAMINATION

- A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.3 PREPARATION

- A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.4 SCOPE OF PREVENTATIVE MEASURES

- A. In all cases, if permanent erosion resistant measures have been installed temporary preventive measures are not required.

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- B. Construction Entrances: Traffic-bearing aggregate surface.
 - a. Width: As required; 20 feet, minimum.
 - b. Length: 50 feet, minimum.
 - c. Provide at each construction entrance from public right-of-way.
 - d. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.
- C. Linear Sediment Barriers: Made of silt fences.
 - a. Provide linear sediment barriers:
 - i. Along downhill perimeter edge of disturbed areas, including soil stockpiles.
- D. Space sediment barriers with the following maximum slope length upslope from barrier:
 - a. Slope of Less Than 2 Percent: 100 feet.
 - b. Slope Between 2 and 5 Percent: 75 feet.
 - c. Slope Between 5 and 10 Percent: 50 feet.
 - d. Slope Between 10 and 20 Percent: 25 feet.
 - e. Slope Over 20 Percent: 15 feet.
- E. Storm Drain Drop Inlet Sediment Traps: As detailed on drawings.
- F. Temporary Splash Pads: Stone aggregate over filter fabric; size to suit application; provide at downspout outlets and storm water outlets.
- G. Soil Stockpiles: Protect using one of the following measures:
 - a. Cover with polyethylene film, secured by placing soil on outer edges.
 - b. Cover with mulch at least 4 inches thickness of pine needles, sawdust, bark, wood chips, or shredded leaves, or 6 inches of straw or hay.
- H. Mulching: Use only for areas that may be subjected to erosion for less than 6 months.
- I. Temporary Seeding: Use where temporary vegetated cover is required.

3.5 INSTALLATION

- A. Traffic-Bearing Aggregate Surface:
 - a. Excavate minimum of 6 inches.
 - b. Place geotextile fabric full width and length, with minimum 12 inch overlap at joints.

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- c. Place and compact at least 6 inches of 1 1/2 to 3 1/2 inch diameter stone.

B. Silt Fences:

- a. Store and handle fabric in accordance with ASTM D4873.
- b. Where slope gradient is less than 3:1 or barriers will be in place less than 6 months, use nominal 16 inch high barriers with minimum 36 inch long posts spaced at 6 feet maximum, with fabric embedded at least 4 inches in ground.
- c. Where slope gradient is steeper than 3:1 or barriers will be in place over 6 months, use nominal 28 inch high barriers, minimum 48 inch long posts spaced at 6 feet maximum, with fabric embedded at least 6 inches in ground.
- d. Where slope gradient is steeper than 3:1 and vertical height of slope between barriers is more than 20 feet, use nominal 32 inch high barriers with woven wire reinforcement and steel posts spaced at 4 feet maximum, with fabric embedded at least 6 inches in ground.
- e. Install with top of fabric at nominal height and embedment as specified.
- f. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
- g. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.

C. Temporary Seeding:

- a. When hydraulic seeder is used, seedbed preparation is not required.
- b. When surface soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, and conventional or manual seeding is to be used, prepare seedbed by scarifying sufficiently to allow seed to lodge and germinate.
- c. If temporary mulching was used on planting area but not removed, apply nitrogen fertilizer at 1 pound per 1000 sq ft.
- d. On soils of very low fertility, apply 10-10-10 fertilizer at rate of 12 to 16 pounds per 1000 sq ft.
- e. Incorporate fertilizer into soil before seeding.
- f. Apply seed uniformly; if using drill or cultipacker seeders place seed 1/2 to 1 inch deep.
- g. Irrigate as required to thoroughly wet soil to depth that will ensure germination, without causing runoff or erosion.
- h. Repeat irrigation as required until grass is established.

3.6 MAINTENANCE

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- A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.
- B. Repair deficiencies immediately.
- C. Silt Fences:
 - a. Promptly replace fabric that deteriorates unless need for fence has passed.
 - b. Remove silt deposits that exceed one-third of the height of the fence.
 - c. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.
- D. Place sediment in appropriate locations on site; do not remove from site.

3.7 CLEAN UP

- A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Engineer.
- B. Clean out temporary sediment control structures that are to remain as permanent measures.
- C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.
- D. All temporary erosion control, sedimentation, and containment materials shall be disposed of in a legal manner in accordance with all applicable local, state, and federal laws.
- E. Disposal of filter sock
 - a. The contractor shall remove sediment at the base of the upslope side of the perimeter when accumulation has reached 1/2 of the effective height of the sock, or as directed by the Engineer. Alternatively, a new perimeter control sock can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
 - b. Perimeter control shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
 - c. The FilterMedia will be dispersed on site once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.

END OF SECTION 31 25 00

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SECTION 32 12 16 – ASPHALT PAVING AND MARKINGS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide all materials, equipment, and services necessary to furnish and deliver work of this Section as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:
 - 1. Bituminous concrete paving
 - 2. Permanent pavement repair
 - 3. Pavement markings
- B. Related sections include:
 - 1. Section 31 10 00 – Site Preparation.
 - 2. Section 31 20 00 – Earthwork.

1.2 QUALITY ASSURANCE

- A. Codes and Standards: All materials and construction methods shall conform to the Town of Stratford standards and Form 819 - State of Connecticut Department of Transportation (CTDOT) "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, unless otherwise specified herein.
- B. Workmen: All workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- C. Testing and Inspection: Contractor shall employ and pay for a qualified independent laboratory to perform testing and inspection service required to confirm compliance with these specifications.

1.3 SUBMITTALS

- A. In accordance with the General Requirements, submit samples, materials certifications, manufacturer's product data, and test reports as hereinafter required.
 - 1. Bituminous concrete design mix
 - 2. Manufacturer data on pavement marking paint.
 - 3. Sieve analysis on subbase and base material.

1.4 JOB CONDITIONS

- A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50°F (10°C) and when temperature has not been below 35°F (1°C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.
- B. Construct hot-mixed asphalt surface course when atmospheric temperature is above 40°F (4°C) and when base is dry. Base course may be placed when air temperature is above 30°F (minimum 1°C) and rising.
- C. Grade Control: Establish and maintain required lines and elevations.

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PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Use locally available materials and graduations that exhibit a satisfactory record or previous installations.
- B. Bituminous Pavement: Shall contain a minimum of 25% (combined) pre-consumer/post-consumer recycled content (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.
- C. Subbase Material: Rolled gravel base conforming to Section M.02.03 of Form 819.
- D. Base Material: Processed aggregate stone base conforming to CTDOT Form 819, Section M.05.
- E. Hot Mixed Asphalt Paving: Bituminous concrete material conforming to Form 819 - State of Connecticut Department of Transportation "Standards for Roads, Bridges, and Incidental Construction," 2024 edition, Section M.04.
 - 1. Wearing surface shall be Class 2.
 - 2. Binder course shall be Class 1.
- F. Marking Paint: Alkyd-resin type, ready-mixed complying with AASHTO M 248, Type I. Colors are as follows:
 - 1. Stop Bars and Crosswalk: White
 - 2. Centerline Marking: Yellow
 - 3. Accessible Parking: Blue

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. General: Remove loose material from compacted subbase surface immediately before applying herbicide treatment or prime coat.
- B. Proof-roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.
- C. Notify Contractor of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.
- D. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

3.2 PLACING MIX

- A. General: Place hot-mixed asphalt mixture on prepared surface, spread, and strike off. Spread mixture at minimum temperature of 225°F (107°C). Place areas inaccessible to equipment by hand. Place each course to required grade, cross-section, and compacted thickness.
- B. Paver Placing: Place in strips not less than 10 feet wide, unless otherwise acceptable to Engineer. After first strip has been placed and rolled, place succeeding strips, and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.

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1. Immediately correct surface irregularities in finish course behind paver. Remove excess material forming high spots with shovel or lute.
- C. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density, and smoothness as other sections of hot-mixed asphalt course. Clean contact surfaces and apply tack coat.
- D. Curbs: Construct curbs over compacted pavement surfaces. Apply a light tack coat unless pavement surface is still tacky and free from dust.
 1. Place curb materials to cross-section indicated using curb paving machine.

3.3 ROLLING

- A. General: Begin rolling when mixture will bear roller weight without excessive displacement.
- B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- C. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling and repair displaced areas by loosening and filling, if required, with hot material.
- D. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been evenly compacted.
- E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained 95% laboratory density.
- F. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot hot-mixed asphalt. Compact by rolling to specified surface density and 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.

3.4 TRAFFIC AND LINE MARKINGS

- A. Cleaning: Sweep and clean surface to eliminate loose material and dust.
- B. Do not apply traffic and lane marking paint until layout and placement have been verified with Engineer.
- C. Apply paint with mechanical equipment to produce uniform straight edges. Apply at manufacturer's recommended rates to provide minimum 12 to 15 mils dry thickness.

3.5 FIELD QUALITY CONTROL

- A. General: Testing in-place hot-mixed asphalt courses for compliance with requirements for thickness and surface smoothness will be done by an independent testing laboratory. Repair or remove and replace unacceptable paving as directed by Engineer.

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- B. Thickness: In-place compacted thickness tested in accordance with ASTM D 3549 will not be acceptable if exceeding following allowable variations:
 - 1. Base Course: Plus or minus 1/2 inch.
 - 2. Surface Course: Plus or minus 1/4 inch.
- C. Surface Smoothness: Test finished surface of each hot-mixed asphalt course for smoothness, using 10-foot straightedge applied parallel with and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness:
 - 1. Base Course Surface: 1/4 inch.
 - 2. Wearing Course Surface: 3/16 inch.
- D. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.
- E. Check surface areas at intervals as directed by Engineer.

END OF SECTION

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SECTION 32 13 13 – CEMENT CONCRETE PAVING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide all materials, equipment, and services necessary to furnish and deliver work of this Section as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:
 - 1. Concrete walk pavement
 - 2. Concrete pads
 - 3. Concrete curbs
 - 4. Concrete accessible ramps
- B. Related work specified in other sections include:
 - 1. Section 31 20 00 – Earthwork.
 - 2. Section 32 12 16 - Asphalt Paving and Markings.

1.2 QUALITY ASSURANCE

- A. Codes and Standards: All materials and construction methods shall conform to Form 819 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, unless otherwise specified herein.
- B. Workmen: All workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.3 SUBMITTALS

- A. In accordance with the General Requirements, submit samples, materials certifications, manufacturer's product data, and test reports as hereinafter required.
 - 1. Sieve analysis of base material.
 - 2. Submit concrete design mix.
- 3.

1.4 JOB CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Provide flagmen, barricades, warning signs, and warning lights as required.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Design mix to produce normal weight concrete, consisting of Portland cement, aggregate, air entraining admixture and water to produce the following properties:
 - 1. Compressive Strength: Per details in site plans.
 - 2. Slump Range: Eight inches minimum for concrete containing high-range water-reducing admixture (superplasticizer); three inches for other concrete.
 - 3. Air Content: 5% - 7%
 - 4. Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use forms that

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are straight and free of distortion and defects. Use flexible spring steel forms or laminated boards to form radius bends as required. Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.

5. Welded Wire Mesh: Welded plain cold drawn steel wire fabric conforming to ASTM A 185 6 x 6 #6. Furnish in flat sheets, not rolls, unless otherwise acceptable to the Engineer.
6. Reinforcing Bars: Deformed bars of new billet steel conforming to ASTM A 615, grade 60' unless otherwise shown.
7. Water: Clean water suitable for drinking purposes and free from injurious amount of mineral and organic substances.
8. Joint Filler: Premolded, non-extruding joint filler conforming to ASTM D-1751, 1/4" and 1/2" thick as required.
9. Base Course: Processed aggregate conforming to the requirements of Section M.05, Article M.05.01 of Form 819.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the subgrade and the conditions under which site concrete is to be installed. Installation shall not proceed until all unsatisfactory conditions, if any, have been corrected.

3.2 SUBGRADE PREPARATION

- A. Remove loose material from compacted subgrade surface immediately prior to placing concrete.
- B. Grade and prepare subgrade to smooth surface parallel to finish grade and to proper elevation. No humps or hollows will be permitted. Roll with a 3 wheel power roller weighing not less than 10 tons.
- C. Remove soft and yielding materials, which will not compact readily when rolled or tamped. Replace with crushed stone, gravel, or other approved materials. Ram or roll until level with adjacent grade.
- D. Check elevations and position of all utility structures, valves, etc. that lie within the areas to receive concrete pavements. Make or have made any adjustment required to properly line up and set these elements with regard to the finish work.
- E. Subgrade shall be smooth, hard and dry, prior to installation of the base course. Notify the Engineer following completion of subgrade preparation to allow for inspection and compaction testing. Do not proceed with installation of the base course until approval by the Engineer.

3.3 INSTALLATION OF BASE COURSE

- A. Base Course: Install to requirements of Section 3.04, Articles 3.04.1 through 3.04.3 of Form 819.
- B. Thickness of compacted base course shall be as detailed.
- C. Finished base course shall be thoroughly compacted and moistened as required.

3.4 FORM CONSTRUCTION

- A. Set forms to the required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.
- B. Check completed form work for grade and alignment to the following tolerances:
 1. Top of Form Units: Not more than 1/8" in 10'.
 2. Vertical Face: Not more than 1/4" in 10' on longitudinal axis.

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- C. Clean forms after each use and coat with form release agent as often as required to ensure separation from concrete without damage.

3.5 REINFORCEMENT

- A. Storage: Bars and mesh shall be free from scale, oil, ice and structural defects, and kept in this condition on the job site. Bars and mesh shall be stored out of contact with the ground.
- B. Appliances: Adequate chairs and other devices shall be galvanized. Continuous mesh reinforcing shall be lapped at least one wire space.
- C. Preparation: All reinforcing steel within the limits of 1 days pour shall be in place and firmly wired before concrete pouring starts. Bending of bars by use of heat will not be permitted.
- D. Placement: Locate, place, and support reinforcement in accordance with all applicable requirement of American Concrete Institute (ACI)-318-77.

3.6 CONCRETE PLACEMENT – GENERAL

- A. Placement of concrete shall be according to the accepted practice of ACI.
- B. Do not place concrete until subgrade and forms have been checked for line and grade. Moisten subgrade as required to provide uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they have been brought to the required grade and alignment.
- C. Place concrete using methods, which prevent segregation of the mix and with as little rehandling as possible. Consolidate concrete along the face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from the joint assemblies, reinforcement or side forms. Use only square faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing dowels and joint devices.
- D. Deposit and spread concrete in a continuous operation between joints as far as possible. If interrupted for more than 1/2 hour, place a construction joint.

3.7 JOINT REPLACEMENT

- A. General: Construct expansion, score (weakened plane/contraction) and construction joints as detailed and in accordance with the accepted practice of the ACI.
- B. All joints shall be constructed true to line with face perpendicular to surface of the concrete unless otherwise specified or detailed. Construct transverse joints at right angles to the centerline.
- C. Score (Weakened Plane/Contraction) Joints: Provide score joints, sectioning concrete into areas as detailed and as shown on the Drawings. Construct joints 1/4" wide by depth as detailed by grooving top portion of fresh concrete with a recommended cutting tool and finishing with a jointer.
- D. Construction Joints: Place construction joints at end of placements and at locations where placement operations are stopped for a period of more than 1/2 hour, except where such placements terminate at expansion joints.
- E. Construct joints as shown, or if not shown, use standard metal key-way-section forms.
- F. Expansion Joints: Provide and install premolded joint filler for expansion joints abutting curbs, inlets, structures, walks, walls, other fixed objects and as shown on the Drawings.
- G. Locate expansion joints at 20' o.c., or as detailed.
- H. Extend joint fillers full width and depth of joint, and not less than 1/2" or more than 1" below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface.

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- I. Furnish joint fillers in one-piece lengths for full width being placed wherever possible. When more than one length is required, lace or clip joint filler sections together.
- J. Protect the top edge of joint filler during concrete placement with wood strip, metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.

3.8 CONCRETE PAVEMENTS

- A. Install base course in one course over previously prepared subgrade. Thoroughly compact base course and moisten. Construct and install forms as required and detailed.
- B. Place concrete. Consolidate, tamp, screed and finish true to line. Provide joints as detailed.
- C. Round edges of walk and all joint edges with an approved tool. Eliminate tool marks on concrete surface.
- D. Finish horizontal surfaces as detailed.

3.9 CONCRETE CURBS

- A. Construct as detailed at locations as shown on drawings. Accurately place and brace form work with tops at finish elevations and curved sections on the true radii with radial joints.
- B. Locate 1/2" expansion joints at 20' intervals and wherever curb abuts walls, structures, existing curbing, etc.
- C. Finish exposed surfaces as detailed.

3.10 CONCRETE FINISHING

- A. General: After striking off and consolidating concrete, smooth surface by screening and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.
- B. After floating, test surface for trueness with a 10' straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.
- C. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round to 1/2" radius, unless otherwise indicated. Eliminate tool marks on concrete surface.
- D. After completion of floating and troweling when excess moisture or surface sheen has disappeared, complete surface finishing as detailed. Methods defined as follows:
 - 1. Light Broom Finish: Draw a fine-hair broom across concrete surface in direction as detailed. Repeat operation if required, to provide a fine line texture.
 - 2. Heavy Broom Finish: Draw a stiff-bristled broom across concrete surface in direction as detailed. Repeat operation if required, to provide a coarse, non-slip finish.
 - 3. Rubbed Finish: Rub exposed concrete surfaces with a wood or rubber float to achieve a uniform, gritty texture.
 - 4. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas. Remove and replace areas or sections with major defects.

3.11 CURING

- A. General: Protect concrete so that the temperature at the surface will not fall below 50 degrees F., and there will be no loss of moisture from concrete surfaces for a period of seven days. Cover concrete surfaces with approved Kraft paper, burlap, or polyethylene sheeting.
- B. Antispalling Treatment: Apply treatment to concrete surfaces no sooner than 28 days after placement, to clean, dry concrete free of oil, dirt, and other foreign material. Apply curing and sealing compound at

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a maximum coverage rate of 300 s.f. per gallon. Apply antispalling compound in 2 sprayed applications. First application at rate of 40 sq. yds. per gal.; second application, 60 sq. yds. per gallon. Allow complete drying between applications.

3.12 REPAIRS

- A. Where new site concrete has been cracked or damaged, remove the entire panel/section wherein the damage occurs and install a new panel/section. No patching is permitted.
- B. Patching/repairing of surface defects (honey-combed areas, etc.) may be permitted if damaged areas are not extensive.

3.13 PROTECTION

- A. Protect concrete from damage until acceptance of the work. Exclude traffic from pavement for at least 14 days after placement. No construction traffic is permitted.
- B. Sweep concrete pavements and wash all concrete surfaces free of stains, discoloration, dirt and other foreign materials just prior to final inspection.
- C. Protection of finished work is the responsibility of the Contractor until final acceptance of all work. All damaged work shall be replaced by the Contractor at no additional cost to the Contract Sum.

3.14 CLEAN-UP

- A. Keep grounds clean of rubbish caused by work and of unused materials at all times. Dispose of rubbish off-site.
- B. Remove unused materials and equipment. Leave area clean.

END OF SECTION

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**SECTION 32 13 73
CONCRETE PAVING JOINT SEALANTS**

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. This Section includes the following:
 - 1. Expansion and contraction joints within cement concrete pavement.
 - 2. Joints between cement concrete and asphalt pavement.
- B. Related Sections
 - 1. Section 321216 – Asphalt Paving and Markings
 - 2. Section 321313 – Cement Concrete Paving

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each type and color of joint sealant required.
- C. Product certificates and test reports.
- D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.
 - 1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Colors of Exposed Joint Sealants: As selected by Architect.

2.2 COLD-APPLIED JOINT SEALANTS

- A. Multicomponent Jet-Fuel-Resistant Sealant for Concrete: Pourable, chemically curing elastomeric formulation complying with the following requirements for formulation and with ASTM C 920 for type, grade, class, and uses indicated:

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1. Urethane Formulation: Type M; Grade P; Class 12-1/2; Uses T, M, and, as applicable to joint substrates indicated.
 2. Coal-Tar-Modified Polymer Formulation: Type M; Grade P; Class 25; Uses T and, as applicable to joint substrates indicated.
 3. Bitumen-Modified Urethane Formulation: Type M; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated.
- B. Single-Component Jet-Fuel-Resistant Urethane Sealant for Concrete: Single-component, pourable, coal-tar-modified, urethane formulation complying with ASTM C 920 for Type S; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated.
- C. Type NS Silicone Sealant for Concrete: Single-component, low-modulus, neutral-curing, nonsag silicone sealant complying with ASTM D 5893 for Type NS.
- D. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL.
- E. Multicomponent Low-Modulus Sealant for Concrete and Asphalt: Proprietary formulation consisting of reactive petropolymer and activator components producing a pourable, self-leveling sealant.

2.3 HOT-APPLIED JOINT SEALANTS

- A. Jet-Fuel-Resistant Elastomeric Sealant for Concrete: Single-component formulation complying with ASTM D 3569.
- B. Jet-Fuel-Resistant Sealant for Concrete and Tar Concrete: Single-component formulation complying with ASTM D 3581.
- C. Elastomeric Sealant for Concrete: Single-component formulation complying with ASTM D 3406.
- D. Sealant for Concrete and Asphalt: Single-component formulation complying with ASTM D 3405.

2.4 JOINT-SEALANT BACKER MATERIALS

- A. General: Provide joint-sealant backer materials that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
- B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.
- C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.
- D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

PART 3 - EXECUTION

3.1 INSTALLATION

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- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.
- C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- D. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.
- E. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
- G. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 32 13 73

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**SECTION 32 30 00
SITE IMPROVEMENTS**

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. Work under this section includes providing all materials, equipment, and services necessary to furnish and deliver work as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:
 - 1. Benches
 - 2. Trash Receptacle
 - 3. Bike Rack
 - 4. Educational Signage
- B. Related Sections:
 - 1. Section 321216 – Asphalt Paving and Markings
 - 2. Section 321313 – Cement Concrete Paving

1.3 SUBMITTALS

- A. In accordance with the General Requirements, submit samples, materials certifications, manufacturer's product data and test reports as hereinafter required.
- B. Shop drawings for all site improvements.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: All materials and construction methods shall conform to Form 819 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, unless otherwise specified herein.
- B. Workers: all workers shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- C. All steel work shall conform to the latest edition of the American Institute of Steel Construction, Inc. "Manual of Steel Construction."
- D. All welding shall be performed by welders, tackers, and welding operators who have been qualified in the last six (6) months by test as prescribed in the Code for Welding in Building Construction of the American Welding Society.

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PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Benches: As Manufactured by Victory Stanley, Model: FB-324, Color: Black with IPE wood seat and backrest. <https://victorstanley.com/product/fb-324/or> approved equal. Provide Shop Drawings and physical color sample for approval.
 - a. Qty:7
- B. Trash Receptacle: As Manufactured by Victory Stanley, Model: REN-36SDSD, Color: Black with IPE slats, <https://victorstanley.com/product/ren-sd-sd/>, or approved equal. Provide Shop Drawings and physical color sample for approval.
 - a. Qty:2
- C. Bike Rack: As Manufactured by Landscape Forms, Model: Ring, Color: Matte Black, <https://www.landscapeforms.com/en-US/Pages/default.aspx>, or approved equal. Provide Shop Drawings and physical color sample for approval.
 - a. Qty:2
- D. Educational Signage – See Details. Provide Shop Drawings and Supplier information. As manufactured by Fossil Industries Inc., 44 Jefryn Boulevard, Deer Park, NJ 11729, p. 63-254-9200 or approved equal
 - a. Qty:1

2.2 INSTALLATION - GENERAL

- A. All items shall be assembled and erected per manufacturer's recommendation and located as shown on the Contract Drawings and/or as directed by the Architect.

2.3 CLEANING

- A. Clean up debris and unused material and remove from the site.

PART 3 - EXECUTION

Not used.

END OF SECTION 32 30 00

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**SECTION 32 91 13
TOPSOIL**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Furnishing and placing topsoil

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Section 311000 – Site Preparation
- B. Section 312000 – Earth Moving

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. Planting Soil: Imported or manufactured topsoil, mixed with soil amendments as specified.
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.
- E. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

1.4 SUBMITTALS

- A. Samples (and test report), in the following quantities:
 - 1. Topsoil, five gallon pail – Provide representative testing to indicate percent organic content for both on-site and off-site source material. Only topsoil meeting organic content specifications (6% min – 20% max.) is acceptable
 - 2. Source of topsoil must be submitted. Only quality material free of contamination shall be used. At the discretion of the Landscape Architect or Owner, additional soil testing for the presence of chemical compounds may be required. All testing shall be at the Contractor's expense.

1.5 QUALITY ASSURANCE

- A. The Owner reserves the right to require testing and reject for cause any material not meeting material specifications by tests in accordance with methods adopted by the Associate of Official Agricultural Chemists. Costs for these tests shall be borne by the Contractor.
- B. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

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- C. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory.
 - 1. Report suitability of topsoil for lawn growth. State-recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.
 - D. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Landscape Architect, together with proposal for use of equivalent material.
 - E. Analysis and standards - Package standard products with manufacturer certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists, wherever applicable.
 - F. Inspection - The Landscape Architect may inspect trees either at place of growth or at site before planting, for compliance with requirements for genus, species, variety, size, and quality. Landscape Architect retains right to further inspect trees for size and condition of balls and root systems, insects, injuries and at any time during progress of work. Remove rejected trees immediately from project site.
- 1.6 SEQUENCING AND SCHEDULING
- A. Topsoil shall be placed directly upon completed cut and fill slopes whenever conditions and the progress of construction will permit. Coordinate the work of this Section with the respective trades responsible for installing interfacing work to ensure that the work performed is scheduled to minimize damage to lawn areas.

PART 2 - PRODUCTS

2.1 TOPSOIL

- A. Topsoil within the limits of the Project shall be salvaged prior to beginning excavating, fill or hauling, operations by excavating topsoil and stockpiling the material at designated locations on Drawings or as designated by Owner in a manner that will facilitate measurement, minimize sediment damage, and not obstruct natural drainage.
- B. The existing topsoil material on site is to be stripped, stockpiled, and screened for reuse to the greatest extent possible.
- C. Salvaged topsoil exceeding the quantity required under the Contract shall be disposed of at Contractor's expense.
- D. Imported topsoil shall be hauled to the site and stockpiled in locations designated by Owner.
- E. Topsoil material shall be amended or furnished as necessary and shall be a loam subject to the following gradation:

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Texture Class	% of Total Weight	Average %
Sand (0.05-2.0 mm dia. range)	25 - 75	50
Silt (0.002-0.05mm dia. range)	15 - 40	27.5
Clay (< 0.002 mm dia. range)	15 - 30	22.5

The particle size limits (mm) are to be based on the USDA (U.S. Department of Agriculture) classification system. The topsoil material is to have a minimum organic matter content of not less than 6% and contain no stones over 3/4 inch in diameter. The topsoil material is to be free of clods, vegetative matter such as sod and wood, contaminants that affect plant growth, foreign material (concrete, glass, etc.) and environmental contaminants that include volatile organic compounds, total petroleum hydrocarbons, metal elements and pesticides that will impact reconstruction of the athletic fields and their surrounds.

- F. The topsoil material that is either furnished or reused is to have a soil pH range of 6.4-7.0 and soil available phosphorus of greater than 5 lbs. per acre as determined by the modified Morgan extractant. If the soil pH and soil available phosphorus is below 6.4 and 5 .lbs. per acre respectively, then agricultural limestone and fertilizer phosphorus are to be added to the topsoil to achieve the minimum above before reuse or delivery to the site. Amendments shall follow soil testing laboratory recommendations.
- G. The original source of the topsoil borrow shall be from an A or Ap horizon of a naturally occurring soil and not compounded by intentional mixing of component soils. In the event that the organic content is below the minimum 6% but meets all other requirements, the Owner may permit the addition of additional organic material provided that such material is blended at the source and not at the project site.
- H. Soil Tests: The Contractor shall submit to the Owner for review and approval a sample of the topsoil proposed to use along with the test results indicating that its particle size, organic matter content, nutrient analysis and soil pH conforms to the requirements of these specifications before using the topsoil. The contractor is also to provide the source of the topsoil. Each topsoil sample to be submitted shall be tested for the following:
 - 1. Particle size analysis of the topsoil will be determined by ASTM F 1632, Particle Size Analysis conducted by a laboratory accredited by the American Association of Laboratory Accreditation. Test must be recent and approved prior to delivery of material to the site.
 - 2. Soil pH and nutrient analysis using the modified Morgan soil test extractant for soil available P, K, Ca and Mg using University of Connecticut, Department of Plant Science, Soil Nutrient Analysis Laboratory or equivalent.
 - 3. Soluble salt content measuring EC with a conductivity meter in a soil-water extract using a soil to solution ratio of 1:4.3.4. Organic matter content in the topsoil to be determined by loss of weight on ignition on an overdry sample.

2.2 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural limestone containing a minimum of 80 percent calcium carbonate equivalent and as follows:

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1. Class: O, with a minimum of 95 percent passing through No. 8 sieve and a minimum of 55 percent passing through No. 60 sieve.

2.3 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 3/4-inch sieve; soluble salt content of 5 decisiemens/m.
- B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture, with a pH range of 3.4 to 4.8.
- C. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.4 FERTILIZER

- A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 10 percent 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: 293 lbs. per acre of 15-15-15.
- C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 1. Composition: 142 lbs. per acre of 20-10-10.

2.5 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Sphagnum Peat Mulch: Partially decomposed sphagnum peat moss, finely divided or of granular texture, and with a pH range of 3.4 to 4.8.

PART 3 - EXECUTION

3.1 STOCKPILE

- A. No soil stockpile shall exceed ten (10) feet in height.
- B. All topsoil stockpiles shall be protected from sediment transport by surface roughening, watering, and perimeter silt fencing.
- C. Any topsoil stockpile remaining longer than 30 days shall be seeded with a sterile temporary cover or the approved specified final seed mixture.

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- D. Upon completion of Project or as approved by Owner or Owners Representative, remove surplus subsoil and topsoil from site. Grade stockpile area as necessary for planting or seeding.

3.2 PREPARATION

- A. Loosen subsoil with a subsoiler to a depth of 24 inches.
- B. Prepare subgrade to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes in level areas.
- C. Screen topsoil to remove stones $\frac{3}{4}$ inch and larger.
- D. Remove foreign materials, debris, weeds, undesirable plants, roots, branches. Remove subsoil contaminated with petroleum products, or other materials, which would inhibit healthy plant growth.
- E. Scarify areas where equipment is used for hauling and spreading topsoil and has compacted subsoil. No rubber-tired equipment or heavy equipment except for a small bulldozer shall pass over the subsoils (subgrade) after they have been loosened. If the Contractor plans to utilize such areas for any use of heavy equipment, this work should be carried out prior to beginning the process of loosening soils or filling in that area, or it will have to be re-scarified and meet this specification requirement.

3.3 PLACING AND TREATING TOPSOIL

- A. Place both stockpiled topsoil and additional loam during dry weather; place to a minimum compacted depth of 8 inches on dry unfrozen subgrade. Place screened topsoil for both sodded and seeded lawn areas.
- B. Fine grade topsoil, making changes in grade gradual, eliminating rough or low areas. Blend slopes into level areas. Manually spread topsoil close to trees, plants, and building to prevent damage. Roll, fill depressions to ensure positive drainage.
- C. Remove any residual roots, weeds, rocks and foreign material while spreading.
- D. Remove surplus subsoil and topsoil from site. Leave stockpile areas and site clean and raked ready to receive grass.
- E. Apply fertilizer in accordance with testing agency recommendations and manufacturer's instructions, after smooth raking of topsoil and prior to roller compaction. Mix thoroughly into upper 6 inches of topsoil.
- F. Lightly water to aid the dissipation of fertilizer, if applied.
- G. After incorporation of fertilizer or limestone into the soil, fine grade seed/sod bed to remove all ridges and depressions, and the surface cleared of all stones $\frac{1}{2}$ inch or more in diameter and all other debris.
- H. Establish cover per the Drawings as soon as possible following approval of topsoiling.

3.4 CLEANUP AND PROTECTION

- A. During landscape work, keep pavements clean and work area in an orderly condition.

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- B. Protect landscape work and materials from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

3.5 INSPECTION AND ACCEPTANCE

- A. When soil placement work is completed, Landscape Architect will inspect to determine acceptability.
- B. When inspected topsoil work does not comply with requirements, replace rejected work until re-inspected by Landscape Architect and found to be acceptable. Remove rejected soil and materials promptly from project site.

END OF SECTION 32 91 00

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**SECTION 32 91 15
PLANTING SOIL**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this Section.

1.2 DESCRIPTION OF WORK

- A. Provide labor, materials, equipment, services and transportation to complete work.
 - 1. Preparation and placement of planting soils.

1.3 RELATED SECTIONS

- A. Section 312000 – Earth Moving
- B. Section 329113 – Topsoil
- C. Section 329300 – Plants

1.4 REFERENCES

- A. Comply with applicable requirements of:
 - 1. State of Connecticut, Department of Transportation, latest edition.
 - 2. American Association of Nurserymen, American Standards for Nursery Stock, (ANSI Z60.1), latest edition, published by the American Association of Nurserymen, 1250 I Street, N.W., Suite 500, Washington, D.C. 20005.
 - 3. ASTM: American Society of Testing Materials.
 - 4. ANSI: American National Standards Institute.
 - 5. ASA: American Society of Agronomy
 - 6. USDA: United States Department of Agriculture.

1.5 DEFINITIONS

- A. Subgrade: Soil material and levels resulting from the approved rough grading work.
 - 1. Cultivation of all subgrade areas prior to amending is included in this Section.
 - 2. Subgrade soil(s): Subgrade soil shall be free draining and granular, which have been placed resulting from the approved rough grading work and are located in the lawn, tree or shrub planting areas.
 - 3. Prepared, cultivated subsoil shall be demonstrated to be capable of infiltrating water at a minimum rate of 1" per hour prior to placement of planting soils.
- B. Planting Soils: The planting soils consisting of a blend of natural topsoil, uniform sand, and organic material. The quality of the blend depends on the quality of the original components. The Contractor is responsible for locating and obtaining approval of sources of natural topsoil, uniform sand, and organic material that meet the Specification requirements. The Contractor is then responsible for mixing the components. Approximate mixing ratios are provided, but may require

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adjustment, depending on the final materials and with the approval of the Architect or their representative, in order to meet Specification requirements for each blend.

1. Base Components

- a. Base Loam is a natural growing medium.
- b. Uniform Sand is uniformly graded medium to coarse Uniform Sand. Asphalt or Concrete sand may meet Specification requirements.
- c. Organic Material is fully decomposed organic material

1.6 SUBMITTALS

- A. Submittals: in accordance with Section 01 3300 – Submittal Requirements. No materials shall be ordered or delivered until the required submittals have been reviewed and approved by the Owner's Representative. Delivered materials shall closely match the approved samples. Approval shall not constitute final acceptance. The Owner's Representative reserves the right to reject, on or after delivery, any material that does not meet these Specifications. The Contractor shall be responsible for recognizing that these critical project materials warrant timely and serious attention, that the testing process to achieve Approved materials should be considered a lead time item, and that under no circumstance shall failure to comply with all specification requirements be an excuse for "staying on project construction schedule."

Testing shall be at the Contractor's expense. Contractor shall deliver all samples to testing laboratories via overnight courier and shall have the testing report sent directly to the Design Professional. Perform all tests for gradation, organic content, soil chemistry and pH by UMass Soil and Plant Tissue Laboratory, West Experiment Station, North Pleasant Street, University of Massachusetts, Amherst, MA 01003, (413) 545-2311 or approved equal. Contractor shall deliver samples to testing laboratories and shall have the testing report sent directly to the Design Professional from the Soil and plant Tissue Laboratory.

- B. Product Data: provide most recent printed information from manufacturer.

1. Organic Amendment Materials: identify the material(s) from of which is it composed and identify the location where material was composted.
2. Fertilizers
3. Ground Limestone
4. Superphosphate

- C. Sources for Soil Components and Soil Mixes: Submit information identifying sources for all soil components and the firm responsible for mixing of soil mixes.

1. Owner's Representative shall have the right to reject any soil supplier.
2. Soil mix supplier shall have a minimum of five years experience at supplying custom planting soil mixes.
3. Submit supplier name, address, telephone and fax numbers and contact name.
4. Submit certification that accepted supplier is able to provide sufficient quantities of materials and mixes for the entire project.

- D. Samples: Submit 1 gallon planting soil samples in two phases. Submit samples concurrent with soil test reports in both phases. Submit as phase one, planting soil base components for approval. Only after approval of phase one components, submit as phase two, soil blend mixes / mediums for approval.

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1. Phase One Submittals of Planting Soil Base Components:
 - a. Base Loam
 - b. Organic Amendment Materials (compost)
 - c. Sand for Root Zone Medium
 2. Phase Two Submittals of Planting Mediums: mixing and batching of soil mediums to be submitted in the same manner as bulk soils and will be prepared prior to delivery to site.
 - a. Planting Bed Soil
- E. Planting Soil Test Reports: Submit reports in two phases. Submit reports concurrent with samples in both phases. Submit as phase one, reports for planting soil base components above for approval. Only after approval of phase one components, submit as phase two, reports for soil blend mixes /mediums for approval. All reports must be from recent analyses, less than 90 days old and represent materials that are available for delivery to the site.

Submit reports for each of the above samples: Submit sample from each proposed source for testing and approval. Deliver samples to both the testing laboratory and the project soil scientist and pay costs. Send report directly to Owner's Representative.

1. Testing for Base Loam
 - a. Inform testing agency soil test is for tree, shrub, and perennial plantings.
 - b. Mechanical and chemical analysis shall be conducted by a public extension service agency or a certified private testing laboratory in accordance with the current "standards" of the American Society of Agronomy and ASTM.
 - c. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
 - d. Test for agricultural suitability analysis including:
 - 1) particle size and characteristics
 - 2) soil pH by water pH and buffer (smp) pH tests.
 - 3) percentage organic content
 - 4) nitrate nitrogen
 - 5) ammonium nitrogen
 - 6) phosphorus
 - 7) potassium
 - 8) calcium
 - 9) aluminum
 - 10) magnesium
 - 11) manganese
 - 12) Micronutrients
 - 13) Toxins including but not limited to lead, cadmium, arsenic and mercury.
 - e. Test results: test data and recommendations for soil amendments including but not limited to: nitrogen, phosphorus, potassium and limestone.
2. Testing for Organic Amendment Materials

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- a. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
 - b. Test for agricultural suitability analysis as defined in Article 2.02 – Organic Amendment Materials (Compost).
- 3. Testing for Sand
 - a. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
 - b. Test for agricultural suitability analysis including:
 - 1) particle size and characteristics, pH
- F. Planting Soil Mixes:
 - 1. Uniformly mix ingredients by a minimum of three mixing events with construction equipment on an approved hard surface area or by processing components through a screener. Organic Amendment and Topsoil shall be maintained moist, not wet, during mixing. Amendments shall not be added unless approved to extent and quantity by the Landscape Architect and additional tests have been conducted to verify type and quantity of amendment is acceptable. Percentages of components, unless otherwise noted, will be established upon completion of individual test results for components of the various mixes.
 - 2. After component percentages are determined by the Soil Scientist **and production begins**, each planting soil mix shall be tested for physical and chemical analysis **prior to delivery**.

1.7 QUALITY ASSURANCE

- A. Contractor is solely responsible for quality control of the Work.
 - 1. Pre-installation Conference: Conduct conference at project site prior to the start of any work related Topsoil preparation. Contractor shall demonstrate familiarity of all portions of this Specification and of the Site Work.
- B. The installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for the Work, including the preparation, mixing and installation of custom topsoil and planting mixes.
 - 1. The installing Contractor shall be the same firm that is installing planting as described in Section 329200 –Plants.
 - 2. Installer Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when any Topsoil preparation work is in progress.
 - 3. The installer's crew shall be experienced in the installation of soil, grading and interpretation of grading plans.
- C. Soil work shall be performed by a firm that has sufficient earthwork machinery at the job site simultaneously to amply provide for the vigorous execution of the site work without interruption or delay, except for unforeseen circumstances, such as weather. Machinery operators shall be well experienced in this type of work.

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- D. Soils Testing Laboratory: to be approved by Owner's Representative. Lab shall have ability to make tests and provide soil recommendations.
- E. Qualifications: contractor shall have minimum five years' experience in soil preparation work.
- F. Regulatory Requirements:
 - 1. Comply with laws, regulations, and quarantines for agricultural and horticultural products.
- G. The contractor is responsible for meeting the requirements in this Specification, including, but not limited to soil testing, timely submittals, moisture content of soils, compaction, and protection of work. If any areas of soils or plantings are installed without adherence to this Specification, the contractor is responsible to correct any and all deficiencies, regardless of the project status, including, but not limited to removal and replacement of soils and pavements, in-situ amendments, monitoring or other actions.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping: deliver materials in unopened containers bearing manufacturer's name and guaranteed statement of analysis. Transport materials without damage. Protect finishes from abrasion, dirt, oils, grease, and chemicals. Pack materials to protect from weather.
- B. Acceptance at Site: verify in writing that delivered materials conform to specifications and approved submittals.
- C. Storage and Protection:
 - 1. Materials shall be uniform in composition, dry and free flowing. Store materials in dry place, on pallets, off the ground; protect from sun. Store materials in a manner that does not diminish their usability and effectiveness.
 - 2. Protect materials from theft, damage, weather, dirt, oils, grease, and construction activities.
 - 3. Planting soils stored onsite prior to placement shall be stockpiled in windrows less than six feet high and no longer than ten days before placement.
 - 4. Planting soils should be covered during precipitation events to minimize saturated soil conditions. Planting soils may not be manipulated when in a wet or frozen condition, to include planting operations.

1.9 PROJECT CONDITIONS

- A. Soil Moisture Content
 - 1. Contractor shall not move, blend or grade soil when moisture content is so great that adequate mixing is not possible as determined by the field soil moisture test, nor when it is so dry that dust will form in the air or that clods will not break readily, nor when it is frozen. Apply water, if necessary, or allow to dry to bring soil moisture between 60% of optimum moisture content and optimum moisture content as determined by ASTM D698 for compaction, grading and plantings.

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2. Soil may not be manipulated in any way while in a wet condition, including moving of stockpiles, grading, planting or any other excavation. Contractor is responsible for removal and replacement of any and all soils that were manipulated when wet.
3. Field Soil Moisture Test
 - a. Form soil in palm of hand, if soil retains shape and crumbles upon touching, the soil may be worked.
 - b. If the soil will not retain shape it is too dry and should not be worked.
 - c. If the soil retains shape and will not crumble, it is too wet and should not be worked.
 - d. If the soil glistens or free water is observed when the sample is patted in the palm of hand the soil is too wet and should not be worked.

PART 2 - MATERIALS

2.1 BASE LOAM

- A. Base Loam shall be imported unless onsite soil can meet these specifications. Base Loam as required for blending with other components shall be a naturally occurring soil formed from geologic soil forming processes without admixtures of sand or organic matter sources (composts). Test results shall be reported to the Soil Scientist who may make minor adjustments to specified approximate mixing ratios and mix requirements for each mix type. Topsoil, which has been contaminated by incorporation of subsoil shall not be acceptable for use and shall be replaced with imported topsoil meeting specification requirements at no additional cost to be owner.
- B. Base Loam as required for the work shall be free of subsoil, large stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris. Base Loam shall also be free of quack-grass rhizomes, *Agropyron Repens*, and the nut-like tubers of nutgrass, *Cyperus Esculentus*, and all other primary noxious weeds. Base Loam shall not be delivered or used for planting while in a frozen or muddy condition.

Base Loam for mixing shall conform to the following grain size distribution for material passing the #10 sieve:

U.S. Sieve Size Number	Percent Passing	
	Minimum	Maximum
10	---	100
18	85	100
35	70	95
60	50	85
140	36	53
270	32	42
0.002mm	3	6

- C. The ratio of the particle size for 80% passing (D_{80}) to the particle size for 30% passing (D_{30}) shall be 8 or less. ($D_{80}/D_{30} < 8$)
- D. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.

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- E. The organic content shall be between 4.0 and 8.0 percent.
- F. The pH shall be between 5.8 and 7.0

2.2 ORGANIC AMENDMENT MATERIALS (COMPOST)

A. Organic Material (Compost) as Amendment for Soil Mixes:

1. Organic Matter (Compost) for amending planting medium: stable, humus-like material produced from the aerobic decomposition of organic residues consisting of Leaf or Yard Waste Compost which shall be composted for a minimum of one year (12 months). Compost shall be free of debris such as plastics, metal, concrete or other debris and stones larger than 1/2", larger branches and roots and wood chips over 1/2" in length or diameter. Compost shall be a dark brown to black color and be capable of supporting plant growth with appropriate management practices in conjunction with addition of fertilizer and other amendments as applicable, with no visible free water or dust, with no unpleasant odor, and meeting the following criteria as reported by laboratory tests.
 - a. The ratio of carbon to nitrogen shall be in the range of 12:1 to 25:1.
 - b. Stability shall be assessed by the Solvita procedure. Protocols are specified by the Solvita manual (version 4.0). The compost must achieve a maturity index of 6 or more as measured by the Solvita scale. Stability tests shall be conducted by Woods End Research Laboratory, Mt. Vernon, Maine, or approved equal.
 - c. Organic Content: at least 20 percent (dry weight). One hundred percent of the material shall pass a 1/2-inch (or smaller) screen. Debris such as metal, glass, plastic, wood (other than residual chips), asphalt or masonry shall not be visible and shall not exceed one percent dry weight. Organic content shall be determined by weight loss on ignition for particles passing a Number 10 sieve according to procedures performed by the West Experiment Station at the University of Massachusetts, Amherst or equal.
 - d. pH: between 6.5 to 7.4 as determined from a 1:1 soil-distilled water suspension using a glass electrode pH meter American Society of Agronomy *Methods of Soil Analysis*, Part 2, 1986.
 - e. Salinity: Electrical conductivity of a one to five soil to water ratio extract shall not exceed 2.5 mmhos/cm (dS/m).
 - f. Compost: screened to 1/2 inch maximum particle size and shall contain not more than 3 percent material finer than 0.002mm as determined by hydrometer test on ashed material.
 - g. Nutrient content: determined by the University of Massachusetts Soil Testing Laboratory or equivalent laboratory and utilized to evaluate soil required amendments for the mixed soils. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Magnesium, Chromium, Iron, Manganese, Lead, Soluble Salts, Cation Exchange Capacity, soil reaction (pH), buffer pH, and micronutrients.

2.3 SAND FOR ROOT ZONE MEDIUM

- A. Sand: for mixing with base loam topsoil to meet specification requirements shall be uniformly graded, noncalcareous coarse sand consisting of clean, inert, rounded grains of quartz or other durable rock and free from loam or clay, surface coatings, mica, other deleterious materials with the following gradation:

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U.S. Sieve Size Number	Percent Passing	
	Minimum	Maximum
10	100	-
18	65	90
35	35	70
60	15	30
140	0	8
270	0	3
0.002mm	0	0.5

- B. Maximum size shall be one inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
- C. The ratio of the particle size for 70% passing (D₇₀) to the particle size for 20% passing (D₂₀) shall be 2.8 or less. (D₇₀/D₂₀ <2.8)
- D. The pH shall be below 7.5.

2.4 PLANTING SOIL MIXES-GENERAL

- A. In general, the ratio of mixed components shall be 2 parts loam, 1 part sand, and 1 part organic compost. Percentages of components will be verified in writing upon completion of individual test results for components of the various mixes.
- B. Uniformly mix ingredients by windrowing/tilling on an approved hard surface area or processing components through a screener. Organic Amendment shall be maintained moist, not wet, during mixing. Amendments shall not be added unless approved to extent and quantity by the Landscape Architect and additional tests have been conducted to verify type and quantity of amendment is acceptable
- C. After component percentages are determined by the Soil Scientist and production begins, each planting soil mix shall be tested for physical, and chemical analysis prior to delivery.

PART 3 - EXECUTION

3.1 DECOMPACTION OF SUBGRADE AT PLANTING AREAS

- A. Confirm that the subgrade is at the proper elevation, compaction and infiltration capacity and that no further earthwork is required to bring the subgrade to proper elevations, compaction and infiltration capacity.
- B. No planting soils shall be handled, planted, or seeded in any way if it is in a wet or frozen condition. A moist planting soil is desirable. Perform field test as specified under the work of this Section 1.09(A)(1-3) to determine if planting soils may be worked.
- C. After the soils have been loosened and inspected, the entire subgrade shall be raked or scarified to break any pan or skin effect that may have formed immediately prior to placement of planting soils. The planting soils may be spread by using a wide-track bulldozer size D-5 or smaller or may be dumped and spread with the bucket of a backhoe from the edge of the loosened area. No rubber-tired equipment or heavy equipment except for a small bulldozer shall pass over the subsoils (subgrade) after they have been loosened. If the Contractor plans to utilize such areas for any use of heavy equipment, this work should be carried out prior to beginning the process of loosening soils or filling in that area, or it will have to be re-scarified and meet this specification requirement.

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**SECTION 32 92 00
TURF AND GRASSES**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY

- A. Work under this section includes all materials, equipment, and services necessary to furnish and deliver work as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:

- 1. Seeding

- B. Notice regarding topsoil and compaction: Topsoil shall not be over compacted, see section 3.F. If topsoil is over compacted corrective measures are required, take special care to ensure placed topsoil is protected from equipment and people other than that which is required to establish seed until final acceptance of the seeded areas.

- C. Related Sections

- 1. Section 31 10 00 – Site Clearing
 - 2. Section 31 20 00 – Earth Moving
 - 3. Section 32 90 13 – Topsoil

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Lawn: Any area seeded with grass seed that will be maintained as mown grass.
- C. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- D. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- E. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.
- F. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Certification of grass seed.

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1. Certification of each seed mixture type shall be provided to the Owner at least 10 business days prior to installation.
- C. Planting Schedule: Indicating anticipated planting dates for each type of planting shall be provided to the Owner at least 10 business days prior to installation.

1.5 QUALITY ASSURANCE

- A. Installer's Field Supervision: Require Installer to maintain an experienced landscaper full-time to supervise the Project site when seeding is in progress.
- B. Workers: All workers shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- C. Form 819 - State of Connecticut Department of Transportation "Specifications for Roads, Bridges, Facilities and Incidental Construction" 2024 edition shall be used for materials compliance and execution of the work in this section.

1.6 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Provide full maintenance by an experienced landscape installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
 1. Seeded Lawns: 90 days from date of Substantial Completion, seeding the area shall have greater than 95% viable coverage of grass.
 - a. When initial maintenance period has not elapsed before end of planting season, or if lawn is not fully established, the area shall be mulched with straw and maintenance continued next planting season.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Shall be Hart's Triple Team Tall Fescue Blend as supplied by Chas C. Hart Seed Company, 304 Main Street, Wethersfield, CT 06109, p. 860.529.2537, or approved equal.

The seed mixture is to have no noxious weeds. Other suppliers and seed mixes may be substituted for the above-listed product with the approval of the Landscape Architect and Owner.

- B. Provide fresh, clean, new-crop seed complying with established tolerances for germination and purity in accordance with the U.S. Department of Agriculture Rules and Regulations under the latest edition of the Federal Seed Act. Seed shall be mixed by the dealer and shall be delivered to the site in sealed containers that bear the Dealer's guaranteed analysis.

2.2 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural limestone containing a minimum of 80 percent calcium carbonate equivalent and as follows:

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1. Class: O, with a minimum of 95 percent passing through No. 8 sieve and a minimum of 55 percent passing through No. 60 sieve.

2.3 FERTILIZER

- A. All fertilizers shall be horticultural grade complete formula fertilizers and shall conform to the applicable State Fertilizer laws.
- B. New seeded Areas: Fertilizer formula and application rate shall be as recommended by the soil testing laboratory base on soil test results.

2.4 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew-, weed-, and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

PART 3 - EXECUTION

3.1 SEED BED PREPARATION

- A. Newly Graded Subgrades: Loosen subgrade with a subsoiler or other approved method to a minimum depth of 12 inches to achieve permeability not less than 1.5" per hour or 3' per day. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 1. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.
 2. Spread planting soil mix to a minimum depth of 6 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
- B. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:
 1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
 2. Loosen surface soil through deep-tine aeration or other approved method to a depth of at least 12 inches. Where applicable, loosen surface soil through light raking taking care not to damage any tree roots within the area. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 2 inches of soil.
 - a. Apply fertilizer directly to surface soil before loosening.
 3. Remove stones larger than 1 inch in any dimension and sticks, roots, trash, and other extraneous matter.
 4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
- C. Finish Grading: The topsoil shall be fine graded to the grades as indicated in the Contract Documents. The fine grading shall be conducted with laser grading techniques. Very closely spaced grade staking and string lines will not be accepted. The fine grading technique must be submitted by the Contractor to the Owner or the Owner's designated representative for review and approval at least

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two (2) weeks before fine grading has started. Fine grading must result in a maximum tolerance from proposed grade of $\pm \frac{1}{2}$ " with no areas where water may puddle, pond, or flow in an unintended channel. Any additional topsoil needed to produce the required grading will be supplied and placed by the Contractor.

All equipment used to install, grade and fine grade topsoil shall be low ground pressure equipment suitable for the installation. Contractor is to submit for approval all equipment intended for use for the project. Large loaders, bulldozers, and earthmoving equipment will not be allowed on the topsoil during placement or after tilling. Equipment weighing > 16,000 pounds and equipment with high ground pressure contact will not be allowed on the landscaped areas after topsoil has been placed or tilled without the approval of the Engineer.

- D. Moisten prepared lawn areas before seeding if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- E. Before seeding, restore areas if eroded or otherwise disturbed after finish grading.
- F. Topsoil shall be not be over compacted. A person weighing approximately 150lbs walking on the soil should leave a 1"-2" depression by footprint. Topsoil over compacted shall be corrected by reverse tine tilling to full topsoil depth, cultipacked, fine graded until meeting this performance requirement.

3.2 SEEDING

- A. Topsoil and grading shall be reviewed and approved by the Landscape Architect prior to the sowing of seed.
- B. Irrigation, either temporary or permanent (if included on the job) shall be in place, operational, and a test of the system witnessed by the Landscape Architect prior to sowing of seed.
- C. Furnish and apply seed to the topsoil with a mechanical seeder at a rate as indicated on the seed label and/or contract document.
- D. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
- E. Hydro seeding is acceptable. Submit application materials and methods for approval.
- F. Rake lawn seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- G. Drag or roll the surface of specialty seed areas to incorporate the seed into the top 1/4 inch to 1/2 inch of soil. A seed drill is acceptable.
- H. Protect all seeded areas by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

3.3 MAINTENANCE

- A. Maintain all lawns for 90 days from date of Substantial Completion.

Days from November 15 to April 15 do not count towards the 90-day requirement. Maintenance period will resume after April 15 as required by the contract period.

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- B. Seeded Lawn: Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn. Provide materials and installation the same as those used in the original installation.
1. Mow lawn as soon as top growth reaches a height of 4 inches. Lawn shall be cut to a 3" height. Contractor shall continue to mow every 7 days thereafter from the initial mowing to maintain a 3" height.
 2. The Contractor shall not allow any equipment or material to be placed on any planted area and shall erect suitable barricades and guards to prevent Contractor's equipment, labor or the public from traveling on or over any seeded area.
- C. Fertilization
1. The contractor shall be responsible for fertilizing all seeded areas during the maintenance period prior to final acceptance. Fertilizers shall be granular in composition and contain 40% or more of the nitrogen in a slow or controlled-release form. The exact composition of the fertilizer shall be determined on time of year, soil testing results and good industry practices. The Contractor shall sweep any fertilizer that has been spread on walks and drives back onto the lawns or field. The Contractor shall notify the Director of Public Works or his designee prior to spreading fertilizer so that the irrigation schedule can be adjusted to allow for the fertilizer application.
- D. Temporary Irrigation
1. Provide temporary irrigation for all turf grass areas until final acceptance.
 2. Irrigation shall be on an as needed basis determined by the weather and soil moisture. Contractor is to ensure the irrigation system is in working order prior to the installation of seeding so that the system may be used during the maintenance period.
 3. Irrigation shall be run in the early morning.
 4. Contractor is responsible for the irrigation, labor, materials, and oversight, all inclusive until final acceptance of the turf areas.
- 3.4 SATISFACTORY ESTABLISHMENT
- A. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 95 percent over any 10 sq. ft. and bare spots not exceeding 3 by 3 inches.
- B. Use specified materials to reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

END OF SECTION 32 92 00

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**SECTION 32 93 00
PLANTS**

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. Trees
 - 2. Shrubs
 - 3. Ground cover
 - 4. Plants
 - 5. Mulching

1.3 RELATED SECTIONS

- A. Section 339113 –Topsoil
- B. Section 339115 – Planting Soil
- C. Section 329200 – Turf and Grasses

1.3 DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Finish Grade: Elevation of finished surface of planting soil.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- D. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- E. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.
- F. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.

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- B. Sourcing Data: For each plant species, provide origin source of material.
- C. Product certificates.
- D. Planting Schedule: Indicating anticipated planting dates for exterior plants.
- E. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of exterior plants during a calendar year.

1.5 QUALITY ASSURANCE

- A. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- B. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory.
 - 1. Report suitability of topsoil for plant growth. State-recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.
- C. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."
- D. Form 819 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, as amended and latest supplements shall be used for materials compliance and execution of the work in this section.
- E. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, 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 exterior plants during delivery. Do not drop exterior plants during delivery and handling.
- B. Handle planting stock by root ball.
- C. Deliver exterior plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set exterior plants and trees in shade, protect from weather and mechanical damage, and keep roots moist.

1.7 WARRANTY

- A. Special Warranty: Installer's standard form in which Installer agrees to repair or replace plantings that fail in materials, workmanship, or growth within specified warranty period.
 - 1. Failures include, but are not limited to, the following:

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- a. Death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, abuse by Owner, or incidents that are beyond Contractor's control.
 - b. Structural failures including plantings falling or blowing over.
2. Warranty Periods from Date of Substantial Completion:
- a. Trees and Shrubs: One year.
 - b. Ground Cover and Perennial Plants: One year.

1.8 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below.
- 1. Maintenance Period for Trees and Shrubs: 12 months from date of planting completion.
 - 2. Maintenance Period for Ground Covers and Plants: 12 months from date of planting completion.

PART 2 - PRODUCTS

2.1 TREE AND SHRUB MATERIAL

- A. General: Furnish nursery-grown trees and shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- C. Provide balled and burlapped or container-grown trees.

2.2 GROUND COVER PLANTS

- A. Ground Cover: Provide ground cover of species indicated, established and well rooted in pots or similar containers, and complying with ANSI Z60.1.

2.3 PLANTS

- A. Perennials: Provide healthy, field-grown plants from a commercial nursery, of species and variety shown or listed, complying with requirements in ANSI Z60.1.

2.4 FERTILIZER

- A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 10 percent phosphoric acid.

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2.5 MULCHES

- A. Organic Mulch: Ground or shredded bark free from dyes.

PART 3 - EXECUTION

3.1 PLANTING BED ESTABLISHMENT

- A. Loosen subgrade of planting beds to a minimum depth of 12 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
1. Thoroughly blend planting soil mix off-site before spreading; or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.
 2. Spread planting soil mix to a depth of 12 inches but not less than required to meet finish grades after natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
- B. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.2 TREES AND SHRUBS

- A. Excavation of Pits and Trenches for Shrubs: Excavate circular pits with sides sloped inward. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation.
- B. Excavation of Pits and Trenches for Trees: Excavate circular pits with sides sloped inward. Install and compact approved soil mix at bottom of pit as shown on the Contract Drawings leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation.
1. Excavate approximately three times as wide as ball diameter.
- C. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1.
- D. Stock with Root Balls: Set trees and shrubs plumb and in center of pit or trench with top of root ball flush with adjacent finish grades.
1. Balled and Burlapped: Remove burlap and wire baskets from tops of root balls and partially 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.
 2. Container Grown: Carefully remove root ball from container without damaging root ball or plant.
 3. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.
- E. Organic Mulching: Apply 4-inch average thickness of organic mulch extending 12 inches beyond edge of planting pit or trench. Do not place mulch within 3 inches of trunks or stems.

**STRATFORD ARBORETUM
STRATFORD, CONNECTICUT**

3.3 TREE AND SHRUB PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape.

3.4 GROUND COVER AND PLANT PLANTING

- A. Set out and space ground cover and plants as directed by the Landscape Architect.
- B. Dig holes large enough to allow spreading of roots and backfill with planting soil.
- C. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- D. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- E. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.5 PLANTING BED MULCHING

- A. Mulch backfilled surfaces of planting beds and other areas indicated.
 - 1. Organic Mulch: Apply 4-inch average thickness of mulch, and finish level with adjacent finish grades. Do not place mulch against plant stems.

3.6 PLANT MAINTENANCE

- A. Tree and Shrub Maintenance: Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.
- B. Ground Cover and Plant Maintenance: Maintain and establish plantings by watering, weeding, fertilizing, mulching, and other operations as required to establish healthy, viable plantings.
- C. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

END OF SECTION 32 93 00

**STRATFORD ARBORETUM
STRATFORD, CONNECTICUT**

**SECTION 33 05 13
MANHOLES AND STRUCTURES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Modular precast concrete manhole sections with tongue-and-groove joints, covers, anchorage, and accessories.

1.2 RELATED SECTIONS

- A. Section 31 20 00 – Earth Moving
- B. Section 33 40 00 -- Storm Drainage Utilities

1.3 REFERENCE STANDARDS

- A. ASTM A48/A48M - Standard Specification for Gray Iron Castings 2003 (Reapproved 2016).
- B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- C. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections 2015a.
- D. ASTM C478M - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections (Metric) 2015a.
- E. ASTM C923M - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals (Metric) 2018.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Manhole Sections: Reinforced precast concrete in accordance with ASTM C478 (ASTM C478M), with resilient connectors complying with ASTM C923 (ASTM C923M).

2.2 COMPONENTS

- A. Lid and Frame: ASTM A48/A48M Class 30B Cast iron construction, machined flat bearing surface, removable lockable lid, closed lid design; H-20 loading; sealing gasket; lid molded with identifying name.
- B. Manhole Steps: Formed galvanized steel rungs; 3/4 inch diameter. Formed integral with manhole sections.
- C. Strap Anchors: Bent steel shape, galvanized to ASTM A123/A123M Grade specified for applicable material category.

**STRATFORD ARBORETUM
STRATFORD, CONNECTICUT**

2.3 CONFIGURATION

- A. Shaft Construction: Concentric with concentric cone top section; lipped male/female dry joints; sleeved to receive pipe sections.
- B. Shape: Cylindrical.
- C. Clear Inside Dimensions: As indicated.
- D. Design Depth: As indicated.
- E. Clear Lid Opening: As indicated.
- F. Pipe Entry: Provide openings as indicated.
- G. Steps: As required by code.

PART 3 – EXECUTION

3.1 MANHOLES

- A. Form bottom of excavation clean and smooth to correct elevation.
- B. Place concrete base pad, trowel top surface level.
- C. Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.
- D. Cut and fit for pipe.
- E. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour as required.
- F. Set cover frames and covers level without tipping, to correct elevations.
- G. Coordinate with other sections of work to provide correct size, shape, and location.

3.2 AREA DRAINS

- A. Install per manufacturer's recommendations.

3.3 DRYWELL

- A. Install per manufacturer's recommendations.

END OF SECTION 33 05 13

**STRATFORD ARBORETUM
STRATFORD, CONNECTICUT**

**SECTION 33 40 00
STORM DRAINAGE UTILITIES**

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 1.01A, entitled “Related Documents.”

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Storm drainage piping, fittings, and accessories.
 - 2. Storm drainage structures, Catch basins, Manholes, Area drains, Water Quality Units, and Outlet Control Structures.

1.3 RELATED SECTIONS

- 1. Section 31 20 00 – Earth Moving
- 2. Section 33 05 13 – Manholes and Structures

1.4 DEFINITIONS

- A. Bedding: Fill placed under, beside and directly over pipe, prior to subsequent backfill operations.

1.5 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials (AASHTO) M 252 – Standard Specification for Corrugated Polyethylene Drainage Pipe 2009 (Reapproved 2017).
- B. AASHTO M 294 – Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-MM (12- to 60-in.) Diameter 2017.
- C. American Society for Testing and Materials (ASTM) C76 – Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe 2018a.
- D. ASTM C76M – Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe (Metric) 2018a.
- E. ASTM C443 – Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets 2012 (Reapproved 2017).
- F. ASTM C443M – Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets (Metric) 2011 (Reapproved 2017).
- G. ASTM D2321 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications 2014.
- H. ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe and Fittings Material 2014.

**STRATFORD ARBORETUM
STRATFORD, CONNECTICUT**

PART 2 - PRODUCTS

2.1 STORM PIPE MATERIALS

- A. STORMCRETE® 24" Precast Porous Concrete Gutter. Underdrain will be required and shall be type required by per manufacturer.
- B. Plastic Pipe: ASTM D3350, High Density Polyethylene (HDPE) corrugated wall pipe with integrally formed smooth liner; inside nominal diameter as indicated on drawings, meeting the requirements of AASHTO M 252, Type S, for diameters between 3 inches and 10 inches and AASHTO M 294, Type S, for diameters between 12 inches and 60 inches, soil-tight, bell and spigot joints with rubber gaskets, with pipe and fittings manufactured from virgin PE compounds with cell classification 3254420C. Concrete Pipe shall be type and reinforced per CTDOT.
- C. PVC Sewer Pipe and Fittings, NPS 15 and Smaller: ASTM D 3034, SDR 35, with bell-and-spigot ends for gasketed joints with ASTM F 477, elastomeric seals.

2.2 PIPE ACCESSORIES

- A. Pipe Joints: Mechanical clamp ring type, stainless steel expanding and contracting sleeve, neoprene ribbed gasket for positive seal.
- B. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.
- C. Filter Fabric: Provide AASHTO M288 Class 2 Non-biodegradable, non-woven.
- D. Detectable Tape: Brightly colored marking tape imprinted with large letters.

2.3 DRYWELL, CLEANOUT, AND AREA DRAINS

- A. Lids and Drain Covers: Cast iron, hinged to cast iron frame.
 - 1. Drywell:
 - a. Drain basin as manufactured by United Concrete Products, Inc., or approved equal
 - 2. Cleanout:
 - a. As manufactured by Advanced Drainage Systems (ADS), or approved equal.
 - 3. Area Drain:
 - a. Drain basin as manufactured by United Concrete Products, Inc., or approved equal

2.4 MANHOLES

- A. Manhole Sections: Reinforced precast concrete in accordance with ASTM C478 (ASTM C478M), with resilient connectors complying with ASTM C923 (ASTM C923M).
 - 1. Components:

**STRATFORD ARBORETUM
STRATFORD, CONNECTICUT**

- a. Lid and Frame: ASTM A48/A48M Class 30B Cast iron construction, machined flat bearing surface, removable lockable lid, closed or inlet lid design; H-20 loading; sealing gasket; lid molded with identifying name.
- b. Manhole Steps: Formed galvanized steel rungs; 3/4 inch diameter. Formed integral with manhole sections.
- c. Strap Anchors: Bent steel shape, galvanized to ASTM A123/A123M Grade specified for applicable material category.

PART 3 - EXECUTION

3.1 TRENCHING

- A. See Section 31 20 00 – Earth Moving specification for additional requirements.
- B. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.2 INSTALLATION – PIPE

- A. Install pipe, fittings, and accessories in accordance with manufacturer's instructions. Seal watertight.
 - a. Plastic Pipe: Also comply with ASTM D2321.
- B. Lay pipe to slope gradients noted on utility drawings; with maximum variation from true slope of [1/8] inch in [10] feet.
- C. Connect to building storm drainage system, foundation drainage system, and utility/municipal sewer system.
- D. Install continuous trace wire 6 inches above top of pipe.

3.3 INSTALLATION – MANHOLES

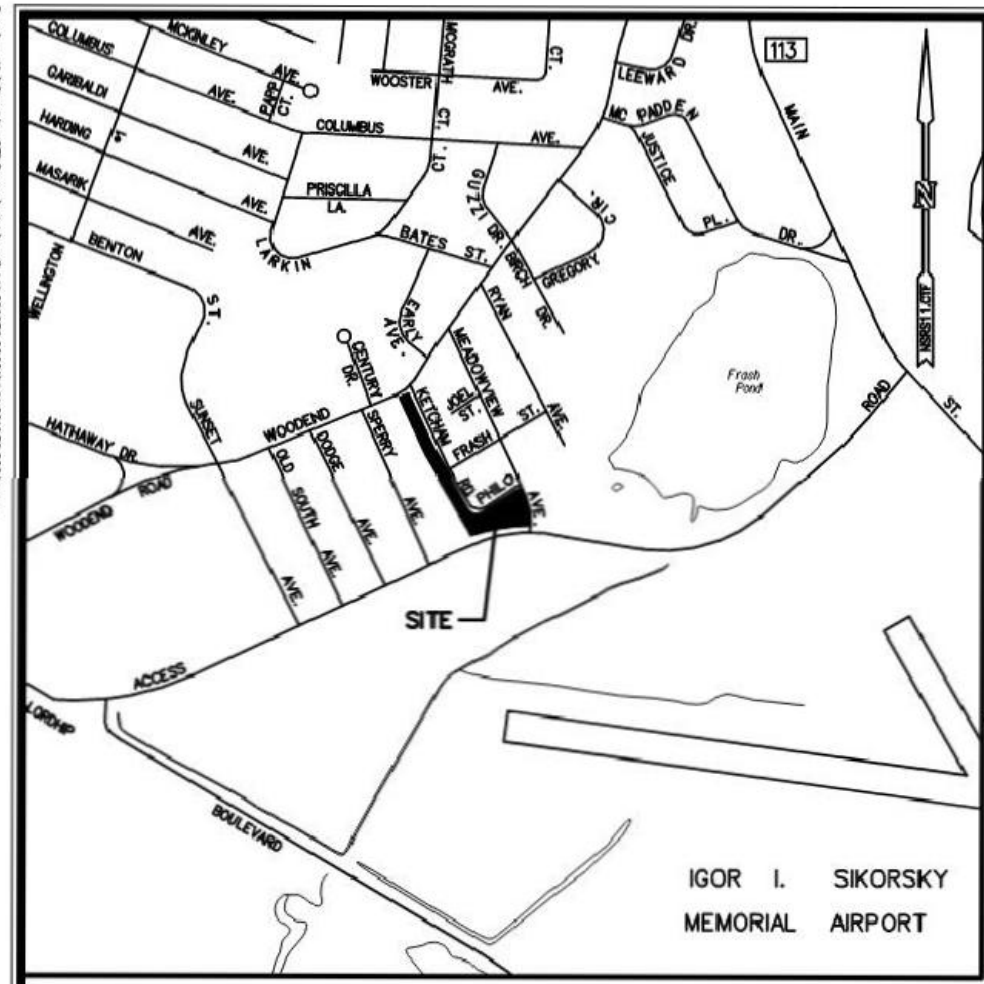
- A. Form bottom of excavation clean and smooth to correct elevation.
- B. Place concrete base pad, trowel top surface level.
- C. Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.
- D. Cut and fit for pipe.
- E. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour as required.
- F. Set cover frames and covers level without tipping, to correct elevations.
- G. Coordinate with other sections of work to provide correct size, shape, and location.

3.4 INSTALLATION – AREA DRAINS, DRYWELLS

- A. Install per manufacturer recommendations.

**STRATFORD ARBORETUM
STRATFORD, CONNECTICUT**

END OF SECTION 33 40 00



LOCATION MAP
SCALE: 1"=1000'

LEGEND

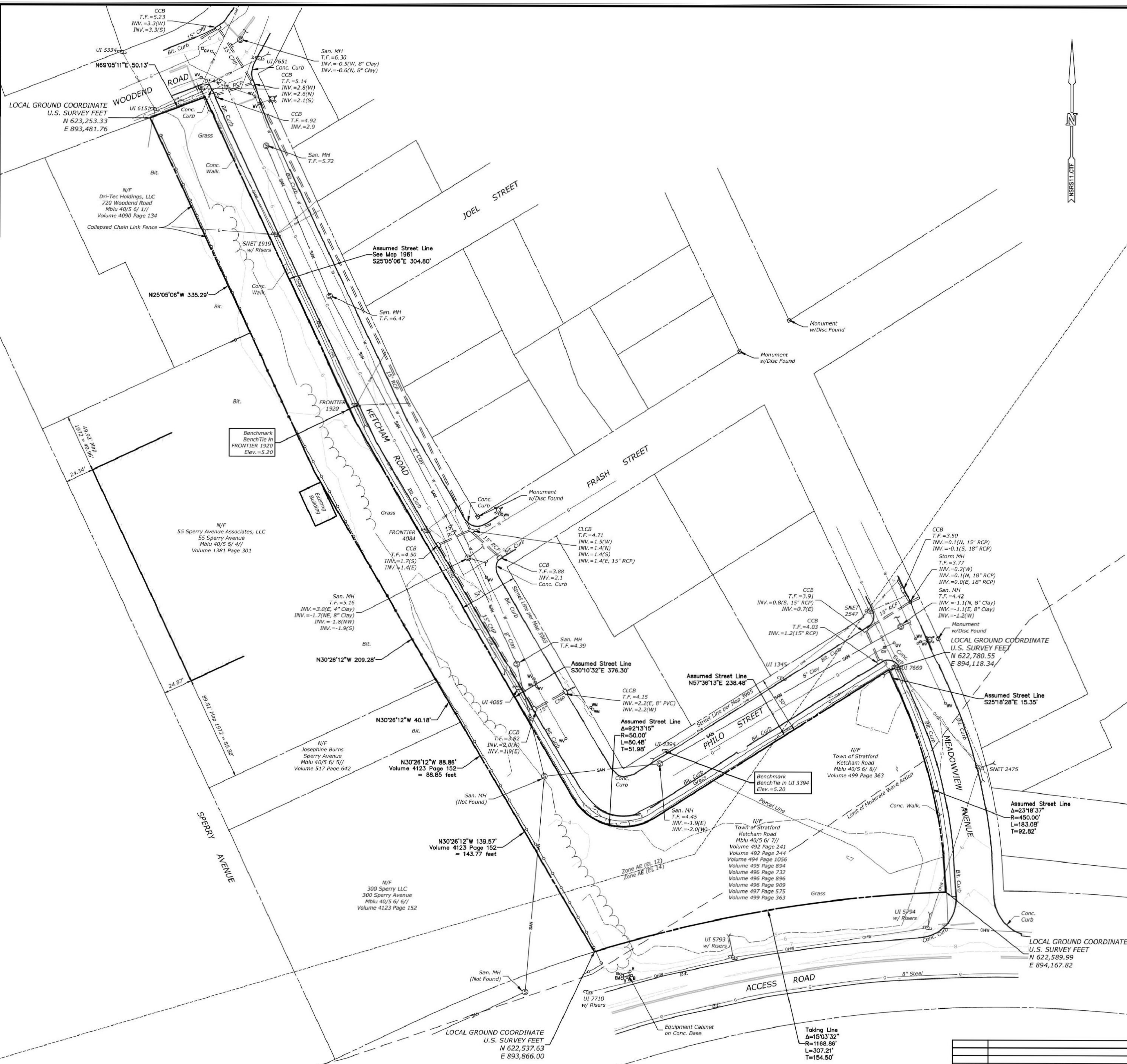
- STREET LINE
- PROPERTY LINE
- EASEMENT
- TRELINE
- HEDGEROW
- GUIDE RAIL
- CHAIN LINK FENCE
- CABLE LINE
- COMMUNICATION LINE
- ELECTRIC LINE
- GAS LINE
- OVER HEAD ELECTRIC
- OHW
- OVER HEAD WIRE
- SAN
- TEL
- W
- WATER LINE
- DRAINAGE MANHOLE
- SANITARY MANHOLE
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- WATER MANHOLE
- MANHOLE
- CATCH BASIN
- WATER METER
- WATER VALVE
- GAS VALVE
- POST
- VALVE
- UTILITY POLE
- SUPPORT POLE
- GUY WIRE
- HYDRANT
- SIGN
- MAILBOX
- DRILL HOLE
- MAGNAIL
- IRON PIPE
- IRON PIN
- MONUMENT FOUND
- PROPERTY CORNER TO BE SET

TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY
CORRECT AS NOTED HEREON.

jjurzynski

JEFFREY R. JURZYNSKI CT LS. #14202

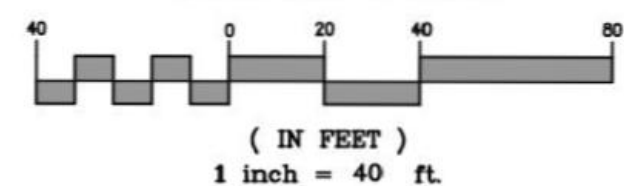
THIS MAP IS NOT VALID UNLESS ENDORSED BY AND EMBOSSED WITH
THE SEAL OF THE SIGNATORY.



NOTES:

- THIS SURVEY HAS BEEN PREPARED AS A PROPERTY SURVEY AND TOPOGRAPHIC SURVEY AS DEFINED IN REGULATIONS OF CONNECTICUT STATE AGENCIES MINIMUM STANDARDS OF ACCURACY, CONTENT AND CERTIFICATION FOR SURVEYS AND MAPS INCLUSIVE SECTIONS §§ 20-300B-1-20-300B-20 AND COMPLES WITH GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) POSITIONAL ACCURACY CLASS 2 CLASS CONFIDENCE LEVEL, HORIZONTAL ACCURACY CLASS A-2, VERTICAL ACCURACY CLASS V-5, AND TOPOGRAPHIC ACCURACY CLASS T-2. THE BOUNDARY DETERMINATION CATEGORY USED IS RESURVEY.
- COORDINATE SYSTEM (CONNECTICUT COORDINATE SYSTEM OF 1983):
 - A. NAME: UNITED STATES/STATE PLANE 1983.
 - B. ZONE: CONNECTICUT 0600.
 - C. DATUM: NAD 1983 (CONUS).
 - D. GLOBAL REFERENCE DATUM: NAD83(2011).
 - E. GLOBAL REFERENCE EPOCH: 2010.
 - F. GEOID: GEOID18 (CONUS).
 - G. GLOBAL PROJECT LATITUDE: N41°10'09.479856497".
 - H. GLOBAL PROJECT LONGITUDE: W73°08'09.654560426".
 - I. GLOBAL PROJECT HEIGHT: -92.1771.
 - J. GROUND SCALE FACTOR: 0.9999923509.
- VIRTUAL REFERENCE STATION (VRS) POINT POSITION USED:
 - A. CTDA GLOBAL COORDINATE NAD83(2011) AT EPOCH 2010 N41°03'57.069803668" W73°30'25.942219981" HEIGHT -43.5374 (METERS).
- GNSS OBSERVATION DATES: 01/08/2025 AND 01/09/2025.
- NORTH AMERICAN VERTICAL DATUM (NAVD 88) ORTHOMETRIC HEIGHTS WERE ESTABLISHED BY GNSS OBSERVATIONS AND VERIFIED TO NATIONAL GEODETIC SURVEY MARK LX0867.
- OWNERS OF RECORD: TOWN OF STRATFORD.
- AGGREGATE AREA = 79,345 SQUARE FEET = 1.821 ACRES.
- REFERENCE IS HEREBY MADE TO THE FOLLOWING MAPS ON FILE IN THE TOWN OF STRATFORD LAND RECORDS:
 - A. MAP 163 RECORDED AUGUST 24, 1906 TITLED "SOUND VIEW TERRACE" STRATFORD, CONN. BOSTON REALTY CO. SCALE 80 FEET TO 1 INCH BY SCOFFIELD AND FORD - SURVEYORS.
 - B. MAP 1267 RECORDED NOVEMBER 29, 1961 TITLED MAP SHOWING PARCELS OF LAND CITY OF BRIDGEPORT & TIMOTHY A. RYAN STRATFORD, CONN. SCALE 1 IN. = 40 FT. APRIL 1961 BY JOSEPH T. KASPER & SONS.
 - C. MAP 1961 RECORDED APRIL 9, 1976 TITLED URBAN RENEWAL AREA FRASH POND RENEWAL PROJECT CONN.-R-113 DISPOSITION MAP PARCELS 18, 19 & 19A STRATFORD, CONNECTICUT SCALE: 1"=40' JAN. 6, 1976 BY J. & D. KASPER & ASSOC.
 - D. MAP 1972 RECORDED MAY 19, 1976 TITLED SPERRY AVENUE STRATFORD, CONNECTICUT TOPOGRAPHIC SURVEY PREPARED FOR R.J.K. REALTY CO. 75 KETCHAM ROAD STRATFORD, CONNECTICUT DATE: FEB. 13, 1976 SCALE: 1"=20' REVISED MAY 14, 1976 REVISED MARCH 30, 1976 BY J. & D. KASPER & ASSOC.
 - E. MAP 3985 RECORDED JULY 9, 2020 TITLED LOT LINE REVISION MAP PREPARED FOR ESTATE OF WILLIAM ROBERT MILLER PHLO STREET ASSESSOR MAP 40.5 BLOCK 10 LOTS 1, 2, 3, 4, 5, 8 STRATFORD, CONNECTICUT MAY 3, 2019 SHEET 1 OF 1 DATE: DECEMBER 26, 2018 SCALE: 1"=20' PREPARED BY OCHMAN ASSOCIATES, INC.
- REFERENCE IS HEREBY MADE TO THE FOLLOWING PLANS OR MAPS TITLED:
 - A. CONNECTICUT STATE HIGHWAY DEPARTMENT PLAN FOR CONSTRUCTION OF VOUGHT-SIKORSKY PLANT ACCESS ROAD IN THE TOWN OF STRATFORD FROM STA. 274+00 TO STA. 121+99 LENGTH 9411.145 FT. SCALES PLAN 1 IN.=40 FT. PROFILE HOR. 1 IN.=40 FT. VERT. 1 IN.=4 FT. CROSS SECTIONS 1 IN.=5 FT. ALL ELEVATIONS ON THIS PROJECT ARE BASED ON U.S.C.&G.S. DATUM DEFENSE ACCESS ROAD PROJECT NO. DA-N-24(1) TO BE MAINTAINED BY THE TOWN OF STRATFORD APPROVED JUNE 3, 1942.
 - B. URBAN RENEWAL AREA FRASH POND RENEWAL PROJECT CONN.-R-113 DISPOSITION MAP PARCELS 20 & 21-A STRATFORD, CONN. SCALE: 1 IN.=40 FT. JULY 1975 BY J. & D. KASPER & ASSOC.
 - C. CONNECTICUT DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS RIGHT OF WAY MAP TOWN OF STRATFORD LORDSHIP BOULEVARD FROM THE BRIDGEPORT-STRATFORD TOWN LINE SOUTHEASTERLY 7,500 FEET SCALE 1"=80' DATE AUGUST 18, 1983 NUMBER 138-18 SHEET NO. 1 OF 2 AND 2 OF 2.
- THE SUBJECT PREMISES IS WITHIN COASTAL BOUNDARY AS DEPICTED ON THE FOLLOWING MAP WHICH REFERENCE IS HEREBY MADE TO TITLED:
 - A. COASTAL BOUNDARY STRATFORD, CONNECTICUT SCALE: 1:24,000 STATE OF CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION JANUARY 2013.
- THE SUBJECT PREMISES IS WITHIN ZONE AE (EL12) AND ZONE AE (EL14) AS DEPICTED ON THE FOLLOWING MAP WHICH REFERENCE IS HEREBY MADE TO TITLED:
 - A. NATIONAL FLOOD INSURANCE PROGRAM NFIP PANEL 0442G FIRM FLOOD INSURANCE RATE MAP FAIRFIELD COUNTY, CONNECTICUT (ALL JURISDICTIONS) PANEL 442 OF 626 MAP NUMBER 0901C0442G MAP REVISED JULY 6, 2013 FEDERAL EMERGENCY MANAGEMENT AGENCY.
- UNDERGROUND UTILITIES MAY NOT BE SHOWN. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS IF DEPICTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING AND OTHER DATA SUPPLIED BY RESPECTIVE UTILITY COMPANIES, GOVERNMENTAL AGENCIES AND/OR OTHER SOURCES. THE LOCATIONS ARE AMBIGUOUS. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE WHICH ARE UNKNOWN TO SLR INTERNATIONAL CORPORATION. THE EXISTENCE, SIZE AND LOCATION OF ALL SUCH FEATURES MUST BE DETERMINED AND VERIFIED IN THE FIELD BY THE APPROPRIATE AUTHORITIES PRIOR TO BEGINNING CONSTRUCTION, "CALL BEFORE YOU DIG" DIAL 811 OR 1-800-922-4455.
- THE SUBJECT PREMISES IS WITHIN THE VICINITY OF BRIDGEPORT-SIKORSKY AIRPORT (BRI) AND MAY BE SUBJECT TO THE REQUIREMENTS OF 14 CFR 77.9 CONSTRUCTION OR ALTERATION REQUIRING NOTICE.
- THE SUBJECT PREMISES ARE WITHIN RS-4 ONE-FAMILY RESIDENTIAL DISTRICT AND RM-1 MULTI-FAMILY RESIDENTIAL DISTRICT AS DEPICTED ON A MAP TITLED TOWN OF STRATFORD ZONING MAP BY METROCOG, CONNECTICUT METROPOLITAN COUNCIL OF GOVERNMENTS.

GRAPHIC SCALE



99 REALTY DRIVE
CHESHIRE, CONNECTICUT 06810
T: 203.271.1773
www.slrconsulting.com

PROPERTY SURVEY AND TOPOGRAPHIC SURVEY
STRATFORD COASTAL
BOTANICAL GARDEN AND ARBORETUM
KETCHAM ROAD
STRATFORD, CONNECTICUT
PREPARED FOR
TOWN OF STRATFORD, CONNECTICUT

SCALE: 1"=40'	DATE: JANUARY 16, 2025	JOB: 021936.00001
FIELD: JJ/KD/JR	DRAWN: JRJ	CHECK: MFM
DATE:	REVISION:	SHEET: 1 OF 1

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REMOVALS NOTES

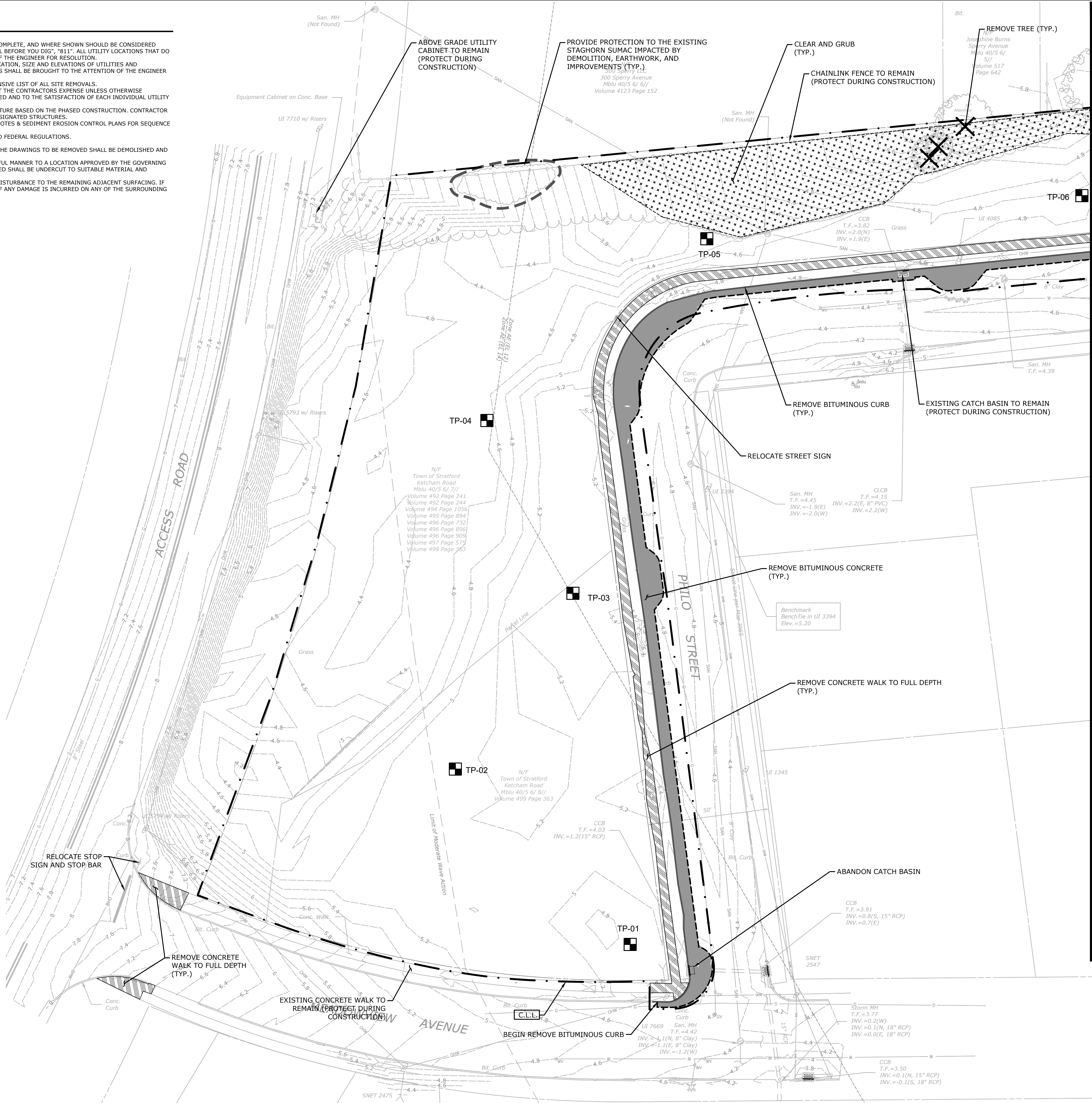
1. INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES HAS BEEN BASED UPON AVAILABLE INFORMATION AND MAY BE INCOMPLETE, AND WHERE SHOWN SHOULD BE CONSIDERED APPROXIMATE. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION. CALL "CALL BEFORE YOU DIG", "811". ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE PLANS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
2. INFORMATION SHOWN ON THESE EXISTING CONDITIONS AND REMOVALS DRAWINGS ARE TO BE USED FOR REFERENCE ONLY. THE LOCATION, SIZE AND ELEVATIONS OF UTILITIES AND STRUCTURES AND THE NATURE OF THEIR CONTENTS SHALL BE CONFIRMED IN THE FIELD PRIOR TO DEMOLITION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DEMOLITION.
3. THE INTENT OF THIS DRAWING IS TO IDENTIFY SPECIFIC DEMOLITIONS. HOWEVER, THE GRAPHIC LEGEND MAY NOT BE A COMPREHENSIVE LIST OF ALL SITE REMOVALS.
4. CONTRACTOR TO COORDINATE ALL PROPOSED UTILITY WORK WITH APPROPRIATE UTILITY COMPANIES. THIS WORK SHALL BE DONE AT THE CONTRACTORS EXPENSE UNLESS OTHERWISE PROVIDED FOR IN THE SPECIFICATIONS. THE CONTRACTOR SHALL REMOVE OR ABANDON THE EXISTING UTILITY SERVICES AS DIRECTED AND TO THE SATISFACTION OF EACH INDIVIDUAL UTILITY COMPANY.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE TIMING OF THE REMOVAL OF EXISTING UTILITIES, PAVEMENTS, AND OTHER INFRASTRUCTURE BASED ON THE PHASED CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO OBTAIN PERMITS REQUIRED AND COMPLY WITH ALL REGULATIONS IN THE DEMOLITION AND REMOVAL OF THE DESIGNATED STRUCTURES.
6. INSTALL SEDIMENT AND EROSION CONTROL PRIOR TO BEGINNING DEMOLITION WORK. REFERENCE THE GENERAL/ CONSTRUCTION NOTES & SEDIMENT EROSION CONTROL PLANS FOR SEQUENCE AND INSPECTION REQUIREMENTS.
7. ANY MATERIALS DEEMED UNSUITABLE BY THE ENGINEER SHALL BE DISPOSED OF OFF-SITE IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
8. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND FEES ASSOCIATED WITH THE HANDLING AND DISPOSAL OF ALL MATERIALS.
9. ALL EXISTING STRUCTURES, PAVEMENTS, SLABS, FOUNDATIONS, LIGHTING, STEPS, AND OTHER EXISTING FEATURES INDICATED ON THE DRAWINGS TO BE REMOVED SHALL BE DEMOLISHED AND REMOVED OFF-SITE BY THE CONTRACTOR.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL MATERIALS CREATED FROM ALL DEMOLITION IN A LAWFUL MANNER TO A LOCATION APPROVED BY THE GOVERNING AUTHORITIES SO THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL.
11. WHERE EXISTING PAVEMENT IS TO BE REMOVED, SAW CUT THE SURFACE LEAVING A UNIFORM AND STRAIGHT EDGE WITH MINIMUM DISTURBANCE TO THE REMAINING ADJACENT SURFACING. IF CONSTRUCTION RESULTS IN RAVELING OF THE SAW CUT SURFACE, RECUT BACK FROM THE RAVELED EDGE PRIOR TO RESTORATION. IF ANY DAMAGE IS INCURRED ON ANY OF THE SURROUNDING PAVEMENT, SIDEWALK, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR.
12. CONTRACTOR SHALL TAKE PRECAUTIONS SO AS TO NOT DISTURB EXISTING BURIED UTILITY LINES.

REMOVALS LEGEND

- BITUMINOUS CONCRETE REMOVAL
- CONCRETE REMOVAL
- CLEAR AND GRUB VEGETATION
- TREE REMOVAL
- SAWCUT LIMIT LINE
- BITUMINOUS CURB REMOVAL

LEGEND

- STREET LINE
- PROPERTY LINE
- EASEMENT
- MAJOR CONTOUR
- MINOR CONTOUR
- SPOT GRADE
- TREELINE
- HEDGEROW
- TREE/SHRUB
- GUIDE RAIL
- CHAIN LINK FENCE
- CABLE LINE
- COMMUNICATION LINE
- ELECTRIC LINE
- GAS LINE
- OVER HEAD ELECTRIC
- OVER HEAD WIRE
- SANITARY LINE
- TELEPHONE LINE
- WATER LINE
- EDGE OF PAVEMENT W/CURB
- DRAINAGE MANHOLE
- SANITARY MANHOLE
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- WATER MANHOLE
- MANHOLE
- CATCH BASIN
- WATER METER
- WATER VALVE
- GAS VALVE
- POST
- VALVE
- UTILITY POLE
- SUPPORT POLE
- GUY WIRE
- HYDRANT
- SIGN
- MAILBOX
- DRILL HOLE
- MAGNAIL
- IRON PIPE
- IRON PIN
- MONUMENT FOUND
- PROPERTY CORNER TO BE SET
- TEST PIT
- CONTRACT LIMIT LINE
- TREE PROTECTION



MATCHLINE - SHEET LA-2

SITE PLAN - DEMOLISHING AND REMOVAL

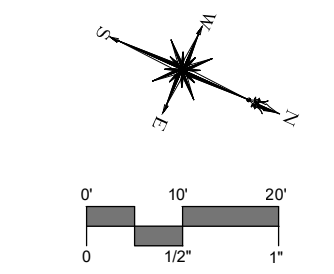
STRATFORD ARBORETUM

KETCHAM ROAD AND PHILO STREET
STRATFORD, CONNECTICUT

LM	LM	JCW
DESIGNED	DRAWN	CHECKED
SCALE		
1"=20'		
DATE		
MAY 29, 2026		
PROJECT NO.		
21936.00001		
SHEET NO.		
06 OF 19		
RM-1		
SHEET NAME		

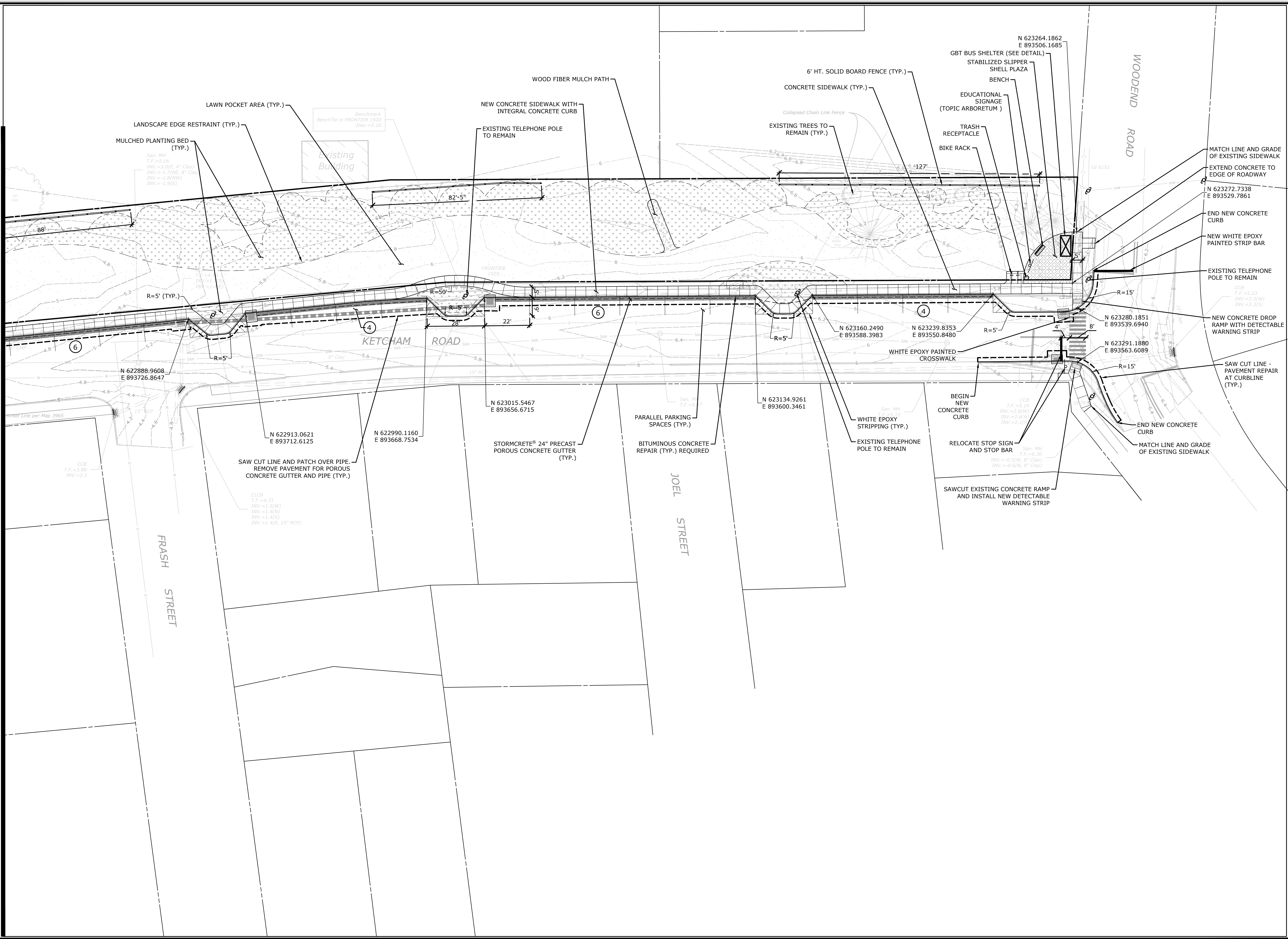
DESCRIPTION	DATE	BY
PLAN REVISIONS BASED ON TEST PIT RESULTS	07/15/2025	BD
100% CONSTRUCTION DOCUMENTS	03/16/2026	MEW
REVISION	06/27/2026	LM

BID DRAWINGS



LA-2 - 09 OF 19
21936.00001
MAY 29, 2025
1"=20'

MATCHLINE - SHEET LA-1



LM

DESIGNED

LM

DRAWN

JCW

CHECKED

1"=20'

MAY 29, 2025

21936.00001

09 OF 19

LA-2

SITE PLAN - LAYOUT

STRATFORD ARBORETUM

KETCHAM ROAD AND PHILO STREET

STRATFORD, CONNECTICUT

DESCRIPTION

DATE

BY

100% CONSTRUCTION DOCUMENTS

03/16/2026

MEW

BID DRAWINGS

195 CHURCH STREET, 7TH FLOOR

NEW HAVEN, CT 06511

203.344.7887

SLRCONSULTING.COM

LS-2 - 11 OF 19
DATE: 07/15/2025
PROJECT: 21936.00001
SHEET: 11 OF 19
SCALE: 1"=20'
DRAWN: JCW
CHECKED: JCW
PROJECT NO.: 21936.00001
SHEET NO.: 11 OF 19
SHEET NAME: LS-2

MATCHLINE - SHEET LS-1



195 CHURCH STREET, 7TH FLOOR
NEW HAVEN, CT 06511
203.344.7887
SLRCONSULTING.COM

DESCRIPTION

PLAN REVISIONS BASED ON TEST P/T RESULTS

100% CONSTRUCTION DOCUMENTS

DATE

07/15/2025

03/16/2026

BY

BD

MEW

SITE PLAN - LANDSCAPE

STRATFORD ARBORETUM

KETCHAM ROAD AND PHILO STREET
STRATFORD, CONNECTICUT

JCW

LM

JCW

DESIGNED

DRAWN

CHECKED

SCALE

1"=20'

DATE

MAY 29, 2026

PROJECT NO.

21936.00001

SHEET NO.

11 OF 19

SHEET NAME

LS-2

GRADING NOTES:

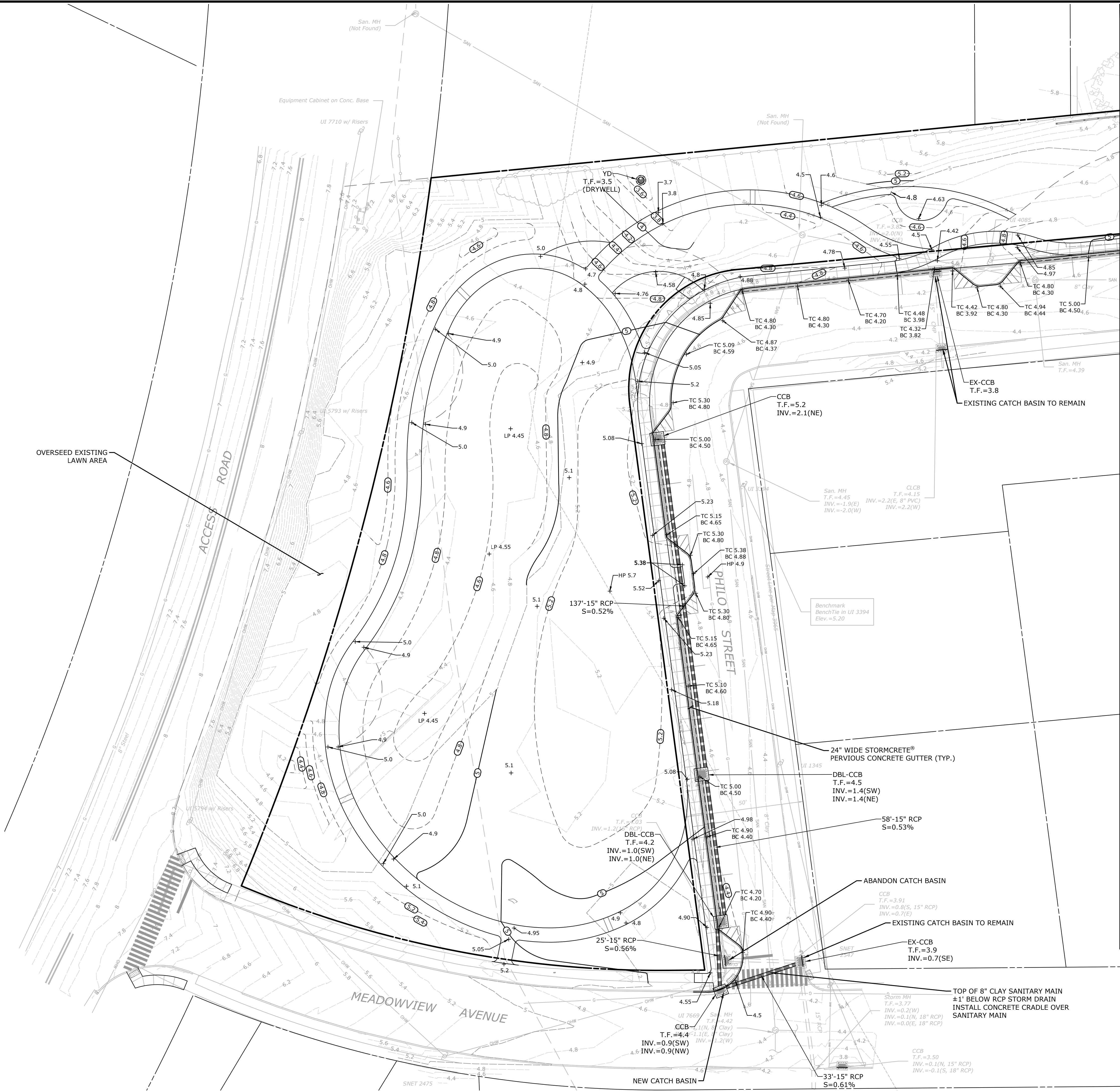
1. ACCESSIBLE ROUTE SLOPES SHALL BE 1:20 (5%) OR LESS AND THE CROSS SLOPES SHALL NOT EXCEED 1:50 (2%). CHANGES IN LEVELS SHALL NOT BE GREATER THAN 1/2 INCH, AND SLOPES SHALL NOT BE GREATER THAN 1:20 UNLESS RAMPS OR LIFTS ARE PROVIDED.
2. ALL RAMPS SHALL HAVE A MAXIMUM SLOPE OF 1:12.
3. ALL RAMP LANDINGS SHALL BE A MINIMUM OF 5'X5' CLEAR WITH A MAXIMUM SLOPE AND CROSS-PITCH OF 2%.
4. TAKE NOTE TO PROTECT ROOT ZONES OF EXISTING TREES ROOT ZONES DURING CONSTRUCTION.

GRADING LEGEND

- × 70.5 EXISTING SPOT ELEVATION
+ 70.5 PROPOSED SPOT ELEVATION
--- 70 --- EXISTING CONTOUR
--- 124 --- PROPOSED CONTOUR
TC 120.0 TOP OF CURB
BC 119.5 BOTTOM OF CURB

UTILITY LEGEND

- SAN --- SANITARY SEWER LINE
--- W --- WATER SERVICE
--- G --- GAS SERVICE
⊙ SANITARY MANHOLE
⊙ STORM MANHOLE
⊙ STORM CATCH BASIN
--- STORM DRAIN PIPE - SIZE VARIES



MATCHLINE - SHEET EX-2

SITE PLAN - GRADING & UTILITIES

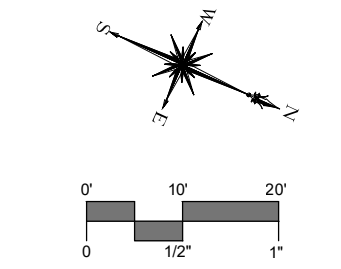
LM	LM	JCW
DESIGNED	DRAWN	CHECKED
SCALE		
1"=20'		
DATE		
MAY 29, 2026		
PROJECT NO.		
21936.00001		
SHEET NO.		
12 OF 19		
GU-1		
SHEET NAME		

STRATFORD ARBORETUM
KETCHAM ROAD AND PHILO STREET
STRATFORD, CONNECTICUT

BID DRAWINGS

DESCRIPTION	DATE	BY
PLAN REVISIONS BASED ON TEST PIT RESULTS	07/15/2025	BD
100% CONSTRUCTION DOCUMENTS	03/16/2026	MEW

SLR
195 CHURCH STREET, 7TH FLOOR
NEW HAVEN, CT 06511
203.344.7827
SLRCONSULTING.COM



SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

SEDIMENT AND EROSION CONTROL MEASURES AS DEPICTED ON THESE PLANS AND DESCRIBED WITHIN THE SEDIMENT AND EROSION CONTROL NARRATIVE SHALL BE IMPLEMENTED AND MAINTAINED UNTIL PERMANENT COVER AND STABILIZATION IS ESTABLISHED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL CONFORM TO THE "GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, CONNECTICUT - 2024, TOWN OF STRATFORD STANDARDS, AND IN ALL CASES BEST MANAGEMENT PRACTICES SHALL PREVAIL.

1. PURPOSE AND DESCRIPTION OF PROJECT

A.) CONSTRUCTION OF A BOTANICAL GARDEN AND ARBORETUM.

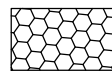
2. IDENTIFICATION OF EROSION AND SEDIMENT CONTROL CONCERNS

A.) CUTS AND FILLS ASSOCIATED WITH CONSTRUCTION.

EROSION CONTROL NOTES CONTRACTOR RESPONSIBILITIES

- SEDIMENT AND EROSION CONTROLS SHALL BE INSPECTED AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.5 INCH OR GREATER. A LOG OF SUCH INSPECTIONS SHALL BE MAINTAINED AT THE SITE.
- THE SEDIMENT AND EROSION CONTROL PLAN SHALL BE MODIFIED BY THE CONTRACTOR AT THE DIRECTION OF THE ENGINEER AND THE TOWN'S DESIGNATED REPRESENTATIVE AS NECESSITATED BY CHANGING SITE CONDITIONS
- INSPECTION OF THE SITE FOR EROSION SHALL CONTINUE FOR A PERIOD OF THREE MONTHS AFTER COMPLETION WHEN RAINFALLS OF ONE INCH OR MORE OCCUR.
- ALL DEWATERING WASTE WATERS SHALL BE DISCHARGED IN A MANNER WHICH MINIMIZES THE DISCOLORATION OF THE RECEIVING WATERS.
- THE SITE SHOULD BE KEPT CLEAN OF LOOSE DEBRIS, LITTER, AND BUILDING MATERIALS SUCH THAT NONE OF THE ABOVE ENTER WATERS OR WETLANDS.
- A COPY OF ALL PLANS AND REVISIONS, AND THE SEDIMENT AND EROSION CONTROL PLAN SHALL BE MAINTAINED ON-SITE AT ALL TIMES DURING CONSTRUCTION.
- ALL CATCH BASIN SUMPS SHOULD BE INSPECTED AFTER CONSTRUCTION COMPLETION AND SEDIMENT REMOVED. THE SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED LOCATION.

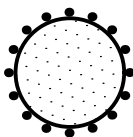
EROSION CONTROL LEGEND



CONSTRUCTION ENTRANCE (CE)



SEDIMENT FILTER FENCE (GSF)



TEMPORARY STOCKPILE SURROUND WITH
SEDIMENT FILTER FENCE (STK)



INLET PROTECTION (IP)



MATCHLINE - SHEET SE-2

95 CHURCH STREET, 7TH FLOOR
NEW HAVEN, CT 06511
203.344.7887
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DESCRIPTION	DATE	BY
PLAN REVISIONS BASED ON TEST PIT RESULTS	07/15/2025	BD
100% CONSTRUCTION DOCUMENTS	03/16/2026	MEW

SEDIMENT AND EROSION CONTROL PLAN

STRATFORD ARBORETUM

KETCHAM ROAD AND PHILO STREET
STRATFORD, CONNECTICUT

LM	LM	JCW
DESIGNED	DRAWN	CHECKED

1"=20'

MAY 29, 2026

DATE

21936.00001

PROJECT NO.

14 OF 19

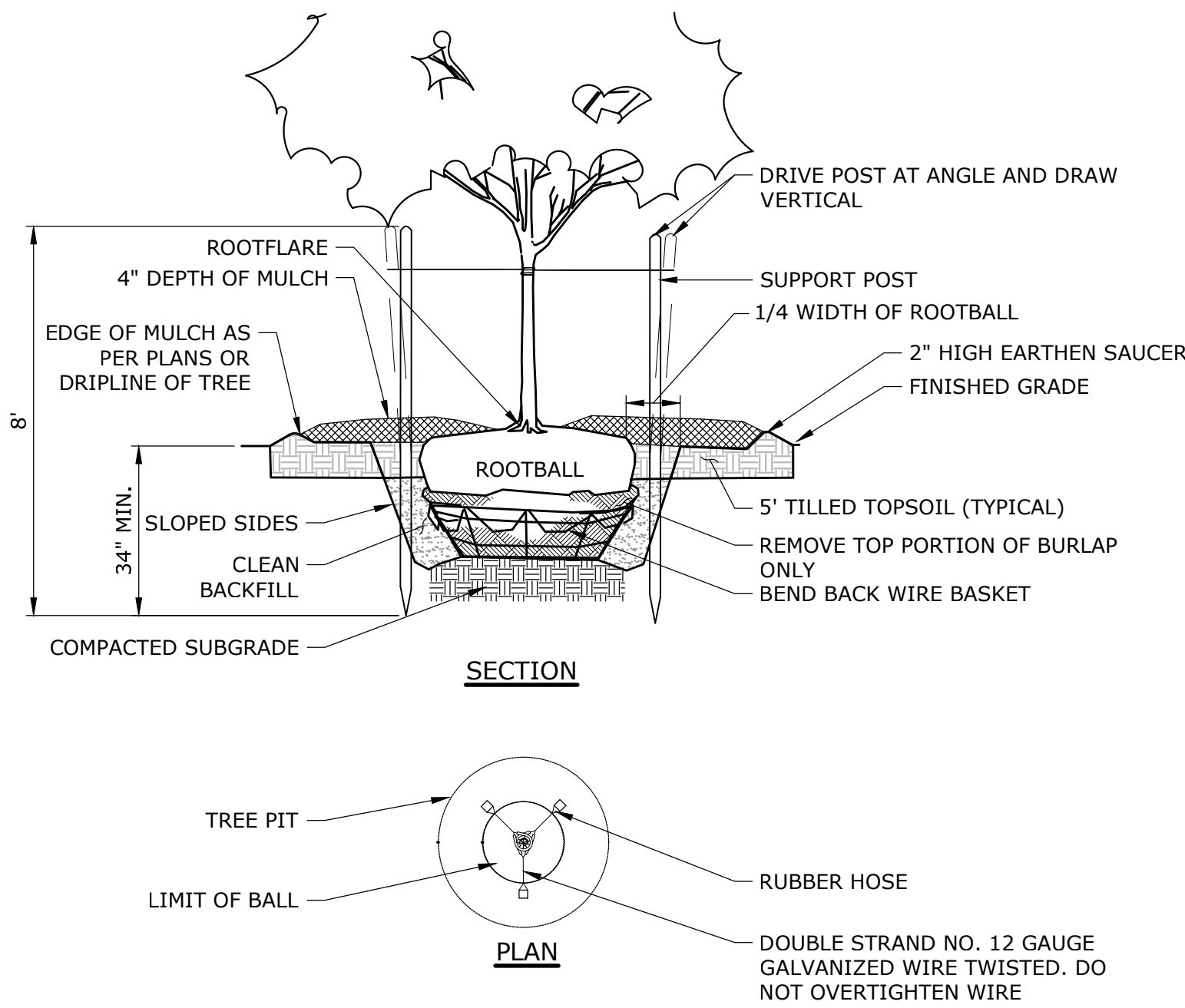
SHEET NO.

SE-1

SHEET NAME

BID DRAWINGS

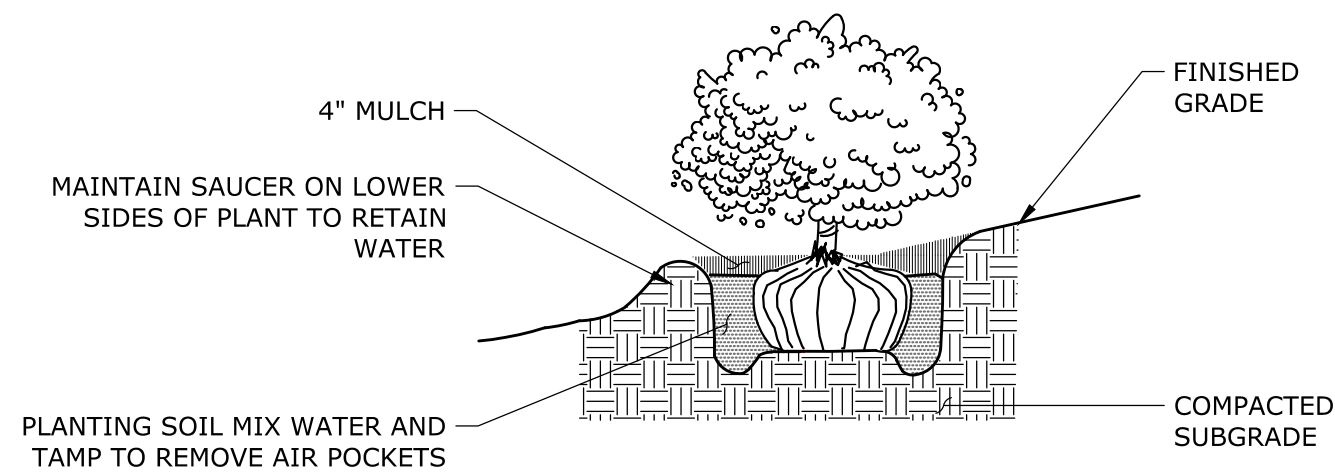
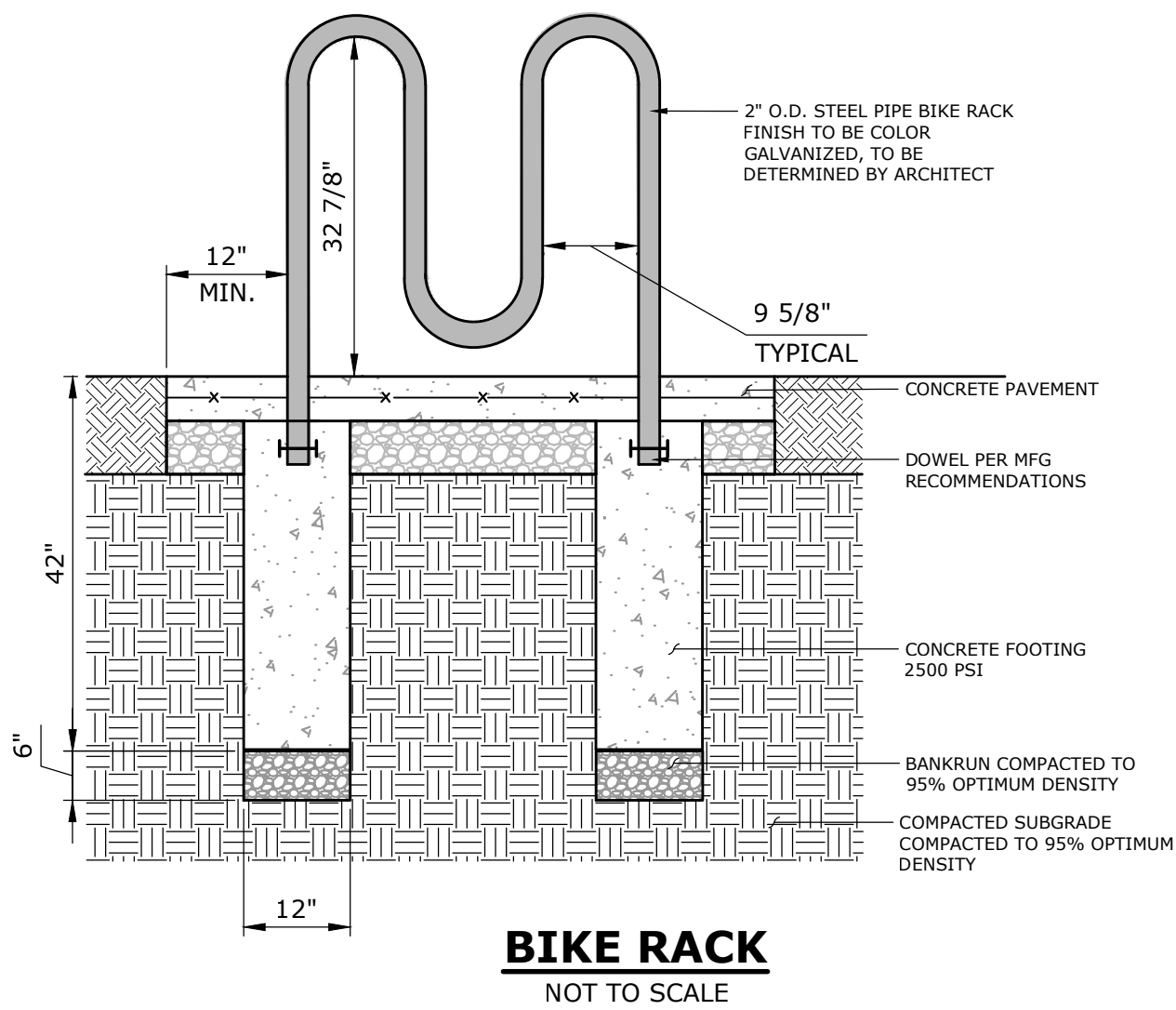
BRASCO INTERNATIONAL, INC. 32400 INDUSTRIAL DRIVE, MADISON HEIGHTS, MICHIGAN 48071
1-800-893-3665 WWW.BRASCO.COM



- NOTE:**
- SUPPORT STAKES SHALL BE REMOVED BY THE CONTRACTOR ONE YEAR AFTER INSTALLATION.

TREE PLANTING

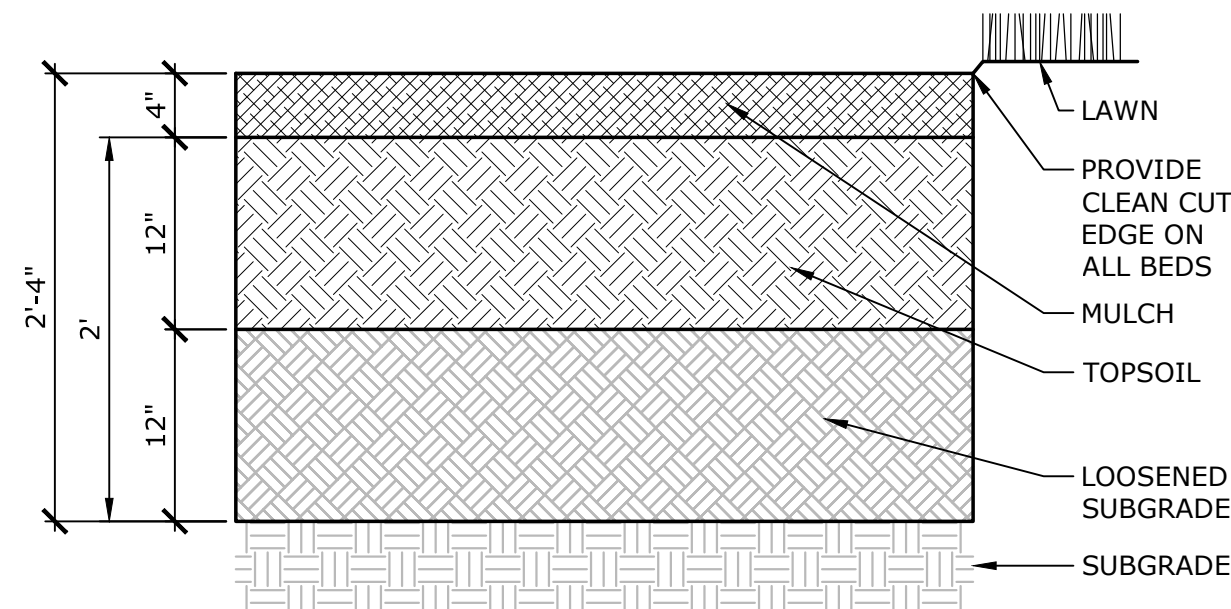
NOT TO SCALE



- NOTES:**
- UNLESS OTHERWISE DIRECTED SHREDDED MULCH SHALL BE PLACED TO A LIMIT OF ONE FOOT BEYOND THE CENTER OF THE OUTERMOST SHRUBS IN SHRUB BED.

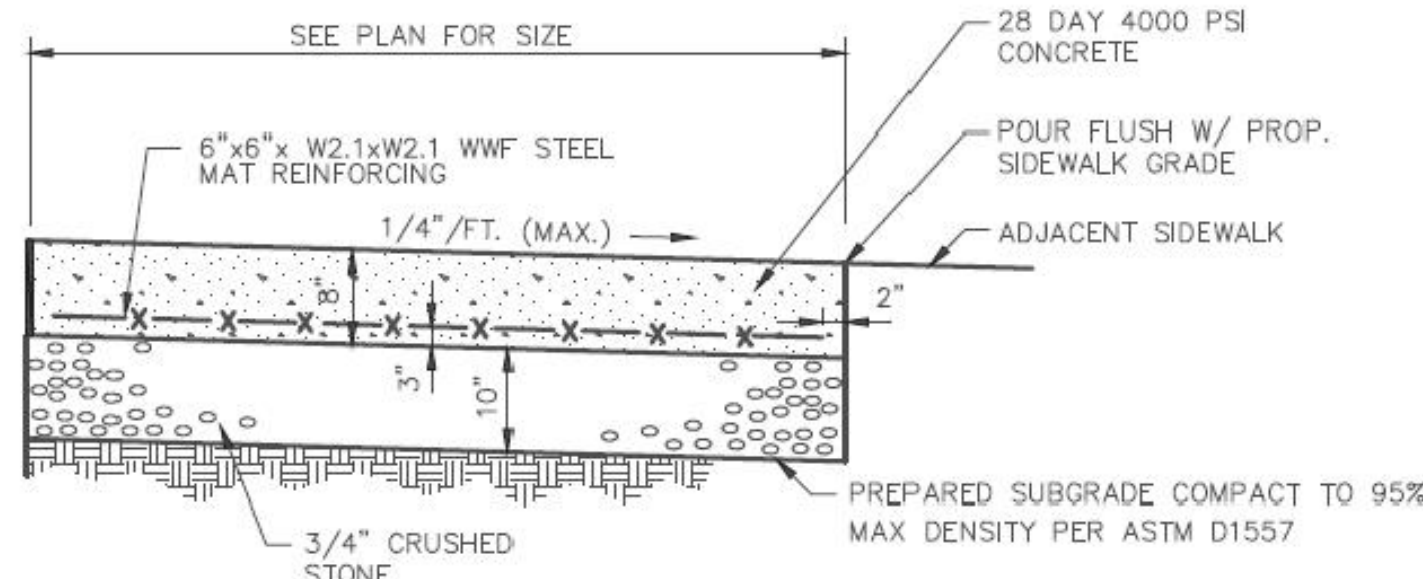
SHRUB PLANTING

NOT TO SCALE



PLANTING BED

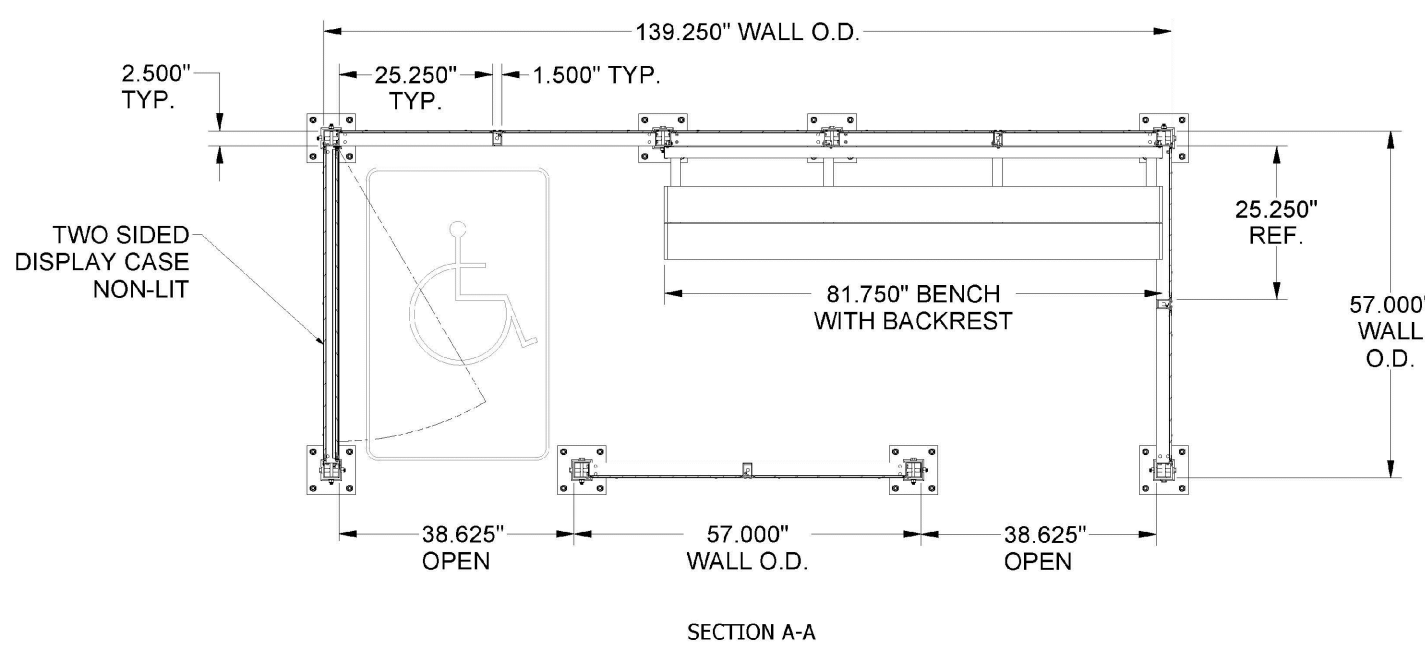
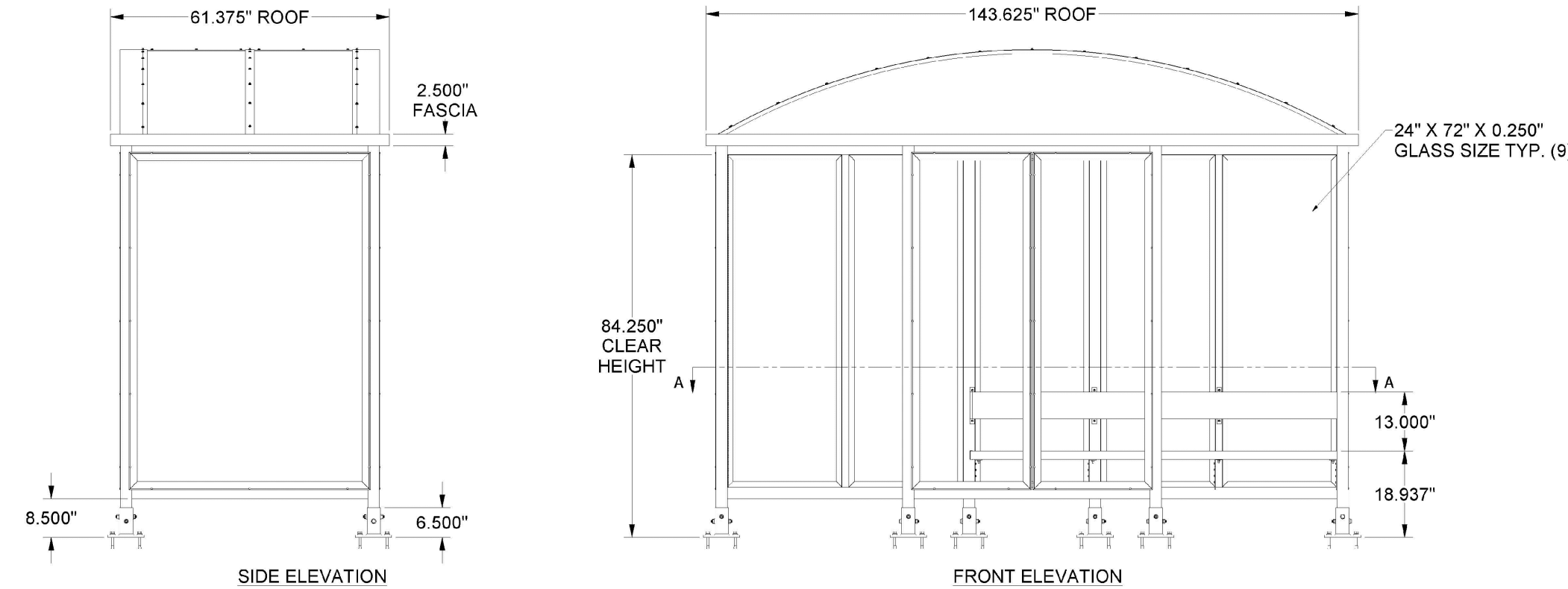
NOT TO SCALE



SECTION VIEW

BUS SHELTER CONCRETE PAD

NOT TO SCALE



QUANTITY (1) SHELTER

SPECIFICATIONS:

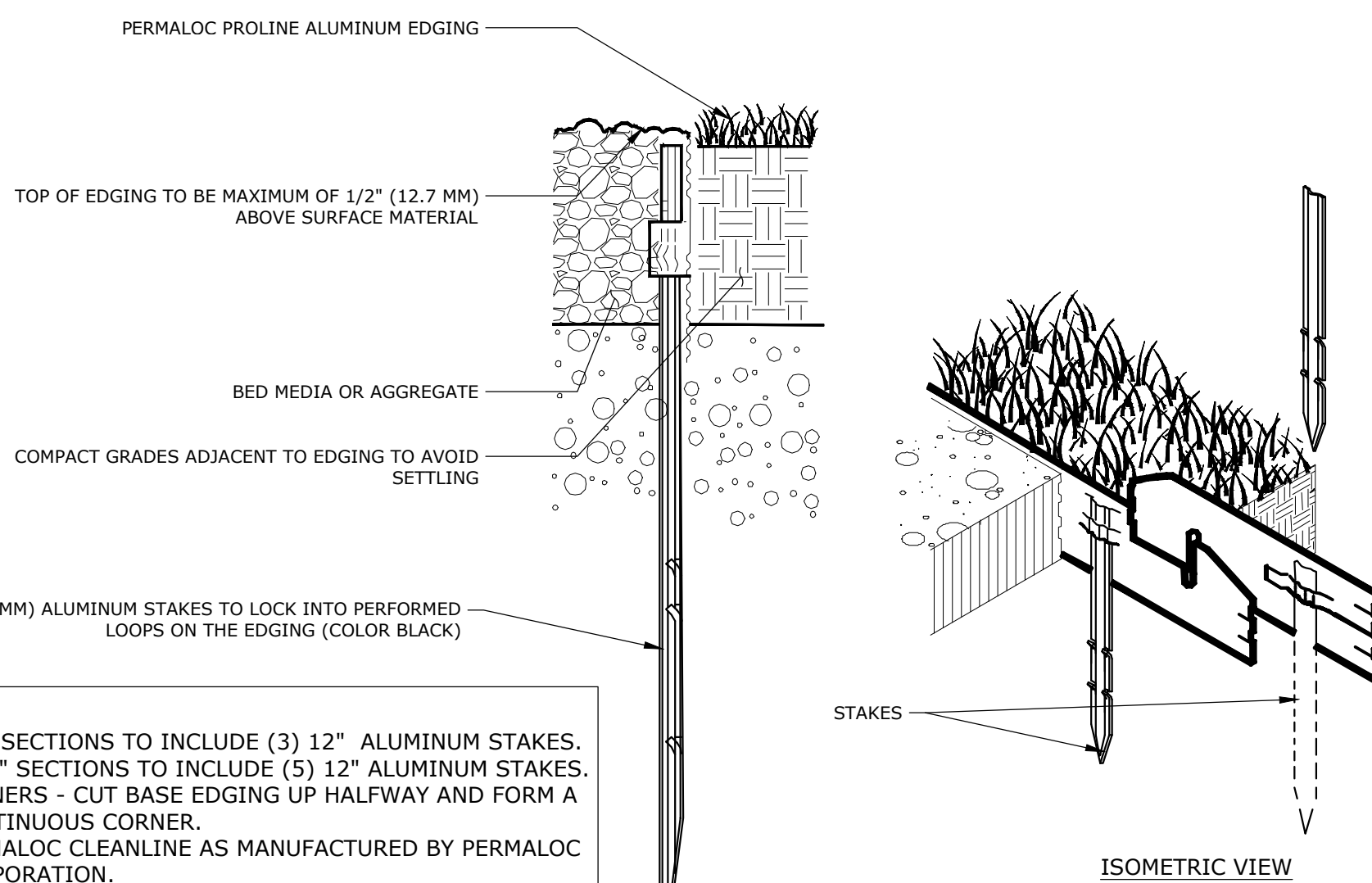
- CLEAR ANODIZED ALUMINUM STRUCTURE*
- 1/4" CLEAR TEMPERED SAFETY GLASS
- 4' X 6' TWO SIDED NON LIT DISPLAY CASE
- REVERSE BARREL ROOF WITH WHITE ACRYLIC GLAZING AND 2.5" FASCIA WITH INTEGRAL GUTTER
- PARTIAL LENGTH ALUMINUM BENCH WITH BACKREST
- CUSTOM HEAVY DUTY ANCHOR BOOTS

* DUE TO THE UNIQUE CHEMICAL PROCESS OF ANODIZATION, THERE IS NOT A TOUCH-UP PAINT AVAILABLE TO MATCH THE CLEAR ANODIZED FINISH



GBT BUS SHELTER

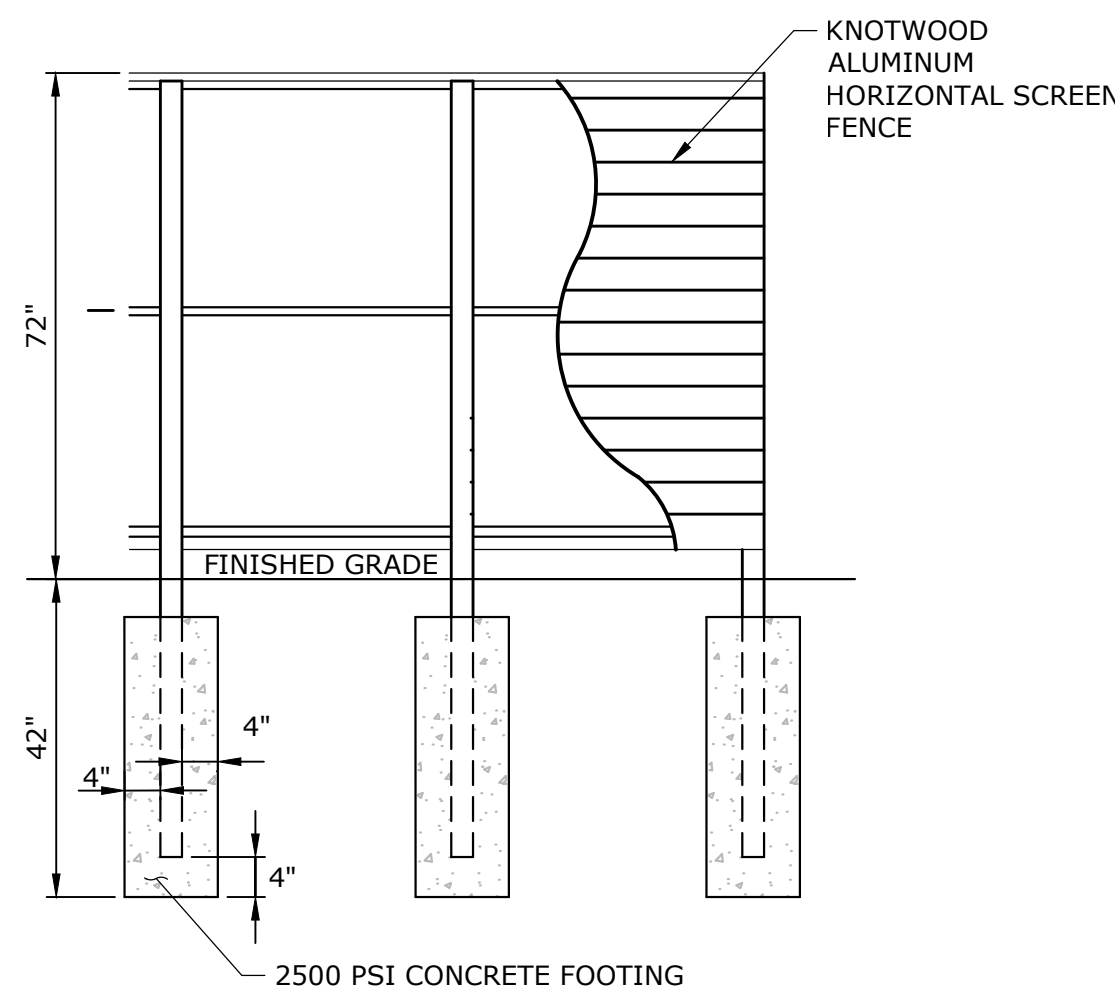
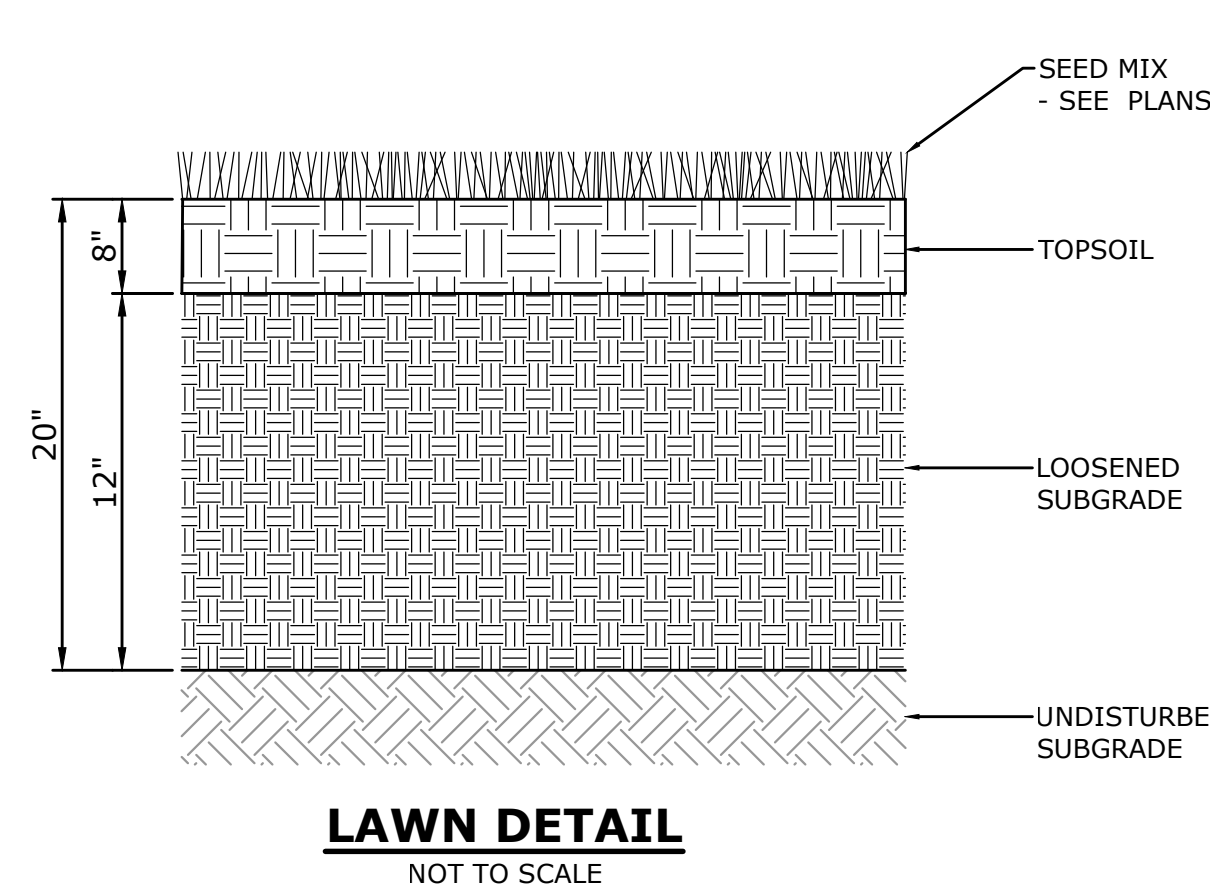
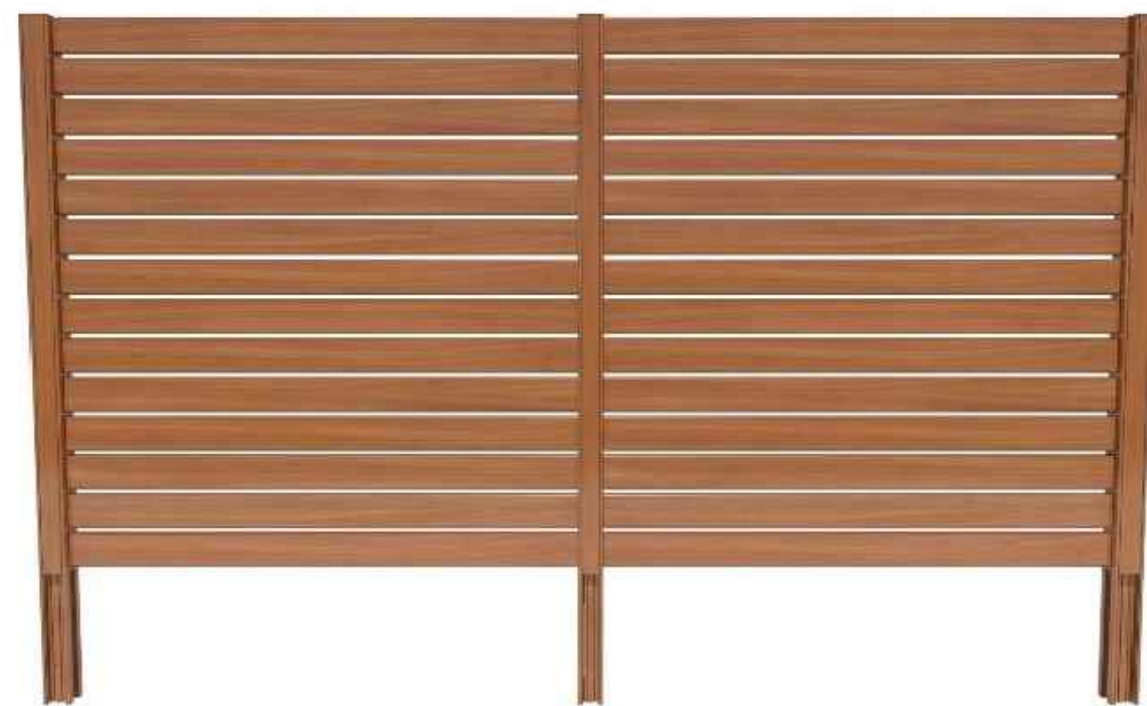
NOT TO SCALE



- NOTES:**
- 8'-0" SECTIONS TO INCLUDE (3) 12" ALUMINUM STAKES.
 - 16'-0" SECTIONS TO INCLUDE (5) 12" ALUMINUM STAKES.
 - CORNERS - CUT BASE EDGING UP HALFWAY AND FORM A CONTINUOUS CORNER.
 - PERMALOC CLEANLINE AS MANUFACTURED BY PERMALOC CORPORATION.

LANDSCAPE EDGE RESTRAINT

NOT TO SCALE

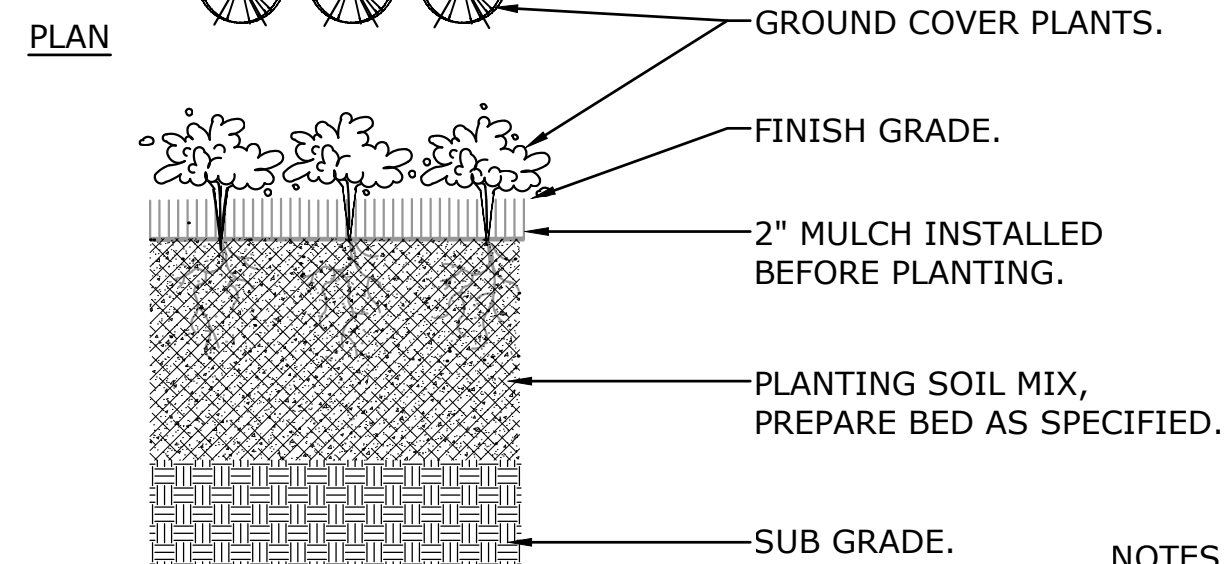


KNOTWOOD FENCING
AS MANUFACTURED BY: ALUMARCH.COM (888) 589-9771
STYLE: HORIZONTAL FENCE ASSEMBLY WITH SPACERS
COLOR: BROWN
CONTRACTOR TO COORDINATE MOUNTING DESIGN WITH MANUFACTURER

6' HT. SOLID BOARD FENCE

NOT TO SCALE

GROUND COVER SPACING TABLE			
PLANT SPACING "A"	ROW SPACING "B"	NO. OF PLANTS	AREA UNIT
6" O.C.	5.2"	4.61	1 SQ. FT.
8" O.C.	6.93"	2.6	1 SQ. FT.
10" O.C.	8.66"	1.66	1 SQ. FT.
12" O.C.	10.4"	1.15	1 SQ. FT.



SECTION

GROUND COVER/PERENNIAL PLANTING

NOT TO SCALE

- NOTES:**
- ALL GROUND COVER TO BE PLANTED IN TRIANGULAR PATTERN. SEE DETAIL PLAN AND GROUND COVER SPACING TABLE.

195 CHURCH STREET, 7TH FLOOR
NEW YORK, NY 10037
203.344.7887
SLRCONSULTING.COM

DESCRIPTION	DATE	BY
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SITE DETAILS

STRATFORD ARBORETUM

KETCHAM ROAD AND PHILO STREET
STRATFORD, CONNECTICUT

LM	LM	JCW
DESIGNED	DRAWN	CHECKED

AS NOTED

DATE MAY 29, 2026

PROJECT NO. 21936.00001

SHEET NO. 18 OF 19

SD-2

SHEET NAME

