PROJECT MANUAL

FOR

CONNOR'S PLACE PLAYGROUND IMPROVEMENTS

SOMERS, CONNECTICUT

DATE: FEBRUARY 4, 2026

TOWN OF SOMERS
600 MAIN STREET
SOMERS, CONNECTICUT 06071

Prepared by:

BSC GROUP

180 Glastonbury Boulevard
Glastonbury, CT 06033

Invitation to Bid
Town of Somers, Connecticut
Connor's Place Playground Improvements
FEBRUARY 4, 2026

You are invited to submit a sealed bid for providing materials and construction services for improvements to safety surfacing at Connor's Place Playground at 96 Field Road. The scope of this project includes all work necessary for the complete installation of site improvements and playground equipment.

Sealed bids will be received at the office of the Town Clerk at Town Hall, 600 Main Street, Somers, CT or electronically via email to Todd Rolland at trolland@somersct.gov until 11:00 am on March 18, 2026, at which time they will be publicly opened and read aloud. All bids received must be in a sealed envelope or electronically via email. Each envelope is to be marked on the front with the name of the bidder and project name: "Connor's Place Playground Improvements". Alternatively, emails should include the following in the subject line: Name of the bidder, and the project name: "Connor's Place Playground Improvements". No Bid will be accepted after the time set for the opening of Bids and no Bidder may withdraw his Bid within 60 days of opening thereof. The Town of Somers reserves the right to waive any informality or to reject any or all bids when such action is deemed in the best interest of the Town.

There is no scheduled pre-bid walk through. Contractors may visit the site prior to submission of their bid.

The Instruction to Bidders, Bid Form, Drawings, Specifications, and other contract documents may be obtained from the Town of Somers website at www.somersct.gov.
Plans and Specifications for the Playground Project will be available on February 18, 2026.

Any questions should be directed to BSC Group c/o Rachel Salch at rsalch@bscgroup.com. Requests for Information (RFI) to be given consideration must be received at least seven (7) days prior to date fixed for opening of bids. Interpretations will be made in the form of written addenda to the Contract Documents, which addend shall become a part of the Contract. Not later than five (5) days prior to date fixed for opening of bids, addenda will be provided on the Town website as listed above. Failure of any bidder to obtain any such addenda shall not relieve the bidder from any obligation under his proposal as submitted.

The bids are due at the office of the Town Clerk at Town Hall, 600 Main Street, Somers, CT or electronically via email to Todd Rolland at trolland@somersct.gov until 11:00 am on March 18, 2026. All bids must be clearly marked on the outside of a sealed envelope, "Connor's Place Playground Improvements" with the name of the bidder.

AN AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER
MBE's, WBE's, SBE's and SECTION 3 DESIGNATED ENTERPRISES
ARE ENCOURAGED TO APPLY

TABLE OF CONTENTS

CONNOR'S PLACE PLAYGROUND IMPROVEMENTS
SOMERS, CONNECTICUT

SPECIFICATIONS

DIVISION 32 - EXTERIOR IMPROVEMENTS

DRAWINGS

END OF SECTION

DIVISION 00
PROCUREMENT AND CONTRACTING REQUIREMENTS

Instructions to Bidders
Town of Somers, Connecticut
Connor's Place Playground Improvements

1. RECEIPT OF OPENING BIDS

   Sealed bids of proposals for performing the work described herein will be received at the office of the Town Clerk at Town Hall, 600 Main Street, Somers, CT or electronically via email to Todd Rolland at trolland@somersct.gov, until the time and date as shown on the Invitation to Bid.

   Copies of contract documents may be obtained from the Town of Somers website at www.somerct.gov.

   Proposals must be made on the forms furnished herein. Prior to the time and date designated for receipt of bids, a bid submitted may be modified or withdrawn by notice to the party receiving bids at the place designated for receipt of bids. A change shall be so worded as not to reveal the amount of the original bid.

   Withdrawn bids may be resubmitted up to the date and time designated for the receipt of bids provided that they are then fully in conformance with these instructions to bidders.

   Unless stated otherwise in the Advertisement or Invitation to Bid, the properly identified bids received on time will be opened publicly and will be read aloud. The owner shall have right to reject any or all bids, reject a bid not accompanied by a required bid security or by any data required by these Contract Documents, or reject a bid, which is in any way incomplete or irregular.

2. TAX EXEMPTION

   Purchase of materials for this project are exempt from Connecticut sales tax.

3. BID BOND

   A 5 % bid bond is required for this project. Any bid may be withdrawn by the bidder prior to the time scheduled for receipt of bids. The Bid Bond shall be duly executed by the Bidder as principal and having a surety thereon, which shall be acceptable to the Owner. No bid may be withdrawn within 60 days of the bid opening.

4. METHOD OF AWARD

   The contract will be awarded to the responsible bidder submitting the lowest bid complying with conditions of these Contract Documents. The bidder to whom the award is made will be notified at the Owner's convenience. The successful bidder shall execute and deliver to the Owner, within ten (10) days after receiving the Notice of Award, an Agreement in the form provided by the Owner, in such number as the Owner shall require.

The Owner also reserves the right to reject any or all bids, for any reason the Owner deems advisable, and to award the contract or contracts to any Contractors bidding on the work regardless of the amount of bid. It is intended that the contract or contracts will be awarded to the lowest responsible and eligible bidder possessing skill, ability and integrity necessary to provide faithful performance of the work.

5. INSURANCE

The bidder awarded this bid must provide a current certificate of insurance to the Office of the First Selectman prior to the commencement of work with the following requirements:

- Liability limits for bodily injury and persona injury $1,000,000 per occurrence.
- Liability limits for property damage including that caused by motor vehicle $1,000,000 per occurrence.
- Contractual liability $1,000,000 per occurrence.
- Owner's protective liability and property damage.
- Workers' compensation as required by Connecticut state statute.
- The Town of Somers is to appear as an additional insured on all certificate of insurance.
- All insurance is to be provided by a company authorized to issue such insurance in the State of Connecticut. The insurance company rating should be no less than A-VII by A.M. Best.
- Insurance may not be canceled or modified without sixty (60) days written notice by registered US mail to Office of the First Selectman, Town of Somers, 600 Main Street, Somers, CT 06071.

6. FAILURE TO EXECUTE CONTRACT

The bidder to whom the contract is awarded will be required to execute the Agreement within ten (10) calendar days from the date when the Notice of Award is delivered to the Bidder. In case of failure of the Bidder to execute the Agreement, the Owner may, at its option, consider the Bidder in default, in which case the bid security accompanying the proposal shall be called.

7. QUALIFICATION OF BIDDERS

It is the intent of the Owner to engage a general contractor with experience with the tolerances, scheduling and curing involved with the construction site improvements and installation of playground surfacing. As such, the successful bidder shall meet the following minimum requirements:

1. Qualified responsible general bidders shall have successfully completed at least five (5) similar projects within the past 3 years.
2. Qualified sub-contractors for playground surfacing: Qualified playground surfacing sub-contractors shall have completed a minimum of fifteen (15) similar surfacing projects within the past 5 years.

3. Qualifications shall be documented on the included Qualifications Form. Substitutes for this form shall not be accepted. The town may make such investigations as it deems necessary to determine the ability of the bidder to perform the work and the bidder shall provide the Town with any information requested for this purpose. The Town reserves the right to reject any bid if the investigation of such bidder indicates that the bidder is not qualified to complete the project or has previously failed to properly perform or complete on time any contract.

8. ACCEPTANCE AND AWARD OF CONTRACT

Upon receipt of acceptable signed Agreement, the Owner will, within ten (10) days, enter into and sign the Agreement unless it deems it not in the best interest of the Town.

The notice to proceed shall be issued within ten (10) days of the execution of the Agreement by the Owner. Should there be reasons why the notice to proceed cannot be issued within such period, the time may be extended by mutual agreement.

9. PAYMENT

The Owner shall pay the Contractor 95% of the Contract value upon completion of the work, minus any penalties for delay of completion of work. The Owner will withhold 5% retainage for a period of one calendar year from the project completion date. The owner will pay the remaining 5% after the one-year warranty period, provided that all defects have been corrected at the contractor's expense.

10. TIME OF COMPLETION

The Bidder must agree to commence work on or before the date specified in the Notice to Proceed and to faithfully complete the project within sixty (60) calendar days. The Owner may deduct $100 per day from payment due to the contractor for everyday beyond this time limit.

11. CONDITIONS OF WORK

At the date fixed for opening of bids, it will be presumed that each Bidder has made an examination of location and site work to be done under contract; has satisfied themself as to actual condition, requirements, and quantities of work; and has read and become thoroughly familiar with Contract Documents, including Contract Drawings and addenda.

12. PERMITS

All permits, and inspections are the responsibility of the contractor.

13. COORDINATION AND SCHEDULING OF WORK

Since some of the work under this project may occur while the park facility is in use, certain conditions regarding access, deliveries, personnel, noise control and any other restrictions will be at the discretion of the Owner or his/her designee.

14. DAMAGES

The Contractor shall pay and make good repair to all losses or damages arising from any cause connected with the Contract, and shall indemnify and hold harmless the Town Somers from any and all liability and responsibility of every nature and kind for any loss, damage or injury which any person(s) may sustain or suffer by reason of, or in any, arising out of the contract, and shall defend any suit of any nature which may be brought again the town or its agents, by reason of, or connected with, the work under the Contract, and shall pay all costs or expenses of every kind, character and nature whatever, accruing upon or arising out of the Contract.

15. CLEAN UP

Before the work is considered complete, the Contractor shall thoroughly clean all work areas, and remove all rubbish, debris, unused and surplus materials resulting from the work, leaving the premises in a condition satisfactory to the Owner.

16. CONNECTICUT COMMISSION OF HUMAN RIGHTS

This project is subject to the requirements of the Connecticut Commission on Human Rights (CHRO).

The contractor who is selected to perform this project must comply with CONN. GEN. STAT. §§ 4a-60, 4a-60g, and 46a-68b through 46a-68f.

State law requires a minimum spending allocation goal of twenty-five percent (25%) of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of Conn. GEN. STAT. § 4a-60g. (25% of the total state-funded value with DAS-certified Small Businesses and 6.25% of the total state-funded value with DAS-certified Minority-, Women-, and/or Disabled-owned Businesses.) The contractor must demonstrate a good-faith effort to meet the spending allocation goals.

CONNOR'S PLACE PLAYGROUND IMPROVEMENTS BASE BID SCHEDULE	
ITEM #	**ITEM DESCRIPTION IN WORDS AND FIGURES**
1	**SITE PREPARATION** The work under this item shall include all personnel and equipment necessary for mobilization and administrative costs including bonding; the movement of all the contractor's storage facilities; safety fencing, temporary signs, site security features; transport of equipment to and from the project site; temporary toilet facilities; necessary daily cleanup; construction staking and layout; and the removal of safety surfacing and subgrade; storm drainage, and materials encountered incidental to construction as described in the Contract Drawings and Technical Specifications for the lump sum cost of: Lump Sum ($) Written figures
2	**SEDIMENTATION AND EROSION CONTROL** The work under this item shall include all materials, equipment and labor for the installation and maintenance of a construction entrance pad and sedimentation and erosion controls, including but not limited to construction entrance, sediment filter fence, hay bales, and inlet protection required either by the plans, or Town staff or assigned representative, in accordance with the Contract Drawings and Technical Specifications for the lump sum cost of: Lump Sum ($) Written figures
3	**EARTHWORK AND GRADING** The work under this item shall include all materials, equipment and labor to perform necessary grading operations as shown on the Contract Drawings and described in the Technical Specifications. Work under this item shall include all fine grading brought to the subgrade elevation required prior to the application of stone base material, processed stone or topsoil as shown in the contract documents. This work includes any importation of materials or removal of materials from the site as required to achieve proposed subgrade elevations for the lump sum cost of: Lump Sum ($) Written figures
4	**PLAYGROUND INSTALLATION AND PLAYGROUND SURFACING** The work under this item shall include all materials, equipment and labor to receive delivery and install playground surfacing; all required bases, footings or slabs; and all other associated work shown on the Contract Drawings and as specified in the Technical Specifications for the lump sum cost of: Lump Sum ($) Written figures

CONNOR'S PLACE PLAYGROUND IMPROVEMENTS UNIT PRICING	
ITEM #	**ITEM DESCRIPTION IN WORDS AND FIGURES**
1	**Additional P.I.P. Rubber Safety Surfacing** The work under this item shall include additional removal of existing surfacing and subgrade; installation of subbase material, drainage, and safety surfacing; and all other associated work as shown and in accordance with the Contract Drawings and Technical Specifications for the price per square foot: Price per SF ($)
2	**Additional Engineered Wood Fiber Safety Surfacing** The work under this item shall include additional removal of existing surfacing and subgrade; installation of subbase material, drainage, and safety surfacing; and all other associated work as shown and in accordance with the Contract Drawings and Technical Specifications for the price per square foot: Price per SF ($)
3	**Additional Safety Surfacing Matting** The work under this item shall include additional removal of existing surfacing; installation of safety matting; and all other associated work as shown and in accordance with the Contract Drawings and Technical Specifications for the price per square foot: Price per SF ($)

Submission of prices on all Bid Items and Unit Pricing is **MANDATORY** and failure to provide such pricing shall render the bid non-responsive and subject to rejection by the Town.

All bid items shall include all costs necessary to perform the work and the costs for all materials, equipment, tools, labor and work incidental thereto, including profit and overhead.

All items in the Bid Form shall include all applicable taxes, fees and other incidental costs. Proposer's must fill in all blank spaces on the Bid Form and must summit a price for every item.

Proposer's must fill in all blank spaces on the Bid Form, including without limitation lump sum prices, unit prices, extended prices and total prices, as requested therein, or the Proposal will not be considered and shall be void. The price of each item on the form shall be stated in format requested.

Prices are to be written in words and figures. In the event of mathematically incorrect calculations of individual items or totals, the mathematically correct amount using any estimated quantities and/or unit prices shall govern in determining the Bid pricing. In case of a discrepancy in prices, the bid amount in words shall prevail.

The undersigned also agrees that any quantities indicated are for price comparison purposes only and are not represented to be actual quantities to be procured and/or required for completion of the Project.

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

Respectfully submitted by:

_____	_____
Business/Corporate Name (Print or Type)	Signature of Authorized Official (Print or Type)
	_____
	Printed Name of Authorized Official (Print or Type)
	_____
	Title of Authorized Official (Print or Type)

Proposer shall provide Proposer's Contact Information below:

_____	_____
Business Address: (Print or Type)	Business Fax Number: (Print or Type)
_____	_____
City, State, Zip Code: (Print or Type)	Business Mobile Number: (Print or Type)
_____	_____
Business Telephone Number: (Print or Type)	Business Email Address: (Print or Type)

Note: If the Proposer is a corporation, indicate State of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses, if different from business address.

END OF BID FORM

BIDDER'S STATEMENT OF QUALIFICATIONS
(To be returned with Bid)

All questions must be answered and the data given must be clear and comprehensive. The cover sheet must be notarized. If necessary, questions may be answered on separate sheets. Contractor may submit any additional information he desires.

Attachments:

1. Complete the attached References Form.

Information Required (*type or print clearly in blue or black ink*)

1. Name of Contractor.

_____

2. Permanent main office address.

_____

_____

_____

3. When were you organized (month/year): _____

4. How many years have you been engaged in the contracting business under your present firm or trade name?

_____years

5. If a corporation, indicate the following:

   Date of Incorporation: _____ State or Incorporation: _____

   President (or other chief executive as applicable): _____

6. If a Partnership, indicate the following:

   Date of Organization: _____

   Type of Partnership: _____

Names and Addresses of Partners/Officers:

1. _____ 2. _____

_____ _____

_____ _____

3. _____ 4. _____

_____ _____

_____ _____

5. _____ 6. _____

_____ _____

_____ _____

6. General character of work performed by your company.

_____

_____

_____

_____

_____

7. Have you ever failed to complete a project? If yes, identify the project(s) and provide an explanation.

_____

_____

_____

_____

_____

8. Have you ever defaulted on a contract? If yes, identify the project(s) and provide an explanation.

_____

_____

_____

_____

_____

9. Contracts on hand: (Show the contract amount of each contract and the anticipated date of completion; attach additional sheets if necessary.)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

10. List your major equipment available for this Contract.

_____

_____

11. List the work to be performed by subcontractors and summarize the dollar value of each subcontract.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

12. Do you have adequate resources to complete the project within the required schedule and/or by the required completion date? Yes ☐ No ☐

13. Complete the attached **References Form** to list (at a minimum) references for projects completed, surety company reference, and bank reference.

14. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Town?\ Yes ☐ No ☐

The undersigned hereby authorizes and requests any persons, firm, or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated at _____this _____ day of _____, 20_____,

_____
(Name of Bidder)

By: _____

Title: _____

State of _____)
SS:
County of _____)

_____ being duly sworn, deposes and

says that he is _____ of

and that the answers to the foregoing questions and all statements therein are true and correct

and sworn under penalties of perjury.

Subscribed and sworn to before me this _____ day of _____ 20____.

(Notary Seal)

_____
(Notary Signature)

My Commission Expires:_____

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER
(To be returned with Bid)

State of _____

County of _____

_____, being first duly sworn, deposes and says that:

1. They are _____ of

   _____, the Bidder who has submitted the attached bid;

2. They are fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such Bid;

3. Such Bid is genuine and is not a collusive or sham Bid;

4. Neither the said Bidder, nor any of its officers, partners, owners, representatives, employees, or parties in interest, including this affiant has in any way colluded, conspired, connived or agreed, directly or indirectly with any other bidder, firm or person to submit a collusive or sham bid in connection with the contract for which the attached bid has been submitted or refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached bid or of any other bidder, or to fix any overhead, profit, or cost element of the bid price or the bid price of any bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ (Owner), or any other person interested in the contract; and

5. The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

_____
Signature

_____
Printed Name

_____
Title

Sworn and subscribed before me on this

_____ day of _____, 20 _____.

_____
Commissioner of the Superior Court or Notary Public

(Notary Seal)

_____
My Commission Expires

AIA® Document A101™ – 2007

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

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

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

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

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

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

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

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

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

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

ARTICLE 2 THE WORK OF THIS CONTRACT

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

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

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

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than
( ) days from the date of commencement, or as follows:
(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of Work	Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

ARTICLE 4 CONTRACT SUM

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

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

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

Item	Units and Limitations	Price per Unit ($0.00)

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

Item	Price

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

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

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than ( ) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

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

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

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

.1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of percent (%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction;

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

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

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

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

.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)

.2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:
(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

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

§ 5.2 Final Payment

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

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment; and

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

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

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows:
(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2007

☐ Litigation in a court of competent jurisdiction

☐ Other: *(Specify)*

ARTICLE 7 TERMINATION OR SUSPENSION

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

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

ARTICLE 8 MISCELLANEOUS PROVISIONS

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

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

§ 8.3 The Owner's representative:
(Name, address and other information)

§ 8.4 The Contractor's representative:
(Name, address and other information)

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

§ 8.6 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

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

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

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

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

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

Section	Title	Date	Pages

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

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

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

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

.1 AIA Document E201™–2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:

.2 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 INSURANCE AND BONDS

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

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201–2007.)

Type of Insurance or Bond	Limit of Liability or Bond Amount ($0.00)

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

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

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

BID BOND

KNOW ALL MEN BY THESE PRESENTS,

That we, _____, hereinafter called the Principal,

of _____, as Principal,

and, _____hereinafter called Surety,

a corporation organized and existing under the laws of the State of_____, and duly authorized to transact a surety business in the State of Connecticut, as Surety, are held and firmly bound unto the Owner, as Obligee, in the penal sum of ten(10) percent of the amount of the bid set forth in a proposal hereinafter mentioned, "_____", in _____, Connecticut, dated _____.

lawful money of the United States of America, for the payment of which, well and truly to be made to the Obligee, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, That, whereas the Principal has submitted or is about to submit a proposal to the Obligee related to a contract for "_____", dated_____.

NOW, **THEREFORE**, if the said contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the said contract in writing with the Owner and give the required bonds, with surety acceptable to the Obligee, or if the Principal shall fail to do so, pay to the Obligee the damages which the Obligee may suffer by reason of such failure not exceeding the penalty of bond, then this obligation shall be void, otherwise to remain in full force and effect,

SIGNED, SEALED AND DELIVERED this _____ day of _____, 2026

_____	_____
Principal's Signature	Surety
_____	_____
(Print Name)	Its attorney in fact
_____	_____
Company Name	(Print name)

PERFORMANCE BOND

Know all men by these presents

THAT _____of the Town of _____, County of_____, and State of _____, as Principal (hereinafter called the Principal), and _____

(a surety company authorized to transact business in the State of Connecticut) as Surety (hereinafter called the Surety) are held and firmly bound unto _____ with offices located at _____ in the _____**, Connecticut** (hereinafter called the Obligee) in the full penal sum of:

_____

Amount in Words

($_____) Dollars,

lawful money of the United States, to be paid to said Obligee, to which payment well and truly to be made and done, the said Principal binds himself, his heirs, executors, administrators and assigns (or itself, its successors and assigns), and the said Surety binds itself, its successors and assigns jointly and severally firmly by these presents.

Signed, sealed and delivered this_____ _day of _____A.D. _____.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT

WHEREAS said Principal will enter into a certain written contract with said Obligee, to be dated the _____ day of _____A.D._____, which written contract shall

provide for the following:

which written contract, which contract, including any hereafter made extension, modification or alteration thereof, is hereby referred to, incorporated in and made a part of this bond as though herein fully set forth.

NOW, THEREFORE, if the Principal fails to complete the required work, undertakings, covenants, terms, conditions, and agreements described in the said Contract, the Surety will be responsible to arrange for the completion of all the Work, as defined in said Contract, and other undertakings, covenants, terms, conditions, and agreements in the said Contract, to the satisfaction of the Owner, and if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall

reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then his obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN TESTIMONY WHEREOF, the said Principal has hereunto set his / its hand and seal, and the said Surety has caused this instrument to be signed by its attorney in fact and its corporate seal to be hereunto affixed, the day and year first written.

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	(Corp. Seal)	Company:	(Corp. Seal)
_____		_____	
Signature		Signature	
_____		_____	
Name		Name	
_____		_____	
Title		Title	

(Space is provided below for signatures of additional parties, if required.)

Company:	(Corp. Seal)	Company:	(Corp. Seal)
_____		_____	
Signature		Signature	
_____		_____	
Name		Name	
_____		_____	
Title		Title	

PAYMENT BOND

Know all men by these presents

THAT _____of the Town of _____, County of_____, and State of _____, as Principal (hereinafter called the Principal), and

_____

(a surety company authorized to transact business in the State of Connecticut) as Surety (hereinafter called the Surety) are held and firmly bound unto _____ with offices located at _____ in the **_____, Connecticut** (hereinafter called the Obligee) in the full penal sum of:

_____

Amount in Words

($_____) Dollars,

lawful money of the United States, to be paid to said Obligee, to which payment well and truly to be made and done, the said Principal binds himself, his heirs, executors, administrators and assigns (or itself, its successors and assigns), and the said Surety binds itself, its successors and assigns jointly and severally firmly by these presents.

Signed, sealed and delivered this_____ _day of _____A.D. _____.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT

WHEREAS said Principal will enter into a certain written contract with said Obligee, to be dated the _____ day of _____A.D._____, which written contract shall

provide for the following:

which written contract, which contract, including any hereafter made extension, modification or alteration thereof, is hereby referred to, incorporated in and made a part of this bond as though herein fully set forth.

NOW, THEREFORE, if the Principal fails to make any payments as set forth below or as described in or related to said contract, it will be the responsibility of the said Surety to pay for the said promptly, to the satisfaction of the Owner, and if said Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including, but not limited to, all amounts due for materials, lubricants, oil, gasoline, diesel fuel, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance

premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications. PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN TESTIMONY WHEREOF, the said Principal has hereunto set his / its hand and seal, and the said Surety has caused this instrument to be signed by its attorney in fact and its corporate seal to be hereunto affixed, the day and year first written.

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	(Corp. Seal)	Company:	(Corp. Seal)
_____		_____	
Signature		Signature	
_____		_____	
Name		Name	
_____		_____	
Title		Title	

(Space is provided below for signatures of additional parties, if required.)

Company:	(Corp. Seal)	Company:	(Corp. Seal)
_____		_____	
Signature		Signature	
_____		_____	
Name		Name	
_____		_____	
Title		Title	

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

Project Name: Connor's Place Playground Improvements

Location: 96 Field Road, Somers, CT

To (Owner): **Town of Somers**

Address: *Street:600 Main Street*

City: Somers *State:CT* *Zip Code:06071*

Contractor: _____ **Contract Date:** _____

Surety: _____

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the *(insert name and address of Surety Company)*

_____, SURETY COMPANY,

on bond of *(insert name and address of Contractor)*

_____, CONTRACTOR, _____

hereby approved of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to *(insert name of Owner)*

_____, OWNER,

as set forth in the said Surety Company's bond.

IN WITNESS WHEREOF,
the Surety Company has hereunto set its hand this _____ day of _____, 20_____.

_____
Surety Company Name

Attest:

_____
Signature of Authorized Representative

_____
Printed Name of Authorized Representative

(SEAL)

_____
Title

GENERAL CONTRACTOR FINAL AFFIDAVIT WAIVER OF LIEN

Project: Connor's Place Playground

State of: Connecticut

County of: Tolland

Location: 96 Field Road, Somers, CT

To Whom It May Concern:

I. We the undersigned, been fully sworn and having entered into an agreement with

the Town of Somers, CT ___ for _
(work/materials)

on the construction of _____

on the premises of the Owner _____

at said project _____

state that all labor, material and services contracted for have been fully paid and indebtedness discharged to the date of this affidavit unless otherwise noted in section II of this document.

II. Furthermore, for and in consideration of $ _____the undersigned does hereby waiver release and relinquish any and all claims of right of lien, which the undersigned may now have upon the premises above described for labor, materials and/or services.

III. Liability to the State of CT for sales and/or use tax, where applicable, has been discharged.

_____
Firm's Name

_____ _____
Authorized Signature Printed Name

State of Connecticut:
County of: _____ Date: _____

Subscribed and sworn to before me, this _____ day of _____, 20____.

_____
Notary Public Signature

My Commission Expires: _____

SUBCONTRACTOR/SUPPLIER FINAL AFFIDAVIT WAIVER OF LIEN

Project: Connor's Place Playground

State of: Connecticut

County of: Tolland

Location: 96 Field Road, Somers, CT

To Whom It May Concern:

I. We the undersigned, been fully sworn and having entered into an agreement with

_____ for _____
(subcontractor/supplier) (work/materials)

on the construction of _____

on the premises of the Owner _____

at said project _____

state that all labor, material and services contracted for have been fully paid and indebtedness discharged to the date of this affidavit unless otherwise noted in section II of this document.

II. Furthermore, for and in consideration of $ _____ the undersigned does hereby waiver release and relinquish any and all claims of right of lien, which the undersigned may now have upon the premises above described for labor, materials and/or services.

III. Liability to the State of CT for sales and/or use tax, where applicable, has been discharged.

_____
Firm's Name

_____ _____
Authorized Signature Printed Name

State of Connecticut:
County of: _____ Date: _____

Subscribed and sworn to before me, this _____ day of _____, 20____.

_____
Notary Public Signature

My Commission Expires: _____

Minimum Rates and Classifications for
Heavy/Highway Construction

ID#: 26-1854

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:
Project Town: Somers
State#:
FAP#:
Project: Connor's Place Playground Improvements

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	42.03	29.19
2a) Diver Tenders	42.03	29.19
2b) Divers Effluent	67.52	29.19
3) Divers	50.49	29.19
03a) Millwrights	43.25	29.13
03b) Carpenter-Welder	42.53	29.19
03c) Carpenter: Working with creosote lumber or acid	43.03	29.19

As of: February 13, 2026

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

As of: February 13, 2026

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

As of: February 13, 2026

----CLEANING, CONCRETE AND CAULKING TUNNEL----		
14) Concrete Workers, Form Movers, and Strippers	36.96	28.85 + a
15) Form Erectors	37.29	28.85 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers, Miners Helpers	36.96	28.85 + a
17) Laborers Topside, Cage Tenders, Bellman	36.85	28.85 + a
18) Miners	37.93	28.85 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	44.42	28.85 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	44.22	28.85 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	42.24	28.85 + a
21) Mucking Machine Operator, Grout Boss, Track Boss	45.01	28.85 + a
----TRUCK DRIVERS----(*see note below)		
Block Truck	37.48	32.68 + a

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

----POWER EQUIPMENT OPERATORS----

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

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

As of: February 13, 2026

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

**NOTE: SEE BELOW

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

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

----OUTSIDE LINE CONSTRUCTION----

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

As of: February 13, 2026

28) Material Men, Tractor Trailer Drivers, Equipment Operators	49.61	30.79
29) Technician	56.12	32.85
----COMMUNICATION----		
Sales & Service Technician: To include but not limited to: Installation, Repair, Splicing and Maintenance	48.84	18.07
----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

As of: February 13, 2026

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

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

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

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.
Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.
The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.
The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.
All subsequent annual adjustments will be posted on our Web Site for contractor access.
Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

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

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

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

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

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

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

As of: February 13, 2026

DIVISION 01
GENERAL REQUIREMENTS

SECTION 01 2973

SCHEDULE OF VALUES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Preparation and submittal of a Schedule of Values.

2. Updating Schedule of Values.

1.2 DEFINITIONS

A. The Schedule of Values is an itemized list that establishes the value of each part of the Work for a stipulated price contract and for major lump sum items in a unit price contract. The Schedule of Values is used as the basis for preparing applications for payments. Quantities and unit prices may be included in the schedule when designated by Engineer.

1.3 SCHEDULE OF VALUES SUBMITTAL

A. Submit a Schedule of Values to Engineer within ten (10) days of executing an Agreement with Owner. Upon Engineer's request, Contractor will provide supportive data substantiating their correctness. Use Schedule of Values only as basis for Contractor's Application for Payment.

B. Form of Submittal: Submit Schedule of Values on AIA Document G703, or computer generated form of the same style, using Table of Contents of these Specifications as basis for format for listing costs of work for all Divisions.

C. Identify each line item with number and title as listed in Table of Contents in these Specifications. Each line item shall be identified with number and title of the specification section, value, and quantities (if requested).

1. Itemize separate line item cost for each of the following general cost items: Performance and Payment Bonds (if applicable), field supervision and layout, temporary facilities and controls.

2. Line items including Subcontract work shall be subdivided so as to indicate value of such work.

3. For each line item which has installed value of more than $20,000, break down costs to list major products for operations under each item, rounding figures to nearest dollar.

D. Make sum of total costs of all items listed in Schedule equal to total Contract Sum.

1.4 REVIEW AND RESUBMITTAL

A. After Engineer's review and approval, the Schedule of Values shall be reviewed and approved by the bonding company (if applicable). A letter of approval from the bonding company (if applicable) approving the Schedule of Values shall accompany the final submittal of the Schedule of Values to Engineer.

B. Payment based on the Schedule of Values shall not be until all approvals are obtained. If requested, revise and resubmit Schedule of Values until approvals are obtained.

1.5 MODIFICATIONS

A. During progress of the Work, the Schedule of Values as approved by Owner shall be modified to reflect changes in the Contract Sum due to Change Orders or other modifications of the Contract. Such updated Schedule of Values shall be used for Applications for Payment.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 3120

QUALITY CONTROL

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Quality assurance and control of installation
2. References
3. Field samples
4. Inspection and testing laboratory services
5. Manufacturers' field services and reports.

B. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. Reference to any technical society, organization, group or regulation are made in accordance with applicable designation and unless otherwise noted or specified, all work shall conform to the latest edition as applicable.

B. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

1.3 DEFINITIONS

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

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

C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

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

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

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

G. Testing Laboratory: An entity engaged to perform specific laboratory tests.

H. Testing Agency: An entity engaged to collect samples, perform specific in-field tests, and/or inspections. The Testing Laboratory may provide the services of the Testing Agency.

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

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

K. Experienced: When used with an entity or individual, "experienced" means having successfully completed the minimum number and type of projects indicated in individual Specification Sections, or in the absence of such specified minimum number and type, a minimum of ten (10) years in the execution of projects that are similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of all authorities having jurisdiction.

1.4 SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:

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

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.

2. Entity responsible for performing tests and inspections.

3. Description of test and inspection.

4. Identification of applicable standards.

5. Identification of test and inspection methods.

6. Number of tests and inspections required.

7. Time schedule or time span for tests and inspections.

8. Requirements for obtaining samples.

9. Unique characteristics of each quality-control service.

1.5 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice of Award, and not less than five (5) days prior to the preconstruction conference. Submit in format acceptable to Engineer. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project. Project quality-control manager, who may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.

2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."

3. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Engineer has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.6 REPORTS AND DOCUMENTS

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

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

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

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

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.

2. Statement that equipment complies with requirements.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

4. Statement whether conditions, products, and installation will affect warranty.

5. Other required items indicated in individual Specification Sections.

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

1.7 QUALITY ASSURANCE

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

B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

C. Monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship, to produce Work of specified quality.

D. Comply fully with manufacturers' instructions, including each step in sequence.

E. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

F. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.

G. Perform work by persons qualified to produce workmanship of specified quality.

H. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

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

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

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

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

M. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

N. Testing Laboratory and Testing Agency Qualifications: An independent agency with the experience and capability to conduct inspection, sampling, testing, and analysis required, as documented according to ASTM E329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

O. Preconstruction Testing: Where Testing Agency or Testing Laboratory is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.

b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.

d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.

e. When testing is complete, remove test specimens, assemblies, and mockups,; do not reuse products on Project.

2. Testing Agency /Testing Laboratory Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Engineer, with copy to Owner. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.8 QUALITY CONTROL

A. Sampling, Testing, and Inspection

1. Reports will be submitted by the independent firm to Engineer, Owner, Construction Manager, affected Engineers and Contractor, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

2. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm as required and/or on instructions by Engineer. Payment for retesting will be charged to Contractor by deducting inspection or testing charges from the Contract Sum/Price.

3. Testing by Owner, Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified Testing Agency to perform these services.

    a. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.

    b. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.

    c. Costs for re-testing and re-inspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by deduct Change Order.

4. Testing by Owner, Discretionary Testing

    a. Engineer reserves the right to perform any material testing or in-field testing on the project, reserves the right to determine the suitability of all materials to be used for in the work, and to reject any material or completed construction that is not in conformance with applicable Specifications or standards.

5. Contractor Responsibilities: Where quality-control services are indicated as Contractor's responsibility, retain the services of a third-party Testing Agency and Testing Laboratory to perform sampling, testing, monitoring, or inspection as required. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

    a. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

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

    c. Notify Testing Agency at least 24 hours in advance of time when Work that requires sampling, testing, monitoring, or inspecting will be performed.

d. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

e. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

f. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

C. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in pre-installation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

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

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

1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.

6. Do not perform any duties of Contractor.

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

1. Access to the Work.

2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

4. Facilities for storage and field curing of test samples.

5. Delivery of samples to testing agencies.

6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.

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

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

H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, Engineer, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.9 FIELD SAMPLES

A. Install field samples at the site as required by individual specifications Sections for review.

B. Acceptable samples represent a quality level for the Work.

C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by Engineer.

1.10 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment and test, adjust and balance of equipment as applicable and to initiate instructions when necessary.

B. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 TEST AND INSPECTION LOG

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

1. Date test or inspection was conducted.

2. Description of the Work tested or inspected.

3. Date test or inspection results were transmitted to Engineer.

4. Identification of testing agency or special inspector conducting test or inspection.

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

3.2 REPAIR AND PROTECTION

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

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

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

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

END OF SECTION

SECTION 01 3300

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements and procedures for preparing and transmitting data to Engineer.

2. Various submittals are specified under applicable Specification Sections.

B. Unless otherwise stipulated herein, all submittals requiring review for conformance with the design documents shall be transmitted by electronic mail to the following address:

rsalch@bscgroup.com

1.2 DEFINITIONS

A. No Exceptions Taken: The term "No Exceptions Taken," when applied by the Engineer to the Contractor's submittals, drawings or documents, shall mean the submittals, drawings or documents are satisfactory from the standpoint that the Engineer has not observed any statement or feature that appears to deviate from the Specifications requirements. The Contractor shall retain the entire responsibility for complete conformance with all of the Specification's requirements.

B. Approved As Noted: The term "Approved As Noted" when applied by the Engineer to the Contractor's submittals, drawings or documents, shall mean the submittals, drawings or documents conform as defined above, except that the changes shown are necessary to be in conformance with the Specification's requirements. On the basis that the Contractor shall retain the entire responsibility for compliance with all of the Specification's requirements, the Contractor shall either:

1. Incorporate the changes into its work, drawings or documents if the change does not affect the Contractor's responsibility under warranty.

2. Inform the Engineer that the changes cannot be made without prejudice to the Contractor's responsibility under the warranty and resubmit with explanations of the reasons therefore.

C. Rejected or Revise and Resubmit: The terms "Rejected" or "Revise and Resubmit" when applied by Engineer to Contractor's submittals, drawings or documents, shall mean the submittals, drawings or documents are not satisfactory from the standpoint that the Engineer has observed statements or features that appear to deviate from the Specifications requirements.

1.3 CONTRACTOR RESPONSIBILITIES

A. Prepare submittals and review for accuracy prior to submission and respond to Engineer's action.

B. Determine and verify:

1. Field measurements;

2. Field construction criteria; and

3. Conformance to Specifications.

C. Coordinate each submittal with requirements of Work and of Contract Documents.

D. Notify Engineer in writing, at time of submission, of any deviations in submittals from requirements of drawings, Specifications and Contract Documents.

1.4 SUBMITTAL PROCEDURES

A. Coordinate preparation and processing of submittals with performance of construction activities. Unless a specific submittal time-frame is specified in the related specification Section, transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with phases of the Work that require sequential activity.

2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

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

3. At a minimum, submittals shall be provided to Owner and Engineer in duplicate. Additional requirements for the number of submittals are contained in the specific Specification Sections.

4. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.

a. Allow five (5) working days for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Engineer will promptly advise the Contractor when a submittal being processed must be delayed for coordination.

b. Any submittals which may require review and/or approval by an outside Agency (City, Town, utility, etc.) shall be allocated a minimum of twenty (20) working days. The Owner shall not be held responsible for any delay associated with the approval or rejection of any substitution or other revisions proposed by the Contractor.

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

d. Allow five (5) working days for reprocessing each submittal.

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

B. Submittal Preparation: Place a permanent label, cover page or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label, cover page or title block.

1. Provide a space approximately 4″ x 5″ on the label, cover page or beside the title block to record the Contractor's review and approval markings and the action taken.

2. Include the following information on the label for processing and recording action taken:

a. Submittal name, number and topic.

b. Date of submission.

c. Name and address of Contractor.

d. Number and title of appropriate Specification Section annotated in accordance with this Section.

e. Drawing number and detail references, as appropriate.

f. Identification of revisions on re-submittals.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Engineer using a transmittal form. Submittals received from sources other than Contractor will be returned without action.

1. All submittals shall be sent with an official transmittal.

2. With each submittal, provide the Specification Section or sheet number the item submitted is found under and a descriptive generic name based on its content.

3. Number each transmittal consecutively starting with 001. If requested by Engineer, match the submittal numbering indicated on the Submittal Schedule or Submittal Log.

4. All submittals shall be numbered conforming to the following example, with each component separated by a dash (-):

Submittal Numbering Format

A	B	C
001	01 5713	Silt Fence
002	31 2310	Granular Fill
002A	31 2310	Granular Fill
002B	31 2310	Granular Fill

a. The chronological identification number assigned to the submittal package.

b. The Specification Section or sheet number the item submitted is found under.

c. Keyword(s) from the descriptive generic submittal name.

d. The status of the submittal.

Example

001-01 5713-Silt Fence-REV

5. When re-submitting a rejected submittal or additional information, identify submittal with the original submittal number followed by a letter, starting with "A" and continuing for each subsequent re-submittal, to designate the additional submission(s).

6. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

7. Distribution: Following response to the initial submittal, Contractor shall print and distribute copies to the Subcontractors and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.

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

1.5 SUBMITTAL SCHEDULE

A. As part of the development and acceptance of Contractor's construction schedule, prepare a schedule of submittals, complete and accurate to the best of Contractor's ability. Submit the schedule to the Engineer within five (5) business days following Contractor's receipt of the Notice of Award.

B. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.

C. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted and verify that each item, and the submittal for it, conforms in all respects with the requirements of the Contract Documents. By affixing his signature to each submittal, Contractor is certifying that this coordination has been performed.

D. Coordinate the schedule with all necessary subcontractors to ensure their understanding of the importance of adhering to the approved schedule and their ability to so adhere. Coordinate as required to ensure the grouping of submittals as appropriate.

E. Distribution: Following response to initial submittal schedule, print and distribute copies to the Engineer, Subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.

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

F. Tracking: Provide Engineer, at the beginning of each month, a list of all submittals over the previous month. Include the date each submittal was sent to Engineer, the content of each transmittal and the disposition of the submittal.

1.6 ENGINEER'S ACTION

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

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

B. Action Stamp: The Engineer will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

1. No Exceptions Taken: The term "No Exceptions Taken" when applied by the Engineer to the Contractor's submittals, drawings or documents, shall mean the submittals, drawings or documents are satisfactory from the standpoint that the Engineer has not observed any statement or feature that appears to deviate from the Contract Specifications, Drawings, or other applicable Contract Documents. That part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Specifications, Drawings, or other applicable Contract Documents; final acceptance will depend upon that compliance. Contractor shall retain the entire responsibility for complete conformance with such Contract Specifications, Drawings, or other applicable Contract Documents.

2. Furnish as Corrected: The term "Furnish as Corrected" when applied by the Engineer to the Contractor's submittals, drawings or documents, shall mean the submittals, drawings or documents conform as defined above, except that the changes shown are necessary to be in conformance with the Contract Specifications, Drawings, or other applicable Contract Documents. That part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Specifications, Drawings, or other applicable Contract Documents; final acceptance will depend on that compliance. On the basis that, Contractor shall retain the entire responsibility for compliance with all of the Specification's requirements, the Contractor shall either:

a. Incorporate the changes into its work, drawings or documents if the change does not affect the Contractor's responsibility under warranty.

b. Inform the Engineer that the changes cannot be made without prejudice to the Contractor's responsibility under the warranty and resubmit with explanations of the reasons therefore.

3. Revise and Resubmit: The terms "Revise and Resubmit" when applied by Engineer to Contractor's submittals, drawings or documents, shall mean the submittals, drawings or documents are not satisfactory from the standpoint that the Engineer has observed statements or features that appear to deviate from the Contract Specifications, Drawings, or other applicable Contract Documents. Contractor shall not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. In response to this stamp, Contract shall either:

a. Revise the submittal to conform with the Contract Specifications, Drawings, or other applicable Contract Documents and re-submit.

b. Update the submittal with additional information as required and re-submit.

c. Prepare a new submittal in accordance with notations and/or the requirements of the Contract Specifications, Drawings, or other applicable Contract Documents and re-submit.

4. Rejected: The term "Rejected," when applied by Engineer to Contractor's submittals, drawings or documents, shall mean the submittals, drawings or documents are not satisfactory from the standpoint that the Engineer has observed statements or features that appear to deviate from the Contract Specifications, Drawings, or other applicable Contract Documents. Contractor shall not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Submittals that are rejected shall be revised as required to conform with the Contract Specifications, Drawings, or other applicable Contract Documents.

   a. Do not permit submittals marked "Rejected" to be used at the Project site, or elsewhere where Work is in progress.

5. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will not be returned unless specifically requested and will be marked "Action Not Required" on Contractor's record of submittal. Submittals which are prepared but are not required will not be processed.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 5713

TEMPORARY EROSION AND SEDIMENTATION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Installation of temporary erosion and sedimentation control measures
2. Maintenance of temporary erosion and sedimentation control measures.
3. Monitoring of site condition and installation of supplemental temporary erosion and sedimentation control measures.
4. Sediment removal and disposal
5. Temporary seeding or other surface stabilization measures.
6. Removal of temporary erosion and sedimentation control measures.
7. Monitoring, documentation, and recordkeeping.
8. Installation of permanent erosion control materials.
9. Final cleanup.

B. Erosion and sediment control techniques include, but are in no way limited to, silt fence, hay bales, drainage structure inserts/filters, mulching with hay/straw, netting/matting, grassing, stone dikes/berms/check-dams, compost blankets and berms, barriers, diversions, traps, basins, and appurtenances which will ensure that erosion and sediment pollution will be either eliminated or maintained within acceptable limits.

C. The measures specified herein are the minimum requirements which Contractor shall comply to control erosion and siltation throughout execution of the work. Contractor shall provide additional work if necessary to control erosion and siltation throughout the duration of the construction as conditions dictate, or as directed by Engineer.

D. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work.

E. Contractor is responsible for all health and safety.

1.2 SUBMITTALS

A. Submit material specifications and shop drawings for all materials furnished under this Section.

B. Prior to the start of the construction, submit schedule for the construction of required stormwater detention basins, temporary and permanent erosion and sedimentation control measures, clearing and grubbing, grading, structures at watercourses, construction, and paving.

C. During construction, submit to Engineer schedule changes that affect timing of construction.

D. Submit copies of all inspection and maintenance report forms.

1.3 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. Regulations of Connecticut State Agencies (RCSA)

1. 22a-315-10 through 19, Soil and Water Conservation

C. Connecticut Department of Energy and Environmental Protection (DEEP)

1. Connecticut Guidelines for Soil Erosion and Sediment Control, DEEP Bulletin 34, State of Connecticut Council on Soil and Water Conservation, 2002.

D. State of Connecticut Department of Transportation (ConnDOT)

1. Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818, 2020 and any supplements.

1.4 PERMIT CONDITIONS

A. Contractor and Subcontractors are bound to comply with any project-related permits obtained by Owner or Engineer for the work of the project. Such permits will affect performance of the work, and Contractor and Subcontractors are bound to comply with requirements of such permit and representations contained in permit application as though Contractor and Subcontrator were the Permittee/permit-holder. Requirements and conditions set forth in Owner or Engineer-obtained project-related permits and permit applications shall be binding on Contractor just as any Specification would be.

1.5 QUALITY CONTROL

A. Contractor shall be responsible for the timely installation and maintenance of all sedimentation control devices necessary to prevent the erosion of soil or movement of sediment from construction activities to off-site areas via surface runoff or underground drainage systems. Measures in addition to those shown on the Drawings necessary to prevent the movement of sediment off site shall be installed, maintained, removed, and cleaned up at the expense of Contractor.

B. Where additional erosion and sedimentation control measures are required beyond what is indicated on the Drawings or herein, comply with applicable sections of the Connecticut Guidelines for Soil Erosion and Sediment Control, DEEP Bulletin 34, State of Connecticut Council on Soil and Water Conservation, 2002.

C. If applicable, comply with applicable provisions of the Connecticut Department of Energy and Environmental Protection (DEEP) General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, (DEEP-WPED-GP-015), latest revision thereof. Conditions of such General Permit, other conditions of approval or authorizations, and associated Stormwater Pollution Control Plan (SWPCP) shall become part of the Contract Documents.

D. Engineer has the authority to order immediate, additional, temporary control measures to prevent contamination of adjacent streams or other watercourses, or other areas of water impoundment and damage by erosion.

E. If Engineer observes construction procedures and operations that jeopardize erosion control provisions, Engineer will notify Contractor. If such construction procedures and operations are not corrected promptly, Engineer may suspend the performance of any or all construction until corrections have been made, and such suspension shall not be the basis of any claim by Contractor for additional compensation, nor for an extension of time to complete the Work.

F. Should construction materials be washed away or otherwise rendered ineffective in the opinion of Engineer during the progression of the Work, Contractor shall replace the installations at no additional cost to the Owner.

1.6 COORDINATION WITH PERMANENT EROSION CONTROL PROVISIONS

A. Coordinate temporary erosion and sedimentation control measures with permanent erosion control features to the extent practical to ensure economical, effective and continuous erosion control throughout construction and post-construction periods.

PART 2 PRODUCTS

2.1 HAY BALES

A. Hay bales shall be made of cut hay with forty (40) pounds minimum weight and 120 pounds maximum weight. Bales shall be free of rotten or degraded hay, significant splits or voids. Hay bales shall be held together with a minimum of two bands made of either wire or heavy twine.

B. Stakes to anchor the bales shall be a minimum of 36 inches long and made of hardwood with a minimum dimension of 1½-inch by 1½-inch normal size. Metal stakes may be used instead of wooden stakes. Metal stakes shall be round, "U," "T," "L," or "C" shaped with a minimum weight of 0.5 pounds per foot.

C. Replace individual hay bales upon loss of 30% of original mass or volume, whichever is less.

2.2 SILT FENCE

A. Woven Polypropylene geotextile having a minimum weight of 3.1 ounces per square yard conforming to the following:

1. Mechanical and Physical Properties of Silt Fence Geotextile

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
Weight	ASTM D3776	oz/yd^2	5.6
Grab Tensile Strength	ASTM D4632	Pounds	60
Grab Elongation (Max percent)	ASTM D4632	Percent (%)	15–30
Trapezoidal Tear	ASTM D4533	Pounds	30
Puncture	ASTM D4833	Pounds	30
Mullen Burst	ASTM D3786	psi	150–200
Permittivity	ASTM D4491	Sec^{-1}	0.15
Flow Rate	ASTM D4491	gal/min/ft2	15–20

Apparent Opening Size	ASTM D4751	(U.S. Sieve)	30–35
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	70

B. Silt fence shall be constructed of a minimum thirty-six (36) inch wide continuous woven geotextile. The material shall have a high sediment filtration capacity, high slurry flow and minimum clogging characteristics. Edges of the fabric shall be finished to prevent the outer fibers from pulling away from the geotextile. Geotextile shall be free of defects or flaws that significantly affect its physical and/or filtering properties.

C. Fabric shall be securely fastened to stakes a minimum of 42 inches long and made of hardwood with a minimum dimension of 1½ inch by 1½ inch normal size such that a 6 to 8 inch length of fabric is unattached at the bottom for anchorage in soil. Metal stakes may be used instead of wooden stakes. Metal stakes shall be round, "U," "T," "L," or "C" shaped with a minimum weight of 0.5 pounds per foot. Stakes shall be spaced not greater than ten feet apart. When required, wire or another type of support shall be constructed between the geotextile fabric and the posts to improve the load carrying capacity of the silt fence.

2.3 CATCH BASIN INSERT

A. Manufactured "bag type" catch basin insert of woven polypropylene geotextile with integral lifting loops or straps conforming to the following:

1. Mechanical and Physical Properties of Catch Basin Insert

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
Grab Tensile Strength	ASTM D4632	Pounds	315
Grab Elongation (Max percent)	ASTM D4632	Percent (%)	30 (max)
Trapezoidal Tear	ASTM D4533	Pounds	40x50 (min)
Puncture	ASTM D4833	Pounds	135 (min)
Mullen Burst	ASTM D3786	psi	420 (min)
Permittivity	ASTM D4491	gal/min/sq ft	0.7
Flow Rate	ASTM D4491	gal/min/ft2	50 (min)
Apparent Opening Size	ASTM D4751	(U.S. Sieve)	20-40
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	80 (min)

Note: Catch basin inserts for catch basins with curb openings shall be equipped with integral curb deflector.

2.4 STRAW MULCH

A. Straw mulch shall be comprised of threshold straw of oats, wheat, barely, or rye that is free from noxious weeds, mold or other objectionable material. Straw mulch shall contain at least 50 percent by weight of material to be 10-in or longer. Straw shall be in an air-dry condition and suitable for placement with blower equipment. Straw mulch shall be utilized on all newly graded areas with slopes exceeding 5% to protect areas against washouts and erosion unless other erosion control measures are provided.

2.5 FILTER BERM COMPOST

A. Where establishing vegetation is not planned, compost shall be a decomposed, weed free organic matter source derived from agricultural, food, or industrial residuals; biosolids (treated sewage sludge); yard trimmings; or source-separated or mixed solid waste. Compost shall possess a moisture content of 30 to 60% and a organic matter content of 25 to 100%. The maximum particle length shall be 6″, and 100% passing a 3″, 90 to 100% passing a 1″, 70% to 100% passing a 3/4″, and 30% to 75% passing a 1/4″ screen. However, no more than 50% passing a 1/4″ screen in high rainfall/flow rate situations.

B. Where establishing vegetation is planned, compost shall be use a well decomposed, stable, weed free organic matter source derived from agricultural, food, or industrial residuals; biosolids (treated sewage sludge); yard trimmings; or source-separated or mixed solid waste. Compost shall possess a moisture content of 30 to 60%, a pH of 6.0 to 8.5 and an organic matter content of 25 to 65%. The maximum particle length shall be 6″, and 100% passing a 3″, 90 to 100% passing a 1″, 70% to 100% passing a 3/4″, and 30% to 75% passing a 1/4″ screen. However, no more than 60% passing a 1/4″ in high rainfall/flow rate situations. It shall contain no substances toxic to plants, shall possess no objectionable odors, and shall not resemble the raw material from which it was derived.

2.6 COMPOST SOIL BLANKET

A. Compost soil blankets may be utilized on slopes of up to 2:1.

B. Slightly scarify slopes and remove large clods, rocks, stumps, roots larger than 2 inches in diameter and debris on slopes, where vegetation is to be established. This soil preparation step may be eliminated where approved by the Landscape Architect/Designer, or where seeding or planting isn't planned. Track (compact) slope using a bulldozer before applying compost.

C. Apply compost at the following rates:

Compost Application Rates

Annual Rainfall/Flow Rate	Total Precipitation & Rainfall Erosivity Index	Application Rate for Slopes to be Vegetated (Note 1)	Application Rate for Slopes not being Unvegetated
Low	1″–25″ & 20–90	½″–¾ ″	1″–1½″
Average	26″–50″ & 91–200	¾″–1″	1½″–2″
High	51″ and above, & 201 and above	1″–2″	2″–4″

D. Lower application rates indicated for slopes to be vegetated should only be used in conjunction with seeding, and for compost blankets applied during the prescribed planting season for the particular region.

E. Compost shall be uniformly applied using an approved spreader unit, including bulldozers, side discharge manure spreaders, etc. Track (compact) the compost layer using a bulldozer or other appropriate equipment. (This step may be eliminated where impractical or where deemed unnecessary by the Landscape Architect/Designer.) Alternatively, apply compost using a pneumatic (blower) unit, or other unit that propels the product directly at the soil surface, thereby preventing water from moving between the soil-compost interface. Thorough watering

may be used to improve settling of the compost. Apply compost layer approximately 3 feet (90 cm) over the top of the slope, or overlap it into existing vegetation.

F. On highly unstable soils, use compost in conjunction with appropriate structural measures.

G. Dry or hydraulic seeding may be completed following compost application, as required, or during the compost application itself, where a pneumatic unit is used to apply the compost.

2.7 STONE CHECK DAM

A. Stone shall be graded as follows:

Gradation of Stone for Check Dam (ConnDOT M.01.01 Grading No. 3)

Sieve	Percent Passing by Weight
2 1/2″	100
2″	90–100
1 1/2″	35–70
1	0–15
1/2″	0–5

Stone shall be sound, tough, durable, angular, not subject to disintegration, on exposure to water, or weathering, be chemically stable and shall be suitable in all other respects for the purpose intended.

B. Geotextile may be used under the stone to provide a stable foundation and to facilitate removal of the stone.

2.8 EROSION CONTROL SEED MIXTURE

Erosion Control Seed

Species (Note 1)	Application Rate, Pounds Per Acre	Application rate, Pounds Per 1,000 sf	Optimum Seed Depth, inches (Note 2)	Optimum Seeding Dates (Note 3)
Annual ryegrass Lolium multiflorum	40	1.00	0.5	3/1–6/15 and 8/1–10/15
Perennial ryegrass Lolium perenne	40	1.00	0.5	3/15–7/1 and 8/1–10/15
Winter Rye Secale cereale	120	3.00	1.00	4/5–7/1 and 8/15–10/15
Oats Avena sativa	86	2	1	3/1–6/15 and 8/1–9/15
Winter Wheat Triticum aestivum	120	3	1	4/15–7/1 and 8/15–10/15
Millet Echinochloa crusgalli	20	.5	1	5/15–7/15
Sudangrass Sorghum sudanese	30	.7	1	5/15–8/1
Buckwheat Fagopyrum esculentum	15	.4	1	4/1–9/15

Weeping lovegrass Eragostis curbula	5	.2	.25	6/1–7/1
ConnDOT All Purpose Mix	150	3.4	.5	3/1–6/15 and 8/1–10/15

Notes:

1 – Listed species may be used in combinations to obtain a broader time spectrum. If used in combinations, reduce each species planting rate by 20% of that listed

2 – Seed at twice the indicated depth for sandy soils.

3 – May be planted throughout summer if soil moisture is adequate or can be irrigated. Fall seeding may be extended 15 days in the coastal towns

2.9 EROSION CONTROL MATTING

A. Temporary Erosion Control Blanket shall be 1) Curlex® Excelsior Blanket, as manufactured by American Excelsior Company, 2) ERO-MAT® V75S(FD), as manufactured by Verdyol Plant Research, Ltd., or 3) Landlok® S2 RD, as manufactured by SI® Geosolutions, or 4) approved equal.

B. Degradable Erosion Control Fabric Netting shall be Landlok® 407 GR, as manufactured by 1) SI® Geosolutions, or 2) GeoJute® as manufactured by Belton Industries, Inc., or 3) BioNet® S150BN™ Double Net Straw Blanket, as manufactured by North American Green, or 4) approved equal.

C. Long-Term and Non-degradable Turf Reinforcement Mats shall be 1) Pyramat®, as manufactured by SI® Geosolutions, or 2) Recyclex® Turf Reinforcement Matting, as manufactured by American Excelsior Company, or 3) Vmax3 C350™, as manufactured by North American Green, or 4) approved equal.

D. Erosion control matting shall be secured with staples or an alternative attachment device such as geotextile pins or plastic pegs as recommended by the manufacturer. The Contractor shall submit a sample of the alternative attachment device for the Engineer's approval prior to installation.

PART 3 EXECUTION

3.1 GENERAL

A. Install erosion and sedimentation control measures as shown on the Drawings prior to any site disturbance.

B. No work shall be started until erosion control schedules and installation have been accepted by Engineer.

C. Engineer has the authority to control the surface area of each material exposed by construction operations and to direct Contractor to immediately provide permanent or temporary pollution control measures to prevent contamination of adjacent watercourses or other areas of water impoundment. Every effort shall be made by Contractor to prevent erosion on the site and abutting properties or areas.

D. Contractor shall construct all permanent erosion and sediment control features at the earliest practical time as outlined in the accepted schedule. Temporary erosion and sediment control measures shall be used to correct conditions that develop during construction, which were unforeseen, but are needed prior to installation of permanent control features, or that are needed temporarily to control erosion or sedimentation which develops during construction operations.

E. Contractor shall limit as necessary the surface area of the earth material exposed to sufficiently maintain and protect the slopes to prevent pollution. Where erosion is likely to be a problem, clearing and grubbing operations shall be scheduled and performed so that grading operations and permanent erosion and sediment control features can follow immediately thereafter, if conditions permit; otherwise, temporary control measures will be required between successive construction stages.

F. Erosion control measures shall be maintained by Contractor, and he shall remove such installations only upon completion of the work and the site is stabilized or when authorized to do so by Engineer.

G. Contractor shall operate all equipment and perform all construction operations so as to minimize pollution. Contractor shall cease any of his operations, which will increase pollution during rainstorms.

H. Failure by Contractor to control erosion, pollution, and siltation shall be cause for the Engineer to employ outside assistance to provide the necessary corrective measures. The cost of such assistance, including engineering costs, will be charged to Contractor and appropriate deductions made to Contractor's payment.

3.2 HAY BALES

A. Hay bales shall be positioned as indicated on the Drawings and/or as necessary to prevent off site movement of sediment produced by, or as a result of, construction activities, or as direct by the Engineer.

B. Hay bales shall be utilized on all catch basins and drainage facilities on the Project Site to prevent the entry of sediments or other debris. Maintain such protection throughout execution of the work until such drainage facilities have been abandoned/removed.

C. Bales shall be placed lengthwise with ends of adjacent bales tightly abutting one another to form a continuous barrier. Bales shall be entrenched to a depth of 4 inches and backfilled, with the backfill placed toward the potential source of runoff and sediment. All bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms. Each bale shall be anchored with a minimum of two stakes, driving the first stake in each bale towards the previously laid bale to drive the bales together. Stakes must be driven a minimum of 18 inches into the ground. Loose hay shall be inserted between bales as required to prevent water from escaping between the bales.

3.3 GEOTEXTILE SILT FENCE

A. Install a filter fabric silt fence prior to construction and remove after full surface restoration has been achieved. Install silt fence as indicated on the Drawings and/or as necessary to prevent off site movement of sediment produced by, or as a result of, construction activities.

B. Install as follows:

1. Hand shovel excavate a small trench a minimum of six inches wide by six inches deep on the upslope side of the desired fence line location.

2. Unroll the siltation fence system, position the post in the back of the trench (downhill side), and hammer the post at least 12 inches into the original ground.

3. Fabric rolls shall be spliced at posts. The fabric shall be overlapped six inches, folded over and securely fastened to posts.

4. Lay the bottom 6 inches of the fabric into the trench to prevent undermining by storm water run-off.

5. Backfill the trench and compact. Compaction is necessary to prevent the run-off from eroding the backfill.

6. For slope and swale installations, extend the ends of the trench sufficiently up slope such that the bottom end of the fence will be higher than the top of the lowest portion of the fence.

3.4 CATCH BASIN INLET SEDIMENT CONTROL

A. Install catch basin inlet sediment control devices in each exiting catch basin as long as it remains in use in accordance with manufacturer's guidelines at the locations shown on the Drawings.

B. A catch basin sediment filter shall be installed and changed/cleaned per the manufacturer's recommendations, or as directed by Engineer during construction.

C. New catch basins shall have a filter installed immediately upon completion of construction. In addition, a hay bale, or similar, barrier shall be installed around the new basin and maintained in place until binder is placed or disturbed areas draining to it are stabilized.

D. Catch basins with curb openings shall have filter fabric covering the opening and the edges of the fabric shall be secured. A filter boom shall also be placed over the opening.

3.5 TEMPORARY SEDIMENT BASINS

A. Temporary sedimentation basins shall be employed as required during construction. Sedimentation shall be periodically removed from the basins and from behind erosion and sedimentation control devices. The Contractor shall direct all possible site runoff to the temporary sedimentation basins.

B. The temporary sedimentation basins shall be maintained from the start of construction until construction of the permanent detention basins is completed and perimeter areas are stabilized.

3.6 TEMPORARY MULCHING

A. Apply temporary mulch to areas where rough grading has been completed but final grading is not anticipated to begin within 30 calendar days of the completion of rough grading or where final grading has been completed but seeding is not anticipated for 20 days.

1. Straw/Hay Mulch

   Exposure Period: 6 months

   Application Method: By hand or machine

   Application Rate: 110 lbs/1,000 square feet.

2. Bark Chips/Shredded Bark

   Exposure Period: Less than one year

   Application Method: By hand or machine

   Application Rate: 6 cubic yards /1,000 square feet.

3.7 TEMPORARY EROSION CONTROL MATS

A. Erosion control mats shall be furnished, installed, maintained, and later removed in ditches or swales, on embankment slopes, and excavation slopes at the locations shown on the Drawings in accordance with the manufacturer's recommendations.

B. All areas shall be smooth graded and compacted. Remove all rocks, dirt clods, vegetation and other obstructions that may cause damage to the mats.

C. Unroll mats parallel to the direction of water flow and lay flat against the ground. Overlap roll ends 1–2 feet with upslope mat on the top to prevent uplift of mat end by water flow. Overlay adjacent edges of mat by six inches. Extend mat 2–3 feet above the crest of steep slopes and anchor by excavating a 6-inch-deep trench, and secure end of mat in trench, backfill and compact. Secure mat to the ground using staples or pins furnished by manufacturer of mat.

D. When no longer required, as determined by the Engineer, temporary erosion control mats shall become the property of the Contractor and be removed and properly disposed.

E. Ground disturbances, including holes and depressions caused by the installation and removal of the temporary erosion control blanket shall be backfilled and repaired.

3.8 INSPECTIONS AND MAINTENANCE

A. Contractor is responsible to maintain the sediment and erosion control features at all times throughout the project duration and until the completion certification and approval has been issued.

B. Regular erosion and sediment control system inspections shall be conducted by Contractor throughout the project duration. At a minimum, Contractor shall conduct daily inspections and maintain erosion control systems in good operating condition. Report the results of the inspection and the recommended maintenance and/or repair requirements to Engineer.

C. Additional inspections may be required and/or directed prior to, or immediately following, a storm event >0.1 inches. Repairs shall be made as necessary.

D. In the event that the sedimentation and erosion control measures employed by Contractor prove to be inadequate as determined by the Engineer, Contractor shall adjust operations to the extent necessary to prevent erosion and sediment transport.

E. Surface water shall be pumped to maintain excavations free of water. Comply with applicable requirements of the Connecticut Department of Environmental Protection, specifically those requirements related to the management of stormwater and dewatering wastewaters associated with construction activities.

F. Hay bales and/or silt fences.

1. Remove accumulated sediment once it builds up to one-half of the height of the bale or fabric.

2. Replace damaged or degraded bales as necessary or when directed by the Engineer.

3. Replace damaged fabric, or patch with a 2-ft minimum overlap. Overlaps may only be made at fence posts.

4. Make other repairs as necessary to ensure that the bales/fence is filtering all runoff.

G. Erosion Control Mats shall be inspected at least once a week. Areas where the mat has become dislodged from the soil surface or become torn shall be re-graded and re-seeded as necessary and the mat re-installed. When repetitive failures occur at the same location review conditions and modify erosion control measures to reduce failure rate. Temporary erosion control blanket damaged during the progress of work or resulting from the Contractor's vehicles, equipment, or operations shall be repaired or replaced at the expense of the Contractor.

H. Clean catch basin inlet sediment control devices in accordance with manufacturer's guidelines.

I. Any catch basins that collect sediment as a result of Contractor's work shall be thoroughly cleaned out by Contractor.

END OF SECTION

SECTION 01 5714

TEMPORARY DUST CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnishing and spreading water, calcium chloride, and/or mulch on the subgrade, or in other areas of a Project Site or associated off-site areas, for the purpose of controlling dust emissions.

B. The requirements set forth in this section of the specifications apply to all phases and areas of construction.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. Regulations of Connecticut State Agencies (RCSA)

1. RCSA Section 22a-174-1 through 43, Abatement of Air Pollution.

C. ASTM International (ASTM)

1. ASTM D98, Standard Specification for Calcium Chloride.

PART 2 PRODUCTS

2.1 MATERIALS

A. Only water, calcium chloride, and mulch are approved for dust control. No asphalt or petroleum-based products may be utilized for dust control.

B. Water used shall be clean, non-polluted water obtained from sources approved by Engineer.

C. Calcium chloride, ASTM D98. Calcium chloride in pellet form and flake form shall be acceptable.

1. Calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.

2. Engineer may reject calcium chloride failing to meet the requirements of the aforementioned specifications or which has become caked or sticky in shipment.

D. Mulch

1. Straw mulch: Threshold straw of oats, wheat, barely, or rye that is free from noxious weeds, mold or other objectionable material. Straw mulch shall contain at least 50 percent by weight of material to be 10-in or longer.

2. Wood chips: Processed tree trimmings free of trash or other physical contaminants such as metal and plastic.

PART 3 EXECUTION

3.1 GENERAL

A. Dust control shall be the responsibility of Contractor and dust control operations shall meet the requirements of the State of Connecticut Department of Environmental Protection.

B. Construction sequencing shall be organized and conducted in a manner to leave existing pavement or ground coverings in place until just prior to earth excavation for the purpose of minimizing the migration of dust beyond the Project Limits into the surrounding area.

C. Engineer reserves the right to conduct active dust monitoring using visual methods and may utilize particulate measurement equipment during the course of the work. If the amount of fugitive dust and/or particulate generated during the work is deemed unacceptable in the Engineer's judgment or exceeds baseline Project Site conditions at Engineer's monitoring locations, Engineer may require Contractor to stop work and implement corrective measures. No claim for delay will be considered for work stoppage based upon the results of Engineer's active dust monitoring results.

D. Stockpiled materials from which particle have the potential of becoming airborne shall be securely covered with a temporary waterproof covering made of polyethylene, polypropylene, hypalon, or approved equal. The covers must be in place at all times when work with the stockpiles is not occurring.

E. Subcontractor shall sweep all adjacent roads and neighboring parking lots and driveways that are impacted by the work. Whenever dirt is tracked from the site it shall be cleaned as necessary to prevent it from becoming a nuisance or hazard. At a minimum, adjacent streets shall be swept once per week.

3.2 WATER

A. The application of water shall be under the control of Engineer at all times. It shall be applied only at the locations, and at such times, and in the amount as may be directed by Engineer. Quantities of water wasted or applied without authorization will not be paid for.

B. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding or pollution.

C. Contractor shall have available and maintain in an operable condition at all times, sufficient equipment for the purpose of applying water for dust control.

D. Watering equipment shall consist of pipelines, tanks, tank trucks, distributors, pumps, meters, hose or other devices, approved by Engineer, which are capable of applying a uniform spread of water over the surface. A suitable device for a positive shut-off and for regulating the flow of water shall be located so as to permit positive operator control.

E. Applications of water for dust suppression include, but are not necessarily limited to, the following:

1. Demolition activities, material handling, material processing, and loading.

2. Earthwork.

3. Open excavation faces and dust-prone areas of the work.

4. Temporary access roads and roadway surfaces within and around the Project Site.

3.3 CALCIUM CHLORIDE

A. Calcium chloride shall be applied only at the locations, at such times and in the amount as may be directed by the Engineer and only in areas that will not be adversely affected by the application. Refer to Section 01 3543 – Environmental Protection.

B. Calcium chloride shall be uniformly applied at the rate of one and one-half (1½) pounds per square yard (lb/yd2) or at any other rate as directed by Engineer. Application shall be by means of a mechanical spreader, or other approved methods. The number and frequency of applications shall be to Engineer's satisfaction.

3.4 MULCH FOR DUST CONTROL

A. Coordinate the use of mulch for dust control with erosion and sedimentation control measures.

B. Straw mulch shall be applied at a rate of 100 pounds per 1,000 square feet (100 lb/1,000 ft2).

C. Wood chips or wood mulch shall be applied at such a rate as to form a layer one (1) inch thick.

3.5 OTHER DUST CONTROL MEASURES

A. A temporary seed mixture may be spread in lieu of, or in addition to mulch over areas where the suspension of grading work in disturbed areas is expected to be more than 30 calendar days and as directed by Engineer.

END OF SECTION

SECTION 01 7124

AS-BUILT SURVEY

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Final Survey of completed construction.

2. Preparation of "As-Built" Drawings after construction is completed.

B. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. Code of Federal Regulations (CFR).

1. 29 CFR 1926, Safety and Health Regulations for Construction.

C. State of Connecticut, Regulations of Connecticut State Agencies (RCSA)

1. Sections 20-300b-1 through 20-300b-20, Standards for Surveys and Maps in the State of Connecticut.

1.3 SUBMITTALS

A. Surveyor: Submit name and qualifications of Professional Land Surveyor who will be responsible for the work of this Section.

B. Certificates: Submit a certificate signed by a Connecticut-licensed Land Surveyor (PLS) certifying that the location and elevation of improvements comply with the Contract Documents and any approved changes in the work.

C. Final Survey: Prepare and submit two (2) copies of the final as-built survey.

D. Project Record Documents: Submit other pertinent documentation as may be required or appropriate.

1.4 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Surveyor: Engage a Land Surveyor licensed as a Professional Land Surveyor (PLS) in the State of Connecticut to perform survey work.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 FINAL SURVEY

A. Provide Improvement Location Survey to depict the horizontal and vertical location of all new construction.

3.2 AS-BUILT DRAWINGS

A. Prepare final As-Built Drawings which accurately depict the final configuration of all new construction. Document by means of appropriate details and notes all changes from the Drawings or Specifications which were made in the work or additional information which was uncovered in the course of construction.

B. As-Built Drawings shall depict the horizontal and vertical location of above-grade and below grade construction. Collect sufficient survey data to accurately represent the project scope and area.

1. Location: Survey shall include locations of all physical features installed during the construction with appropriate labelling.

a. Subsurface construction shall depict the actual location, depth, and configuration.

b. Utilities shall include type, size, material of construction and depth. Include all appurtenances such as valves, tees, cleanouts, etc. Include reference to permanent surface improvements.

c. Include field changes of dimension and detail.

d. Include detail not on original Contract Drawings.

e. Include changes or modifications which result from punch lists or final inspection.

2. Topographic data: From established survey control, conduct a topographic survey of the project area after construction is complete. Generate one-foot contours throughout the area of work and show breaks in slope and other notable features.

a. Pedestrian routes shall depict sufficient topographic data to confirm compliance with handicapped accessibility requirements.

b. Accessible Routes: A minimum of three (3) elevations at each edge and centerline (cross-section), spaced at a minimum of 5 feet along the route.

c. Ramps: Elevation shall be depicted with a minimum of three (3) elevations at bottom and top of each sloped segment. Elevation of landings associated with a ramp shall be depicted with a minimum of four (4) elevations at each corner.

d. Curb Ramps: Elevation shall be depicted with a minimum of three (3) elevations at bottom and top of the accessible ramp section. Elevation of flare (wings) sections (wings) shall be depicted with a minimum of three (3) elevations at each triangle corner.

e. Accessible Parking Spaces: Elevation of the parking area and Access Isle shall be depicted with a minimum of four (4) elevations at each corner, respectively.

C. Submit two prints of the final as-built drawings to Engineer prior to submittal of Application for Final Payment.

END OF SECTION

SECTION 01 7700

PROJECT CLOSE-OUT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Substantial Completion.

2. Warranties.

3. Inspections.

4. Final cleaning.

5. Final Acceptance.

6. Project record documents.

1.2 SUBMITTALS

A. Submit Close-Out Submittals as indicated herein. Provide other Close-Out submittals that may be called-for in other Specification Sections.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for Certification of Substantial Completion, complete the following (list exceptions in the request).

B. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as Substantially Complete. Include supporting documentation for completion as indicated in the Contract Documents and a statement showing an accounting of changes to the Contract Sum if applicable.

C. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

D. Submit warranties, workmanship bonds, maintenance agreements, testing results, final certifications, and similar documents.

E. Obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificates and similar releases.

F. Deliver spare parts, extra stock, equipment, and similar items required.

G. Complete start up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock ups, and similar elements.

H. Complete final clean up requirements, including touch up painting. Touch up and otherwise repair and restore marred exposed finishes.

I. Coordinate temporary erosion and sedimentation control measures with permanent erosion control features to the extent practical to ensure economical, effective and continuous erosion control post-construction.

1.4 INITIAL CLOSE-OUT INSPECTION

A. On receipt of a request for inspection, Engineer will either proceed with inspection or advise Contractor of unfilled requirements.

B. Following Initial Inspection, Engineer will prepare a list of items to be completed or corrected ("Punch List").

C. Engineer will prepare a Certificate of Substantial Completion following Initial Inspection, or advise Contractor of construction that must be completed or corrected before the certificate will be issued. If a Certificate of Substantial Completion is issues, the Punch List will be attached.

1.5 WARRANTIES

A. Submit written warranties to Engineer prior to the date certified for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of Engineer.

1.6 FINAL CLEANING

A. Remove all temporary controls unless otherwise indicated to remain.

B. Remove tools, construction equipment, machinery, and surplus materials.

C. Remove and properly dispose of all garbage, rubbish, litter, and other substances.

D. Clean exposed surfaces of installed equipment and similar items.

1.7 FINAL CLOSE-OUT INSPECTION

A. On receipt of a request for Final Inspection, Engineer will either proceed with inspection or advise Contractor of unfilled Punch List requirements.

B. Results of the Final Inspection will form the basis of requirements for final acceptance.

C. Engineer will repeat Final Inspection following notation of Punch List items that must be completed or corrected.

1.8 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final acceptance and final payment, complete the following (list exceptions in the request).

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted.

2. Submit an updated final statement, accounting for final additional changes to the Contract Sum if applicable.

3. Submit Consent of Surety to final payment, and final lean releases (lien waiver) from all suppliers, subcontractors, and second-tier subcontractors.

B. Following completion of acceptable Close-Out Inspection and receipt of all required Close-Out Submittals, Engineer will prepare a certificate of final acceptance.

1.9 RECORD DOCUMENT SUBMITTALS

A. Record Drawings: In addition to Record Drawing requirements that may be defined in individual Specification Sections, at a minimum, maintain a clean, undamaged set of blue or black line white prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever Drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.

2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.

3. Note related Change Order numbers where applicable.

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

5. Upon completion of the project, submit (2) copies of Record Drawings to Engineer.

B. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark up of Record Drawings and Specifications.

1. Upon completion of mark up, submit complete set of record Product Data to Engineer.

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

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 7836

WARRANTIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. General administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on materials, products, or equipment and special warranties on installations.

2. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Specification Sections.

B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on warranties do not relieve Contractor of the warranty on the Work that incorporates the materials, products, or equipment, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign Special Warranties with Contractor.

C. This Section does not nullify guarantees which may be associated with materials, products, equipment, or installations and warranties shall be considered in addition to any guarantee.

1.2 DEFINITIONS

A. Standard Warranties: Preprinted written warranties published by individual manufacturers for particular materials, products, or equipment specifically endorsed by the manufacturer to the Owner.

B. Special Warranties: Written warranties required by, or incorporated into, the Contract Documents, either to extend time limits provided by Standard Warranties or to provide greater rights for Owner.

1.3 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether Owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. Owner's Recourse: Written warranties made to Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which Owner can enforce such other duties, obligations, rights, or remedies.

E. Rejection of Warranties: Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

F. Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.4 SUBMITTALS

A. Submit written warranties to Engineer prior to the date certified for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of Engineer.

1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to Engineer within fifteen (15) days of completion of that designated portion of the Work.

B. When a Special Warranty is required to be executed by Contractor, or Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to Owner through Engineer for approval prior to final execution.

1. Refer to individual Specification Sections for specific content requirements, and particular requirements for submittal of Special Warranties.

C. Bind Warranties in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 1/2″ by 11″ paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the material, product, equipment, or installation. Provide a typed description of the material, product, equipment, or installation, including the name, model number, part number, or other identifier, and the name, address, and telephone number of the installer.

2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES," the project title or name, and the name of Contractor.

3. When operating and maintenance manuals are required for warranted materials, products, equipment, or installations, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

1.5 FORM OF WARRANTY

A. Furnish documents in the following manner:

1. Provide Warranties to Owner's designated personnel.

2. All Warranties shall reference the project name and number as indicated in the Contract Documents.

3. All required Warranties will be by the respective company made out to Owner.

4. All Warranties supplied by subcontractors or manufacturers shall be countersigned by Contractor.

5. All work shall be covered by a one (1) year guarantee. Contractor shall visit the project site at 11 months into the guarantee period to determine the scope of any required guarantee work. Contractor shall contact Owner prior to this visit so that Owner's representative may attend.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

DIVISION 02
EXISTING CONDITIONS

SECTION 02 4123

SITE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. General Site Demolition.

2. Demolition of site structures, retaining walls, signage, light standards, foundations and appurtenances, pavement, curbing, and similar site improvements.

3. Filling of voids and excavations resulting from site demolition.

B. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. Code of Federal Regulations (CFR).

1. 29 CFR 1926, Safety and Health Regulations for Construction.

C. State of Connecticut.

1. State of Connecticut Solid Waste Management Regulations, Section 22a-209 including any amendments thereto.

1.3 DEFINITIONS

A. Demolition: Any operation including the dismantling or wrecking of a structure, assembly, appurtenance, or any portion thereof, including major and minor components, parts, and systems. Demolition shall be inclusive of the removal, handing, processing, segregation, loading, and proper off-site disposition of materials. Demolition shall be interpreted as complete and total removal unless otherwise indicated. The term Remove shall be synonymous with Demolition.

B. Bulky Waste: Land clearing debris and non-contaminated or hazardous waste material resulting directly from demolition activities other than Clean Fill, including such materials as tree stumps, tree tops, concrete, wood, brick, plaster, roofing materials, wallboard, metals, carpeting, insulation, furniture, and furnishings. Bulky Waste shall include Construction and Demolition Debris and Construction and Demolition Waste.

1.4 SAFETY

A. Conduct the work of this Section in conformance with applicable regulations, including those relating to warning signs, excavation safety, sheeting, shoring, and stabilization.

B. Provide and maintain barricades, signs, lights, etc., required for the protection of personnel, materials and property. Temporary barricades, etc. shall conform all applicable codes and regulations, and shall be lighted at night with lanterns, flares and reflectorized paint as required for safety. Adapt barricades, signs, lights, etc. to evolving site conditions throughout the progress of the work.

C. Provide other safety devices as required, including adaptation of such safety devices to changing site conditions, to prevent unauthorized entry to construction areas and open excavations. Provide warning signs and other temporary construction safety devices necessary for proper completion of the work in compliance with applicable safety regulations.

D. Contractor shall properly design and furnish all labor, materials, equipment, and tools necessary to construct permanent or temporary excavation support systems, including, but not necessarily limited to, sheet piling, trench shields, trench boxes, timber trench shoring, pneumatic/hydraulic shoring, steel sheeting or sheeting using other materials, sloping, and benching.

E. Any time an excavation is to remain open, at a minimum, provide full enclosure with safety barriers and fencing, warning signs, and additional safety control measures as appropriate for the condition.

1.5 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods required for proper performance of the work in this Section. Use equipment of adequate size, capacity and quantity to accomplish the work of this Section in a timely manner.

B. Utility Mark-out

1. Prior to commencing work, comply with utility mark-out requirements of the Call-Before-You-Dig System (1-800-922-4455).

2. Verify the location of all subsurface utilities marked through the Call-Before-You-Dig System.

3. Not all subsurface facilities or structures will be identified through the Call-Before-You-Dig System. Confirm the location of other subsurface utilities and other subsurface facilities or structures prior to commencing work. Field-mark utilities as required.

C. Utility Coordination

1. Inform all utility owners of the necessity of test pit work. Provide reasonable advance notice to allow for coordination.

2. Coordinate the excavation of all test pits with the respective utility owners having facilities in the vicinity of the test pit location.

3. If so desired by the respective utility owners, all or part of the work under this Section may be accomplished by their crews and/or supervised by them.

1.6 REGULATORY REQUIREMENTS

A. Comply with all applicable federal, state, and local safety and health requirements regarding all aspects of the work. Do not proceed until all permits or other approvals are secured.

B. Contractor is bound to comply with any project-related permits or approval obtained by Owner, including all requirements of such permit and representations contained in permit application as though Contractor were the permittee. Requirements and conditions set forth in Owner-obtained project-related permits and permit applications shall be binding on Contractor just as any Specification would be.

C. Do not close or obstruct roadways, sidewalks, hydrants, or other infrastructure without permits or authorization from local municipal authorities or other authorities having jurisdiction.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 IDENTIFICATION OF EXISTING FEATURES

A. Prior to commencing construction activities, Contractor shall identify and delineate those areas or specific improvements that are not to be disturbed. Areas or specific improvements within the Limits of Work/Contract Limits and general work areas which are not to be disturbed shall be clearly marked or fenced. Monuments and markers shall be protected before construction operations commence. Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting designated areas, specific improvements, monuments, and markers at the Project Site.

3.2 PROTECTION OF EXISTING FEATURES

A. General

1. All areas or specific improvements, including but not limited to vegetation, utilities, poles, wires, fences, curbs, monuments/property-line markers, and other structures, which must be preserved in place without being temporarily or permanently relocated shall be carefully supported and otherwise protected from damage by Contractor.

2. As excavation/demolition work approaches underground structures, digging by machinery shall be discontinued and the excavation shall be done by means of hand tools.

B. Pavements

1. On paved surfaces to remain, Contractor shall not use or operate heavy equipment, other power-operated equipment, or store tools, equipment, or materials which may mar, cut, or otherwise damage such surfaces. If there is no alternative to the operation of heavy equipment, other power-operated equipment, or storage of tools, equipment, or materials on paved surfaces to remain, Contractor shall take all measures necessary to protect such surfaces.

2. All surfaces, which have been damaged by Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately prior to the beginning of construction operations. Such restoration shall meet the approval of Engineer and may include repair or complete replacement at Contractor's expense.

C. Planted Areas

1. All planted areas, including lawn/turf areas and landscaped areas, which have been damaged by Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately prior to the beginning of construction operations.

D. Utilities

1. Locate and identify existing utilities that are to remain and protect them from damage. Provide protection as required such as marking, blocking, bracing, stabilizing, supporting, and retaining.

2. For utility termination, removal, or abandonment, refer to Section 02 4113 – Utility Demolition and Abandonment.

3. Before excavating near any utility, notify the utility owner, coordinate protective work, and comply with the utility owners' requirements.

4. All utility services shall be supported by suitable means so that the services shall not fail when tamping and settling occurs.

5. Where known utilities are encountered, notify Engineer and document location and type of utility before proceeding with work in such area.

6. When uncharted or incorrectly charted utilities are encountered, stop work and notify Engineer. Cooperate with the utility owners in maintaining their utilities in operation prior to resuming work.

E. Retaining Structures: Provide bracing, shoring, sheeting, sheet piling, underpinning or other retaining structures necessary to guard against any movement or settlement of existing or new construction, utility systems, paving, or other improvements. Contractor assumes responsibility for the strength and adequacy of retaining structures, and for the safety and support of construction, utilities or paving, and for any movement, settlement or damage thereto.

3.3 SITE DEMOLITION

A. Conduct site demolition as shown on the Drawings.

B. Conduct site demolition operations in a manner that will prevent damage to adjacent structures, utilities, pavements and other facilities to remain.

C. Remove from the site and properly dispose of all materials resulting from site demolition operations.

3.4 DUST CONTROL

A. Implement fugitive dust suppression to prevent unacceptable levels of dust resulting from site demolition operations or other activities required by the Contract Documents. It shall be the Contractor's responsibility to supervise fugitive dust control measures and to monitor airborne particulate matter. Comply with applicable provisions of Section 01 5714 – Temporary Dust Control.

3.5 REPLACEMENT

A. In case of damage, Contractor shall notify the appropriate party so that proper steps may be taken to repair any and all damage done. When the Owner does not wish to make the repairs themselves, all damage shall be repaired by Contractor, or, if not promptly done by him, Engineer may have the repairs made at the expense of Contractor.

B. Contractor shall patch, repair and/or replace all adjacent materials and surfaces damaged through the prosecution of work at no expense to Owner. All repair and replacement work shall match the existing in-kind. Final acceptance of said work shall be at the sole judgment of Owner.

END OF SECTION

DIVISION 31
EARTHWORK

SECTION 31 2310

EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Preparation and grading subgrades for slabs-on-grade, walks, pavements, and landscaping.

2. Excavating and backfilling for structures.

3. Excavation and backfilling for underground utilities and associated appurtenances.

4. Excavation, backfill and compaction for the demolition/removal of subsurface utilities and improvements.

5. Earth retention systems.

B. Contractor shall coordinate work between all Subcontractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 GENERAL

A. Contractor is advised that lines and grades, as shown on the Drawings, are subject to change. Although it is intended to adhere to what is shown on Drawings, Engineer reserves the right to make changes in lines and grades of utilities or other subsurface construction when such changes may be necessary or advantageous.

B. In open trenching on public roadways, Contractor shall be governed by the conditions, restrictions and regulations made by the local or state authority as applicable. All such regulations shall be in addition to those set down in the Specifications.

1.3 EXCAVATION CLASSIFICATIONS

A. Excavation - Excavation shall be unclassified and no consideration will be given to the nature of the materials. Excavation shall comprise and include the satisfactory removal and disposal of all materials encountered regardless of the nature of the materials and shall be understood to include but not limited to earth, fill, boulders, foundations, pavements, curbs, piping, cobbles, stones, footings, bricks, concrete, previously abandoned drainage structures and utility structures abandoned and not removed by the utility and debris.

B. Common Excavation - Excavation of all materials that can be excavated, moved, loaded, transported, and unloaded using heavy equipment or that can be excavated and dumped into place or loaded onto hauling equipment by excavation equipment (shovel, bucket, backhoe, dragline, or clam shell) or moved with dozer-type equipment, appropriate to the material type, character, and nature of the materials. The presence of isolated boulders or rock fragments larger than 1 cubic yard is not in itself sufficient cause to change the classification of the surrounding material. All Common Excavation shall be included in the Base Bid.

C. Rock Excavation - Rock Excavation as defined herein. The excavation and removal of isolated boulders or rock fragments larger than 1 cubic yard encountered in materials otherwise conforming to the definition of Common Excavation shall be classified as rock excavation. The presence of isolated boulders or rock fragments larger than 1 cubic yard is not in itself sufficient cause to change the classification of the surrounding material.

1.4 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. State of Connecticut Department of Transportation (ConnDOT)

1. Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818, 2020 and any supplements.

C. Code of Federal Regulations (CFR)

1. 29 CFR 1926, Safety and Health Regulations for Construction

D. American Concrete Institute (ACI)

1. ACI 229R-99 - Controlled Low-Strength Materials (CLSM).

E. American Association of State Highway and Transportation Officials (AASHTO)

1. AASHTO Method T 90 - Determining the Plastic Limit and Plasticity Index of Soils.

2. AASHTO T104 - Standard Method of Test for Soundess of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.

3. AASHTO Method T146 - Standard Method of Test for Wet Preparation of Disturbed Soil Samples for Test.

F. ASTM International (ASTM).

1. ASTM D422 - Standard Test Method for Particle-Size Analysis of Soils.

2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3(2,700 kN-m/m3)).

4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

5. ASTM D2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

7. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.5 DEFINITIONS

A. Backfill: Soil material or flowable concrete used to fill an excavation.

B. Bedding Course: Layer placed over the excavated sub-grade in a trench before laying pipe.

C. Benching: A method of limiting cave-in potential by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.

E. Clearing: Clearing shall consist in the felling, cutting up, and satisfactory disposal of trees and other vegetation designated for removal in accordance with these specifications.

F. Drainage Course: Layer supporting basement grade used to minimize capillary flow of pore water.

G. Earth Retention Systems: Any structural system, such as sheeting and bracing or cofferdams, designed to retain in-situ soils in place and prevent the collapse of the sides of an excavation in order to protect employees and adjacent structures.

H. Excavation: Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

1. Additional Excavation: Excavation beyond required dimensions or below subgrade elevations that is requested and/or directed by Engineer. Additional Excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

2. Bulk Excavation: Excavations more than 10 feet in width and pits more than 30 feet in either length or width.

3. Unauthorized Excavation: Excavation below the elevations specified on the plans, beyond the limits indicated on the plans, or where no dimensions are indicated, beyond depths, elevations, and dimensions reasonably necessary for construction of the work without the request and/or direction of the Engineer. Unauthorized excavation, as well as any remedial work directed by Engineer, or if applicable Geotechnical Engineer, shall be without additional compensation.

I. Fill: Soil materials used to raise existing grades.

J. Finished Grade: The proposed final elevations shown on the Drawings or called for in the Specifications.

K. Geotechnical Engineer: A qualified and licensed entity designated for the project as the authority on the assessment, design, and oversight of soil and/or rock conditions and construction affected by such conditions.

L. Geotechnical Testing Agency: An independent testing agency employed by Owner, or by Contractor is called-for, and qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

M. Grubbing: Grubbing shall consist of the removal of roots 1 ½ inch and larger, organic matter and debris, and stumps having a diameter of three inches or larger, to a depth of at least 18 inches below the surface and or subgrade; whichever is lower, and the disposal thereof.

N. Protective System: A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include earth retention systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

O. Regular Excavation: Removal and disposal of any and all material above subgrade elevation, except solid rock and undercut excavation, located within the limits of construction.

P. Rock: Solid ledges, bedded deposits, unstratified masses and conglomerations of material so firmly cemented as to possess the characteristics of solid rock which cannot be removed without systematic drilling or hoe ramming. All boulders containing a volume of more than one (1) cubic yard shall be considered rock.

Q. Rock Excavation: Removal and satisfactory disposal of Rock, which, in the opinion of Engineer, cannot be excavated except by drilling, wedging, jack hammering or hoe ramming or the excavation of boulders or rock fragments containing a volume of more than one (1) cubic yard. The presence of isolated boulders or rock fragments larger than 1 cubic yard is not in itself sufficient cause to change the classification of the surrounding material.

R. Licensed Professional Engineer: A person who is licensed as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

S. Satisfactory Materials: Earth material that meets the classification, use, and/or gradation requirements herein that does not contain limestone, shale, clay, ash, slag, friable material, organic or vegetative materials, topsoil, wood, trash, broken concrete, masonry rubble, trash, refuse, or frozen materials.

T. Shield System: A structure that is designed to withstand the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with 29 CFR 1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

U. Sloping: A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

V. 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.

W. Sub-grade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below drainage fill.

X. Surplus Material: Excavated acceptable material that cannot be utilized elsewhere on the site as backfill or embankment fill, or as otherwise directed by the Engineer.

Y. Temporary Dewatering System: A system to lower and control water to maintain stable, undisturbed subgrades at the lowest excavation levels. Dewatering shall be provided for all pipelines, structures and for all other miscellaneous excavations.

Z. Testing Laboratory: A qualified entity engaged to perform specific laboratory tests.

AA. Testing Agency: A qualified entity engaged to collect samples, perform specific in-field tests, and/or inspections. The Testing Laboratory may provide the services of the Testing Agency.

BB. Trench: A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet.

CC. Unsatisfactory Material: Soil material that contains organic silt, peat, vegetation, wood or roots, stones or rock fragments over six (6) inches in diameter or exceeding 40 percent by weight of the backfill material, porous biodegradable matter, loose or soft fill, construction debris, or refuse, or material which cannot be compacted to the specified or indicated density.

1.6 SUBMITTALS

A. Testing Laboratory - Submit name and qualifications of commercial testing laboratory for Engineer's approval. Submit applicable documentation of credentials, licenses, etc.

B. Testing Agency - Submit name and qualifications of third-party in-field quality control Testing Agency for Engineer's approval. Submit applicable documentation of credentials, licenses, etc.

C. Site Characterization of Off-Site Borrow Sources: The following information shall be submitted to Engineer for review at least two weeks prior to use of an off-site borrow source:

1. Location and name of the borrow source site.

2. Owner and contact information for the borrow source site.

3. Present and past usage of the source site and materials.

4. Any previously existing report(s) associated with an assessment of the source site as relates to the presence of oils, hazardous materials, or other organic and non-organic constituents which may be considered contaminants.

5. Location within the site from which the material will be obtained.

D. Chemical Testing Data: For each type/classification of earth material proposed and each source of earth material proposed: Submit a letter signed by an authorized representative of material supplier stating that such proposed material is free of oils, hazardous materials, or other organic and non-organic constituents which may be considered contaminants.

E. Material Testing Data: Provide results for all proposed bedding, fill, aggregates, and backfill. Submit complete laboratory reports.

1. Gradation analysis.

2. Soil classification and Moisture-Dry Density Curve.

3. Loss on Abrasion.

4. Soundness.

F. Samples: 50-pound sample of each type of off-site bedding, fill, aggregates, and backfill that are proposed for use at the Project Site in an air-tight container for the testing laboratory, a minimum of two weeks prior to delivery of such material to the site. Use of these proposed materials by Contractor prior to testing and approval or rejection shall be at Contractor's risk.

G. Product Data

1. Plastic warning tape.

2. Separation fabric, filter fabric, geogrids, or similar geotextiles.

H. Field Testing Results

1. Compaction test results keyed to date and specific location of testing. Provide Engineer with copies of testing reports within 24 hours of field test.

1.7 SAFETY

A. Contractor shall conduct all excavation activities in conformance with applicable regulations, including those relating to warning signs, excavation safety, sheeting, shoring, and stabilization.

B. Contractor shall provide and maintain barricades, signs, lights, etc., required for the protection of personnel, materials and property. Temporary barricades, etc. shall conform all applicable codes and regulations, and shall be lighted at night with lanterns, flares and reflectorized paint as required for safety. Adapt barricades, signs, lights, etc. to evolving site conditions throughout the progress of the work.

C. Provide other safety devices as required, including adaptation of such safety devices to changing site conditions, to prevent unauthorized entry to construction areas and open excavations. Provide warning signs and other temporary construction safety devices necessary for proper completion of the work in compliance with applicable safety regulations.

D. Contractor shall properly design and furnish all labor, materials, equipment, and tools necessary to construct permanent or temporary excavation support systems, including, but not necessarily limited to, sheet piling, trench shields, trench boxes, timber trench shoring, pneumatic/hydraulic shoring, steel sheeting or sheeting using other materials, sloping, and benching.

E. Any time an excavation is to remain open, at a minimum, provide full enclosure with safety barriers and fencing, warning signs, and additional safety control measures as appropriate for the condition.

1.8 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods required for proper performance of the work in this Section. Use equipment of adequate size, capacity and quantity to accomplish the work of this Section in a timely manner.

B. Utility Mark-out

1. Prior to commencing work, comply with utility mark-out requirements of the Call-Before-You-Dig System (1-800-922-4455).

2. Verify the location of all subsurface utilities marked through the Call-Before-You-Dig System.

3. Not all subsurface facilities or structures will be identified through the Call-Before-You-Dig System. Confirm the location of other subsurface utilities and other subsurface facilities or structures prior to commencing work. Field-mark utilities as required.

C. Codes and Standards: Perform the work of this Section in accordance with all applicable codes, standards, and the requirements of authorities having jurisdiction.

D. Engineer reserves the right to perform all in-field testing specified in this Section and reserves the right to determine the suitability of all materials to be used for fills and reject any fill not meeting the specifications.

E. Field Density testing and subgrade observation shall be performed by the designated entity.

F. Weather Limitations:

1. Material excavated when frozen or when air temperature is less than 32 degrees Fahrenheit (32 F) shall not be used as fill or backfill until material completely thaws.

2. Material excavated during inclement weather shall not be used as fill or backfill until after material drains and dries sufficiently for proper compaction.

G. Vibration

1. Vibration producing activities such as operation of heavy construction equipment, vibratory compaction, etc. may be required. Contractor is advised that structures are located close to the proposed work and that construction activities shall be conducted so as to preclude damage to these structures and undue annoyance to occupants.

2. Contractor has liability for, and shall bear all costs associated with, any damage caused to existing structures, buildings and/or services as a result of any construction activity. This extends to responding to any claims of vibration-induced damage. It is Contractor's sole decision how to manage the risk of vibration-induced damage, and what, if any, surveys, monitoring, or other activities are undertaken.

1.9 TESTING

A. All sampling and testing shall be the responsibility of Contractor via Testing Agency and Testing Laboratory as applicable. Contractor shall retain and pay for the services of such Testing Agency/Testing Laboratory to perform all pre-construction testing and field testing in accordance with applicable standards.

B. Borrow and Fill: Contractor shall provide testing as defined below.

1. Gradation analysis for each type of borrow and on-site fill materials by ASTM D422.

2. Soil classification (ASTM D2487) and Moisture-Dry Density Curve (Proctor Test-Modified) by ASTM D1557 for all proposed fill and backfill materials at the frequency specified below:

a. For suitable soil materials removed during Trench Excavation, perform one test for every 1,000 cubic yards of similar soil type. Similarity of soil types will be as determined by the Engineer.

b. For borrow materials, perform tests from each proposed source, at a rate of one test for every 1,000 cubic yards of soil type. Similarity of soil types will be as determined by the Engineer.

3. Loss on Abrasion: Where called-for, AASHTO Method T 96.

4. Soundness: Where called-for, AASHTO Method T 104.

C. Compaction Testing: Contractor shall conduct compaction testing (i.e. ASTM D2922 and ASTM D3017 or ASTM D1556) at the frequency indicated below.

1. Trench: 1 test per lift, every 1,000 square feet or 200 feet of trench.

2. Embankment: 1 test per lift, every 1,000 square feet.

3. Additional compaction testing may be required when there is evidence of a change in the quality of moisture control or the effectiveness of compaction.

4. If testing indicates that compacted fills are below specified density, additional compaction and/or replacement of material shall be provided at no expense to Owner.

D. Chemical Testing: Prior to delivery of any earth material to the Project Site, Contractor shall conduct chemical testing to demonstrate that such material is free of oils, hazardous materials, or other organic and non-organic constituents which may be considered contaminants.

1.10 EXCAVATED MATERIAL

A. Placement

1. Excavated material shall be so placed as not to interfere with travel or movement on existing streets, driveways, sidewalks or other areas designated to remain undisturbed. Excavated material shall not be deposited on private property without the written consent of the property owner(s) and approval of Engineer.

2. No excavated material shall be stored on top of installed pipe, other subsurface construction, or within the drip-line of trees.

3. Contractor shall consider surcharge loads when stockpiling excavated material adjacent to excavations, and take any measure required to prevent cave-in, including but not limited to, excavation support systems and/or alternative stockpiling locations.

B. Satisfactory Material excavated at the Project Site may be used for Common Fill or Backfill on other parts of the Work, if specifically approved by Engineer. Engineer or Geotechnical Engineer shall determine what is Satisfactory Material or Unsatisfactory Material where questions arise.

C. Contractor shall be responsible for the proper disposal of all Unsatisfactory Material. Engineer or Geotechnical Engineer shall determine what is Satisfactory Material or Unsatisfactory Material where questions arise.

1.11 SHEETING, SHORING AND BRACING

A. Provide earth retention systems as required by federal, state and local regulations. Shoring and bracing of trenches and other excavations shall be in accordance with the latest OSHA Standards and interpretations, and all other applicable codes, rules and regulations of federal, state and local authorities.

1.12 DRAINAGE

A. At all times during construction, Contractor shall temporarily provide, place and maintain ample means and devices with which to remove promptly, and dispose of properly, all water entering trenches and other excavations, or water that may flow along or across the site of the Work, and keep said excavations dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be damaged. At the conclusion of the work, Contractor shall remove such temporary means and devices.

B. All groundwater which may be found in the trenches and foundation excavations, and any water which may get into them from any cause whatsoever, shall be pumped or bailed out, so that the trench shall be dry during pipe laying and backfilling and during the placement of concrete.

C. All water pumped or drained from the Work shall be managed in accordance with applicable discharge permits, without undue interference with other work or damage to pavements, other surfaces, or property.

1.13 COORDINATION

A. Prior to commencing earthwork operations, meet with representatives of governing authorities, Engineer, testing entity, and other pertinent entities.

1. Review earthwork procedures and responsibilities including Contractor's schedule of operations, scheduling observation and testing procedures and requirements.

2. Notify participants at least three (3) working days prior to convening conference. Record discussions and agreements and furnish copies to each participant.

3. Contractor shall at all times so conduct his work as to insure the least possible inconvenience to the general public and the residents in the vicinity of the work. Fire hydrants on or adjacent to the work shall be kept accessible to firefighting equipment at all times. Temporary provisions shall be made by Contractor to ensure the proper functioning of all gutters, sewer inlets, and drainage ditches, which shall not be obstructed except as approved by Engineer.

B. Benchmark/Monument Protection: Protect and maintain benchmarks, monuments or other established reference points and property corners. If disturbed or destroyed, replace at no cost to Owner.

C. Provide five (5) days advance notice to Engineer and testing entity for any proposed earthwork operation requiring observation and/or testing.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

A. All materials used in the work of this Section shall be Satisfactory Material, and any material that does not meet this classification shall be considered an Unsatisfactory Material and shall not be used.

B. Unsatisfactory Soils: Soil materials not meeting the requirements for Satisfactory Soils.

1. Unsatisfactory soils also include satisfactory soils not maintained within two (2) percent of optimum moisture content at time of compaction.

2.2 COMMON FILL/ORDINARY BORROW

A. Earth materials classified by ASTM D 2487 as GW, GP, GM, GP-GM, GW-GM, GP-GC, SW, SP, and SM that are free of clay and with less than twenty (20) percent of material by weight that passes the No. 4 sieve passing the No. 200 sieve.

B. Common Fill material is subject to the approval of Engineer and may be either material removed from excavations or borrow from off site. It shall have physical properties such that it can be readily spread and after it has been placed and properly compacted, it will form a dense, stable fill.

C. Common Fill shall not be used at locations where use of a specific earth material is called-for.

2.3 BANK RUN GRAVEL

A. Granular material, well graded from fine to coarse, obtained from approved natural deposits and unprocessed, except for the removal of unacceptable material and stones larger than the maximum size permitted.

B. Bank Run Gravel shall be graded as follows:

Gradation of Bank Run Gravel (ConnDOT Grading "C")

Sieve	Percent Passing by Weight
1 ½"	100
¾"	45-80
¼	25-60
No. 10	15-45
No. 40	5-25
No. 100	0-10
No. 200	0-5

2.4 GRANULAR FILL

A. Broken or crushed stone, gravel, or a mixture thereof.

B. Broken or crushed stone

1. The product resulting from the artificial crushing of rocks, boulders or large cobblestones, substantially all faces of which have resulted from the crushing operation. Broken or crushed stone shall consist of sound, tough, durable stone, reasonably free from soft, thin, elongated, laminated, friable, micaceous or disintegrated pieces.

C. Bank or crushed gravel

1. Sound, tough, durable particles of crushed or uncrushed gravel, free from soft, thin, elongated or laminated pieces and vegetable or other deleterious substances. Crushed gravel shall be the manufactured product resulting from the deliberate mechanical crushing of gravel with at least 50% of the gravel retained on the No. 4 sieve having at least one fractured face.

D. Granular Fill shall be graded as follows:

Gradation of Granular Fill (ConnDOT Grading "A")

Sieve	Percent Passing by Weight
3 ½"	100
1 ½"	55-100
1/4"	25-60
No. 10	15-45
No. 40	5-25
No. 100	0-10
No. 200	0-5

E. Reclaimed material shall not be considered acceptable for use as granular fill.

2.5 SCREENED GRAVEL AND CRUSHED STONE

A. Screened gravel, well graded in size from 3/8 inch to 3/4 inch. The gravel shall consist of clean, hard, and durable particles or fragments. Crushed rock of suitable size and grading may be used instead of screened gravel.

B. Screened Gravel shall be graded as follows:

Gradation of Screened Gravel (ConnDOT Gradation No. 6)

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

2.6 SUBBASE

A. Bank or Crushed Gravel

1. Sound, tough, durable particles of crushed or uncrushed gravel, free from soft, thin, elongated or laminated pieces. It shall be hard and durable enough to resist weathering, traffic abrasion and crushing.

2. Bank or crushed gravel for subbase shall be graded as follows:

Gradation of Bank or Crushed Gravel Subbase (ConnDOT Gradation "B")

Sieve	Percent Passing by Weight
5"	100
3 1/2"	90-100
1 1/2"	55-95
1/4"	25-60
No. 10	15-45
No. 40	5-25
No. 100	0-10
No. 200	0-5

B. Crusher-Run Stone

1. Sound, tough, durable broken stone. It shall be reasonably free from soft, thin, elongated, laminated, friable, micaceous or disintegrated pieces.

2. Loss on Abrasion: The crusher-run stone shall show a loss on abrasion of not more than fifty percent using AASHTO Method T 96.

3. Crusher-run stone shall for subbase shall be graded as follows:

Gradation of Crusher Run Stone Subbase (ConnDOT Gradation "A")

Sieve	Percent Passing by Weight
3 1/2"	100
1 1/2"	55-100
1/4"	25-60
No. 10	15-45
No. 40	5-25
No. 100	0-10
No. 200	0-5

2.7 PROCESSED AGGREGATE BASE

A. Coarse aggregates and fine aggregates shall be combined and mixed by approved methods so that the resulting material shall conform to the following gradation:

Gradation of Processed Aggregate Base

Sieve	Percent Passing by Weight
2 1/2"	100
2"	95-100
3/4"	50-75
1/4"	25-45
No. 40	5-20
No. 100	2-12

B. Coarse Aggregate: Either gravel, broken stone or a combination thereof. When tested by means of the Los Angeles Machine, using AASHTO Method T 96, the coarse aggregate shall not have a loss of more than 50%.

1. If gravel is used for the coarse aggregate, it shall consist of sound, tough, durable particles of crushed or uncrushed gravel or a mixture thereof, free from soft, thin, elongated or laminated pieces, lumps of clay, loam and vegetable or other deleterious substances.

2. If broken stone is used for the coarse aggregate, it shall consist of sound, tough, durable fragments of rock of uniform quality throughout. It shall be free from soft disintegrated pieces, mud, dirt, organic or other injurious material.

3. Soundness for Gravel and Broken Stone: When tested by magnesium sulfate solution for soundness using AASHTO Method T 104, the coarse aggregate shall show a loss of not more than 15% at the end of 5 cycles.

C. Fine Aggregate: Natural sand, stone sand, screenings or any combination thereof. The fine aggregate shall be limited to material 95% of which passes a No. 4 (4.75-mm) sieve having square openings and not more than 8% of which passes a No. 200 (75-μm) sieve. The material shall be free from clay, loam and deleterious materials.

1. Plasticity: When natural sand is used, the fine aggregate shall conform to the following:

    a. When the fraction of the dry sample passing the No. 100 mesh sieve is 4% or less by weight (mass), no plastic limit test will be made.

    b. When the fraction of the dry sample passing the No. 100 mesh sieve is greater than 4% and not greater than 8% by weight (mass), that fraction shall not have sufficient plasticity to permit the performing of the plastic limit test using AASHTO Method T 90.

    c. When the fraction of the dry sample passing the No. 100 mesh sieve is greater than 8% by weight (mass), the sample will be washed; and the additional material passing the No. 100 mesh sieve shall be determined by AASHTO Method T 146, except that the No. 100 mesh sieve will be substituted for the No. 40 mesh sieve where the latter is specified in AASHTO Method T 146. The combined materials that passed the No. 100 mesh sieve shall not have sufficient plasticity to permit the performing of the plastic limit test using AASHTO Method T 90.

2. Plasticity: When screenings or any combination of screenings and natural sand or any combination of stone sand and natural sand are used, the following requirements shall apply:

    a. When the fraction of the dry sample passing the No. 100 mesh sieve is 6% or less by weight (mass), no plastic limit test will be made.

    b. When the fraction of the dry sample passing the No. 100 mesh sieve is greater than 6% and not greater than 10% by mass, that fraction shall not have sufficient plasticity to permit the performing of the plastic limit test, using AASHTO Method T 90.

    c. When the fraction of the dry sample passing the No. 100 mesh sieve is greater than 10% by weight (mass), the sample shall be washed; and additional material passing the No. 100 mesh sieve shall be determined by AASHTO Method T 146, except that the No. 100 mesh sieve shall be substituted for the No. 40 mesh sieve where the latter is specified in AASHTO Method T 146. The combined materials that have passed the No. 100 mesh sieve shall not have sufficient plasticity to permit the performing of the plastic limit test using AASHTO Method T 90.

2.8 BEDDING

A. Slabs on grade

1. Granular Fill unless otherwise indicated.

B. Utilities

1. Unless otherwise indicated, bedding shall consist of screened gravel, maximum size 3/4 inches and minimum size 3/8 inches.

2. Unless otherwise indicated, naturally or artificially graded mixture of natural or crushed gravel, crushed stone and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

3. When clay, wet, soft or silty soil conditions prevail, 3/4-inch crushed stone shall be used for bedding of pipe.

2.9 SAND

A. Sand shall consist of clean, hard, durable, uncoated particles of quartz or other rock. It shall not contain more than 3% of material finer than a #200 sieve.

B. Organic Impurities: Fine aggregate subjected to the colorimetric test shall not produce a color darker than Gardner Color Standard No. 11, using AASHTO T 21. If the fine aggregate fails to meet this requirement, the provisions of AASHTO M 6, Section 5.2, will govern.

C. Sand shall be uniformly graded as follows:

Gradation of Sand

Sieve	Percent Passing by Weight
3/8"	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10

D. The above gradation represents the extreme limits which shall determine suitability for use from all sources of supply. The gradation from any one source shall be reasonably uniform and not subject to the extreme percentages of gradation specified above. For the purpose of determining the degree of uniformity, a fineness modulus determination will be made upon representative samples from any source. Fine aggregate from any one source having a variation in fineness modulus greater than 0.20 either way from the fineness modulus of the representative sample will be rejected.

2.10 FLOWABLE CONCRETE FILL/BACKFILL (FLOWFILL)

A. Cementitious material, ACI 229R, comprised of cement, aggregates, fly ash, water, and admixtures, capable of being poured or pumped, self-leveling, self-curing to specified strengths.

B. Excavatable flowfill: Concrete strength shall be liquid enough to flow, be self-leveling and excavatable by hand methods. Unless otherwise specified, excavatable flowfill shall have a minimum 28 day compressive strength of 30 psi, and shall not exceed 100 psi.

C. Non-excavatable flowable: Concrete strength shall be liquid enough to flow and be self-leveling and excavatable by machine equipment. Unless otherwise specified, non-excavatable flowfill shall have a minimum 28-day compressive strength of 125 psi, and shall not exceed 200 psi.

2.11 DETECTABLE WARNING TAPE

A. Acid and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric power lines, electric power conduits and other electric power facilities.

2. Yellow: Gas, oil petroleum products, steam, compressed air, compressed gas and all other hazardous materials.

3. Blue: Water.

4. Orange: Communication lines or cables, including but not limited to telephone, fire signals, cable television, and electronic controls.

5. Green: Storm drainage and sanitary sewer systems, including force mains and other non-hazardous materials.

6. Brown: Chilled Water and Other.

PART 3 EXECUTION

3.1 PREPARATION

A. Notify "Call-Before-You-Dig" to request a utility mark-out for the Project Site prior to any earth disturbance. Provide written confirmation to Engineer that such mark-out has been completed.

B. Verify site conditions before proceeding with demolition work. Field check the accuracy of the Drawings and inspect structures, utilities, and other site features prior to start of work and notify Engineer in writing, of any discrepancies or hazardous conditions.

C. Take precautions for preventing injuries to persons or damage to property in or about the work. Protect structures, utilities, sidewalks, pavements and other improvements from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

D. Protect sub-grades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

E. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

F. When excavations are to be made in paved surfaces, the pavement shall be removed so as to provide a clean uniform edge with a minimum disturbance of remaining pavement. Saw cutting the pavement to provide a clean, uniform edge shall unless otherwise indicated.

G. If pavement is removed in large pieces, it shall not be mixed with other excavated material, but shall be disposed of away from the site of the Work before the remainder of the excavation is made.

3.2 CLEARING AND GRUBBING

A. Clear, grub, remove, and dispose of all vegetation and debris within the limits of construction, as designated on the plans or as required by Engineer. Contractor shall remove only those trees and shrubs absolutely necessary to allow for the construction. The work shall also include the preservation from injury of defacement of all vegetation or object designated to remain.

3.3 PROTECTION OF EXISTING FEATURES

A. General

1. Protect all existing improvements from damage unless those improvements are specifically designated for permeant removal, relocation, or temporary removal and replacement.

2. As excavation approaches underground structures, digging by machinery shall be discontinued and the excavation shall be done by means of hand tools.

3. Pavements: On paved surfaces to remain, do not use or operate tractors, bulldozers, or other power operated equipment, the treads or wheels of which are so shaped as to cut or otherwise damage such surfaces. All surfaces, which have been damaged by Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately prior to the beginning of operations. Suitable materials and methods shall be used for such restoration.

B. Utilities

1. Existing utilities remaining in service, including those remaining in service until after relocation, and relocated utilities shall be protected from damage. Before excavating near any existing utilities, notify the utility owner, coordinate protective work and comply with the utility owners' requirements. Coordinate with respective utility owners/operators as required.

2. Safeguard and protect from damage or movement any existing services, utilities, and utility structures uncovered or encountered which are to remain in service.

3. All utility services shall be supported by suitable means so that the services shall not fail when tamping and settling occurs.

4. Where known utilities are encountered, notify Engineer and document location and type of utility before proceeding with work in such area.

5. When uncharted or incorrectly charted piping or utilities are encountered during excavation, stop work and notify Engineer immediately. Cooperate with the utility owners in maintaining their utilities in operation prior to resuming work.

C. Retaining Structures: Provide bracing, shoring, sheeting, sheet piling, underpinning or other retaining structures necessary to guard against any movement or settlement of existing or new construction, utility systems, paving, or other improvements. Assume responsibility for the strength and adequacy of retaining structures, and for the safety and support of construction, utilities or paving, and for any movement, settlement or damage thereto. Retain the services of a licensed engineer as required to design bracing, shoring, sheeting, sheet piling, underpinning or other retaining structures.

D. Replacement and Relocation

1. In case of damage, Contractor shall notify the appropriate party so that proper steps may be taken to repair any and all damage done. When the Owner does not wish to make the repairs themselves, all damage shall be repaired by Contractor, or, if not promptly done by him, Engineer may have the repairs made at the expense of Contractor.

2. If certain existing structures are encountered that in the opinion of Engineer require temporary or permanent relocation or removal, Engineer may order in writing that Contractor undertake all or part of such work or to assist the Owner in performing such work. For such occurrences, Contractor shall be compensated as applicable, as extra work.

3. In removing existing structures, Contractor shall use care to avoid damage to the material, and Engineer shall include for payment only those new materials, which, in his judgment, are necessary to replace those unavoidably damaged.

4. The structures to which the provisions of the preceding two paragraphs shall apply include structures which (1) are not indicated on the Drawings or otherwise provided for, (2) encroach upon or are encountered near and substantially parallel to the edge of the excavation, and (3) in the opinion of Engineer will impede progress to such an extent that satisfactory construction cannot proceed until they have been changed in location, removed (to be later restored), or replaced. (See Item 3.19, "Sub Surface Obstructions" also).

3.4 DEWATERING

A. Comply with all applicable permit requirements.

B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrade and from flooding Project site and surrounding area.

C. Protect sub-grades from softening, undermining, washout and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

2. Install de-watering system to keep subgrades dry and convey ground water away from excavations.

3.5 EXCAVATION

A. Dust Control: During the progress of the Work, Contractor shall conduct his operations and maintain the area of his activities in order to minimize the creation and dispersion of dust. Refer to Section 01 5714- Temporary Dust Control.

B. Excavate to the exact elevations shown on the plans, or as directed by Engineer. Where no dimensions are indicated, make excavations in such manner, and to such depths, elevations, and dimensions, that will give suitable room for construction of the work indicated on the Drawings. As applicable for utility installations, comply with trench limits shown on the Drawings.

C. Furnish and place all sheeting, bracing, and supports, and render the bottom of the excavation firm and dry, and in all respects, acceptable for construction of the work.

D. If Contractor excavates below the elevations specified on the plans, beyond the limits indicated on the plans, or where no dimensions are indicated, beyond depths, elevations, and dimensions reasonably necessary for construction of the work, Contractor shall bring the excavation back to the proper elevation and/or dimension by backfilling with Suitable Material that is approved by Engineer in accordance with the backfilling provisions specified herein. Engineer, or if applicable Geotechnical Engineer, shall have sole authority in determining the specific composition of such Suitable Material.

1. Any increase in cost resulting from Unauthorized Excavation, including but not necessarily limited to backfilling, haul-off, increasing the size of footings or foundations, testing, schedule impact, or administrative impact shall be at Contractor's sole expense.

E. If utilities are to be laid in new embankments, or other new fill areas which are more than 12 inches deep below the invert of the pipe, the fill material shall be placed and properly compacted to final grade or to a height of at least 3 feet above the top elevation of the pipe, whichever is the lesser, before laying pipe. Particular care shall be taken to ensure maximum consolidation of material under the pipe location. The pipe trench shall then be excavated as though in undisturbed material.

3.6 TRENCH EXCAVATION

A. In general, trenches shall be excavated to such depth as will provide a cover depth as indicated on the Drawings from finished grade to the top of the pipe barrel. Deeper trenches shall be provided where necessary on account of the conformation of the ground and to permit the alignment of the pipe without undue deflection of joints.

B. Trenches shall be excavated by hand or machinery to the width and depth indicated on the Drawings and specified herein. Depth shall account for thickness of the pipe and thickness of bedding. All loose materials shall be removed from the bottom of the trench so that the bottom of the trench will be in an undisturbed condition.

C. If in the opinion of Engineer, the material at or below the depth to which excavation for structures and pipes would normally be carried is unsuitable for foundation, it shall be removed to such widths and depths as directed and replaced with suitable material.

D. Trench widths shall be 3 feet greater than the nominal inside diameter of pipe for such diameters of 36 inches or less. For diameters greater than 36 inches, the width shall be 4 feet greater than nominal inside diameter. Trench excavation for manholes, catch basins, drop inlets, etc. shall be two (2) feet outside the neat lines of the foundations. These limits may be adjusted for field conditions at the direction of Engineer.

E. Bedding for pipe and utility structures will be as detailed on the Drawings.

3.7 APPROVAL OF SUBGRADE

A. Notify Engineer, and Geotechnical Engineer if applicable, when excavations have reached required subgrade elevation.

B. If Engineer and, if applicable, Geotechnical Engineer determines that Unacceptable Material is present, continue excavation of such Unacceptable Material and replace with approved Satisfactory Materials as directed. The replacement of Unacceptable Material with Satisfactory Materials will be paid for as a change in the work according to applicable provisions of the contract.

C. Protect subgrade from disturbance at all times. Reconstruct sub-grades damaged by freezing temperatures, frost, rain, accumulated water or construction activities, as directed by Engineer. Excavation and replacement with structural fill of any disturbed or softened materials resulting from inadequate preparation, inadequate dewatering, or inadequate protection, shall be at Contractor's sole expense.

3.8 TUNNELING

A. In general, excavation shall be made in open cut from the surface and Contractor shall not be allowed to do any tunneling without obtaining permission from Engineer, and then only according to methods approved by him, and at no additional cost to the Owner. This permission will only be given where a line is to be laid to a point behind the curb, across a paved street, or where, in the opinion of the Engineer, it is necessary to tunnel short sections on account of proximity of adjacent walls, utilities, structures, to avoid important roots of trees or large masses of roots, or to ensure against root damage endangering the life of trees near the pipeline location. Such excavations then can be made in alternate sections of open cut and tunnel, the length of the tunnel sections to be specified by Engineer. These tunnel sections shall be cut underneath to a wedge with its edge horizontally across the pipe, and backfilled tightly by ramming and tamping from each end.

3.9 FILL AND BACKFILL

A. Fill: Contractor shall remove loam and topsoil, loose vegetable matter, stumps, large roots, etc., from areas upon which embankments will be built or material will be placed as fill to adjust subgrade prior to final grading. The subgrade shall be prepared by forking, furrowing, or plowing such that the first layer of the new material placed thereon, will be well bonded to it.

B. Backfill: Common Fill material may be used as backfill when indicated on the Drawings or when authorized by Engineer (or as applicable Geotechnical Engineer) if Contractor can achieve required minimum dry density after compaction. Backfilling shall be done as promptly as is consistent with non-injury to pipe or structures, but no backfilling shall be done before Engineer (or as applicable Geotechnical Engineer) gives permission.

C. Frozen material shall not be placed in any fill or backfill, nor shall any fill or backfill be placed upon frozen material. Previously frozen material shall be removed, or shall be otherwise treated as required, before new fill or backfill is placed.

D. After the subgrade has been prepared, fill material shall be placed thereon and built up in successive layers not exceeding twelve (12) inches before compaction until it has reached the required elevation.

1. When gravel fill or other material is used for foundation of structures, it shall be spread in layers of uniform thickness not exceeding six (6) inches before compaction.

E. Upon completion of filling and backfilling, all surplus material shall be removed and surfaces to remain which are affected in any way by the work restored to the condition in which they were before ground was broken. All surplus materials shall become the property of Contractor. If Contractor fails to promptly remove such surplus materials, Engineer may have the same done and charge all associated costs to Contractor, including deduction from payments due.

3.10 BACKFILLING UTILITIES

A. As soon as practical after utility has been placed into bedding and joints properly made, backfilling shall begin, and shall continue without delay.

B. Placement of bedding over pipe prior to placement of backfill shall be as indicated on the Drawings. Hand-place bedding at the sides of the pipe and to the limits indicated on the Drawings over the pipe. Bedding placed over pipe shall be in 6-inch layers, leveled along the length and width of the trench and thoroughly compacted with approved tampers.

C. Install warning tape as indicated o the Drawings unless otherwise specified by the utility owner/operator.

3.11 BACKFILLING AT STRUCTURES

A. No backfill shall be deposited against concrete until the concrete has obtained sufficient strength to withstand the earth pressure placed upon it and in no case less than seven days, nor before carrying out and satisfactorily completing the tests for watertight structures specified elsewhere.

B. Prior to placing backfill, subgrade shall be thoroughly compacted. Soft or loose material evident during compaction shall be removed and replaced with Granular Fill or other approved fill material.

C. Fill placed around arches, rigid frames, box culverts and piers shall be deposited on both sides of the structure to approximately the same elevation at the same time. Each layer of backfill shall be spread to a thickness not exceeding 6 inches deep after compaction and shall be thoroughly compacted by the use of power rollers or other motorized vehicular equipment, by tamping with mechanical rammers or vibrators, or by pneumatic tampers. Any equipment not principally manufactured for compaction purposes or which is not in proper working order in all respects shall not be used within the area described above.

D. Bring backfill to sub-grade elevations. Slope backfill at exterior of building to drain water away from building.

3.12 COMPACTION

A. Each layer of fill or backfill material shall be compacted by the use of compaction equipment consisting of rollers, compactors or a combination thereof. Earth-moving and other equipment not specifically manufactured for compaction purposes will not be considered as compaction equipment. At such points as cannot be reached by mobile mechanical equipment, or where such equipment is not permitted, the materials shall be thoroughly compacted by the use of suitable power- driven tampers.

B. Previously placed or new materials shall be moistened by sprinkling, if required, to ensure proper bond and compaction. No compacting shall be done when the material is too wet, from either rain or application of water, to compact it properly. At such times the work shall be suspended until the previously placed and new materials have dried out sufficiently to permit proper compaction, or such other precautions shall be taken as may be necessary to obtain proper compaction.

C. Special attention shall be given to compaction in places close to walls where motorized vehicular compaction equipment cannot reach. Within 3 feet of the back face of walls and within a greater distance at angle points of walls, each layer of backfill shall be compacted by mechanical rammers, vibrators or pneumatic tampers.

D. Each layer of fill or backfill shall be compacted at optimum moisture content. No subsequent layer shall be placed until the specified compaction is obtained for the previous layer.

E. Compaction Density: Compaction density shall be expressed as a percentage of maximum dry density at optimum moisture content according to ASTM D 1557 Method C. Density indicated is minimum required.

1. Under structures, building slabs, and steps: 95 %

2. At building foundations: 95 %

3. Utilities, below pipe centerline: 95%

4. Utilities below unpaved surface, above pipe centerline: 92%

5. Utilities below paved surface, above pipe centerline: 95%

6. Embankments: 92%

7. Landscaped areas: 85 %.

8. Natural grass athletic fields and similar recreational fields: 93%

3.13 SUBSURFACE OBSTRUCTIONS

A. As a general rule, sub-surface obstructions encountered along the route of the pipeline shall be considered as follows:

1. Crossing Obstruction: All pipes, conduits, wires, etc. of whatever nature whose centerline lies at an angle of 20 degrees or greater to the centerline of the pipe being installed shall be considered as crossing obstructions and shall be protected, or repaired or replaced if damaged, or relocated, all at no additional cost to the Owner.

2. Interfering Obstructions: All pipes, conduits, wires, etc. of whatever nature whose centerline lies at an angle of less than 20 degrees, but more than 5 degrees to the centerline of the pipe being installed, shall be considered as interfering obstructions. Costs for supporting such obstructions in place during installation of the new pipe shall be paid for by the Owner. Costs for supporting interfering obstructions shall not be construed to include any costs for excavation. Repairing or replacing damaged interfering obstructions, or relocation shall be accomplished at no additional cost to the Owner.

3. Parallel Obstructions: All pipes, conduits, wires, etc. of whatever nature whose centerline lies at an angle of 5 degrees or less, or is truly parallel and less than 0.5 feet offset from outside the normal trench limits, as specified in Subarticle 3.5 B. of this Section, of the pipe being installed, shall be considered parallel obstructions. Costs for supporting such obstructions in place during installation of the new pipe, including excavation, may be paid for by the Owner, or Owner may elect to pay for the cost of replacing such obstructions. Should Owner first elect to pay the cost of supporting the obstruction and then elect to pay the cost of replacing the obstruction, approved costs for supporting the obstruction, including excavation, incurred prior to electing replacement costs shall also be paid. After Owner elects to pay replacement costs, only replacement costs will be paid for all additional work in the vicinity of the parallel obstruction.

4. Angle measurement between centerline of obstructing pipe, conduit, wire, etc. and centerline of the pipe being installed shall be taken from between the horizontal projection of the centerlines at ground surface. Parallel offset distance between centerline of obstructing pipe, conduit, wire, etc. and the outside of normal trench limits of the pipe being installed shall be taken from between the horizontal projection of the centerlines and outside trench limit at ground surface.

END OF SECTION

SECTION 31 2543

GEOTEXTILES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Furnishing and installation geotextile materials for the separation of earth materials.

2. Furnishing and installation geotextile materials for the stabilization of earth materials.

B. Contractor shall coordinate work between all Subcontractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. State of Connecticut Department of Transportation (ConnDOT)

1. Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818, 2020 and any supplements.

B. ASTM International (ASTM).

1. ASTM D4355 – Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.

2. ASTM D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

3. ASTM D4533 – Standard Test Method for Trapezoid Tearing Strength of Geotextiles.

4. ASTM D4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

5. ASTM D4751 – Standard Test Method for Determining Apparent Opening Size of a Geotextile.

6. ASTM D4873 – Guide for Identification, Storage, and Handling of Geotextiles.

7. ASTM D6241 – Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe.

8. ASTM D6706 – Standard Test Method for Measuring Geosynthetic Pullout Resistance in Soil.

C. Code of Federal Regulations (CFR)

1. 29 CFR Part 1926 Subpart P – OSHA Excavation Regulations 1926.560 through 1926.562 including Appendices A through F.

1.3 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods required for proper performance of the work in this Section.

1.4 SUBMITTALS

A. Submit to Engineer for approval material specifications, manufacturer's product data, manufacturer's installation guidelines, and shop drawings for all materials furnished under this Section.

B. Connection details for geotextile.

C. Proposed mechanical connection devices.

1.5 DELIVERY, STORAGE AND HANDLING

A. Geotextile labeling, shipment, and storage shall follow ASTM D4873. Product labels shall be clearly labeled and/or marked to specifically identify each product and clearly show the manufacturer's name, style name, and roll number.

B. Each geotextile roll shall be wrapped with a material that will protect the geotextile from damage due to shipment, water, sunlight, and contaminants. Protect rolls from crushing or abrasion during shipping and hauling.

C. Geotextile shall be stored on a prepared surface (not wooden pallets) and should not be stacked more than two rolls high. Storage shall be such that the geotextile is protected from puncture, dirt, grease, water, moisture, mud, mechanical abrasions, excessive heat or cold, or other damaging circumstances. Temporary storage at the Project Site shall be away from standing water such that crushing or flattening of roll goods does not occur.

PART 2 PRODUCTS

2.1 SEPARATION GEOTEXTILE

A. Separation Geotextile shall be utilized to separate layers of earth materials in utility trenches, drains, layered systems and similar installations in a non-structural configuration.

1. Composition: Woven geotextile made of 100% polypropylene slit film yarns.

2. Physical properties:

Mechanical and Physical Properties of Separation Geotextile

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
Grab Tensile Strength, Ultimate	ASTM D4632	Pounds	120
Grab Tensile Strength, Elongation at Ultimate	ASTM D4632	Percent (%)	50
Trapezoid Tear Strength	ASTM D4533	Pounds	50
CBR Puncture Strength	ASTM D6241	Pounds	310
Apparent Opening Size (AOS)	ASTM D4751	(U.S. Sieve)	70
Permittivity	ASTM D4491	sec^{-1}	1.7
Flow Rate	ASTM D4491	$gal/min/ft^2$	135
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	70

2.2 LIGHT-DUTY STABILIZATION GEOTEXTILE

A. Light-Duty Stabilization Geotextile shall be utilized under temporary sidewalks and unit pavers when called-for.

1. Composition: Woven geotextile made of 100% polypropylene slit film yarns.

2. Physical properties:

Mechanical and Physical Properties of Light-Duty Stabilization Geotextile

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
Tensile Strength @2% Strain (MD/CD)	ASTM D4595	Pounds/foot	600/600
Tensile Strength @5% Strain (MD/CD)	ASTM D4595	Pounds/foot	1620/1620
Flow Rate	ASTM D4491	$Gal/min/ ft^2$	70
Permittivity	ASTM D4491	sec^{-1}	90
Apparent Opening Size (AOS)	ASTM D4751	(U.S. Sieve)	40
Interaction Coefficient	ASTM D6706	-	0.89
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	90

MD – Machine Direction
CD – Transverse (Crosswise) Direction

2.3 STABILIZATION GEOTEXTILE

A. Stabilization Geotextile shall be utilized for stabilization of subgrades where unsuitable subsurface soil conditions are present. Stabilization geotextile shall only be utilized with the approval of Engineer.

1. Composition: Woven geotextile made of 100% polypropylene slit film yarns.

2. Physical properties:

Mechanical and Physical Properties of Stabilization Geotextile

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
Grab Tensile Strength, Ultimate (MD/CD)	ASTM D4595	Pounds/foot	7200/5760
Tensile Strength at 2% Strain	ASTM D4595	Pounds/foot	1370/1560
Tensile Strength at 5% Strain	ASTM D4595	Pounds/foot	3600/3600
Tensile Strength at 10% Strain	ASTM D4595	Pounds/foot	6600/5760
Flow Rate	ASTM D4491	Gal/min/ ft^2	15
Permittivity	ASTM D4491	sec^{-1}	0.23
Apparent Opening Size (AOS)	ASTM D4751	(U.S. Sieve)	20
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	80

MD – Machine Direction
CD – Transverse (Crosswise) Direction

PART 3 EXECUTION

3.1 GENERAL

A. Install geotextile as shown on the Drawings or as called-for in the Specifications. Follow manufacture's guidelines.

B. Ensure that geotextile is protected during installation from clogging, tears, and other damage.

3.2 PIPE OR DRAINAGE SYSTEMS

A. Provide smooth side and bottom trench surfaces so the fabric does not bridge depressions in the soil and is not damaged by rock projections.

B. Use fabric of a width to permit a minimum trench-width overlap across the backfill at the trench top.

C. Lay the fabric flat in the prepared trench without stretching. Lay the top of the fabric back on the sides to allow for the placement of the aggregate backfill and pipe.

D. Overlap ends of rolls an amount equal to the trench width prior to fabric placement. Where pockets or cavities occur in the trench bottom or sides, fill them with acceptable granular material to prevent distortion or damage to the fabric.

E. Backfill aggregate and install pipe in a manner to prevent damage to the fabric. Compact aggregate backfill and overlap the fabric across the trench top. Do not allow the fabric to be exposed for more than 2 weeks without covering with backfill.

3.3 LAYER SEPARATION AND/OR STABILIZATION

A. Place fabric on a normally prepared subgrade area attending the full width of the sub-base layer being protected.

B. Place fabric in a loose and unstretched condition to minimize shifting, puncture, and/or tearing. Overlap fabric roll-ends and edges a minimum of 12 inches with adjacent material.

C. Place subbase material within 2 weeks after placement of fabric to minimize exposure. Place sub-base material in a manner to minimize slippage of the fabric. If excessive slippage occurs, use steel securing pins per manufacturer's guidelines.

END OF SECTION

DIVISION 32
EXTERIOR IMPROVEMENTS

SECTION 32 1816

RESILIENT RUBBERIZED
PLAYGROUND SURFACING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Furnishing and installing poured-in-place rubber surfacing.

2. The synthetic surfacing consists of either impact attenuating substrate covered by a wear surface bonded to produce a unified system, shredded rubber of aggregate substrate covered by a polyethylene plastic woven sheet wear surface, or a uniform material manufactured in such a way that the top portion meets the requirements specified for wear surface.

B. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. Code of Federal Regulations (CFR).

1. 29 CFR 1926, Safety and Health Regulations for Construction.

C. American Society for Testing and Materials (ASTM).

1. ASTM C67- Standard Test Method for Sampling and Testing Brick and Structural Clay Tile

2. ASTM C136- Standard Test Method for Sieve Analysis of Fine and Coarse Aggregate.

3. ASTM D297- Standard Test Methods for Rubber Products-Chemical Analysis-Density.

4. ASTM D412- Standard Test Method for Vulcanized Rubber and Thermoplastic Elastomers Tension.

5. ASTM D412- Compressive and Flexural Creep and Creep Rupture of Plastic Lumber and Shapes.

6. ASTM D573- Standard Test Method for Rubber Deterioration in an Air Oven.

7. ASTM D624- Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.

8. ASTM D648- Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.

9. ASTM D1557- Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.

10. ASTM D2261- Tearing Strength of Fabrics by the Tongue Procedure.

11. ASTM D2859- Flammability of Finished Floor Cover.

12. ASTM D3389- Abrasion Testing.

13. ASTM E303- Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.

14. ASTM E1912- Accelerated Site Characterization for Confirmed or Suspected Petroleum Releases.

15. ASTM F1015- Relative Abrasiveness of Synthetic Turf Playing Surfaces.

16. ASTM F1292- Impact Attenuation of Surface Systems Under and Around Playground Equipment.

17. ASTM F1487- Standard Consumer Safety Performance Specification for Playground Equipment for Public Use.

18. ASTM F1951- Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

19. ASTM F2075- Standard Specifications for Engineered Wood Fiber.

20. ASTM F2223- Standard Guide for ASTM Standards on Playground Surfacing.

21. ASTM F2479- Standard Guide for Specification, Purchase, Installation and Maintenance of Poured-in-Place Playground Surfacing.

22. ASTM G21-96- Fungal Resistance

D. Consumer Product Safety Commission (CPSC)

1. CPSC Pub. No. 325- Handbook for Public Playground Safety.

E. U.S. Environmental Protection Agency

1. Method 3052; 1996

1.3 JOB CONDITIONS

A. Weather Limitations

1. The polyurethane agents shall not be placed whenever the surface is wet, frozen or when the temperature is outside the limitations stated by the manufacturer's recommendations for installation.

1.4 SUBMITTALS

A. Material certificates or other data indicating compliance with these Specifications for color, and accessories.

B. Manufacturer's warranty.

C. Product Data

1. Manufacturer's descriptive data, and catalogue cuts.

2. Manufacturer's specifications, handling and storage requirements, installation procedures, and safety data sheets to include warnings and critical height performance standards for synthetic surfacing.

3. A list to include part numbers of furnished protective surfacing materials and the components for synthetic surfacing.

4. Impact attenuation and critical height performance for each thickness of synthetic surfacing provided.

D. Samples

1. Synthetic Surfacing: A minimum 2 inch by 2 inch sample.

E. Material Test Reports

1. Synthetic Surfacing: Chemical composition, color granule percentage, and test results to which material has been subjected, identifying each material and component containing recycled materials and showing the estimated percentage of recovered material content. Freezing temperature life cycle durability.

F. Qualification Data: For Installer. Include list of similar project experience of size for a minimum of 5 projects over the past 5 years.

G. Certificate: Prior to delivery of materials, certificates of compliance attesting that materials meet the specified requirements. Certified copies of the material certificates shall include composition and tests to which the material has been subjected.

H. Operation and Maintenance Data: Two bound copies of manufacturer's operation and maintenance manuals.

1.5 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Store materials in a dry area at a minimum temperature of 40 degrees F.

C. Protect materials during handling and installation to prevent damage or contamination.

1.7 WARRANTY

A. Provide manufacturer's standard warranty, as applicable, for all products furnished under this Section. Warranty shall be registered in Owner's name.

1. Warranty: 5 Years

B. Bind warranties in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

C. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.

D. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of Contractor.

E. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

1.8 LIMITATIONS

A. The following chemicals may cause damage to the poured in place safety surfacing and should be avoided: disinfectants, concentrated chlorine bleach, gasoline, diesel fuel, hydraulic and lubricating oils, acids and organic solvents.

B. Dissolved minerals and other chemicals such as hydrochlorides from water play areas, pool surrounds and similar applications may cause surface discoloration.

C. Areas in excess of 1,000 square feet or composed of adjacent colors may contain a cold joint or seam due to the nature of the installation process.

PART 2 PRODUCTS

2.1 GENERAL

A. Provide surfacing material to the extent indicated on the Drawings.

2.2 GEOTEXTILE SEPARATION FABRIC

A. See Section 31 2543 Geotextiles.

2.3 POURED IN PLACE SYNTHETIC SURFACING

A. Primer: 100 percent solids, single component polyurethane binding agent

B. Aromatic Binder: Methylene Dephenyl Isocyanate (MDI) based binder.

C. Impact Course: 100 Percent recycled, shredded, black SBR rubber granules and polyurethane binder.

1. Binder to Rubber Ratio: Approx. 16 pounds of binder to 100 pounds of rubber.

2. Thickness: Sufficient to meet impact attenuation requirements as determined by designated fall height of playground equipment.

D. Wear Course: Blend of colored and/or black EPDM rubber granules and binding agent.

1. Binder to Rubber Ratio: Approx. 22 pounds of binder to 100 pounds of rubber

2. Granule Size: 1-3mm in diameter.

3. Thickness: ½ inch, nominal.

4. Total Thickness: As determined by designated fall height of playground equipment. (ASTM F1292)

E. Warranty: Surfacing shall maintain required impact attenuation characteristics and be guaranteed against color fading, cracking, loss of resilience, delamination, defects in workmanship and material for a period of no less than five (5) years or as specified and agreed upon per contract.

F. Physical Properties:

Tensile Strength (ASTM D412)	60 psi Minimum
Elongation at Break (ASTM D412)	140% Minimum
Flammability (ASTM D2859)	Pass
Coefficient of Friction (ASTM D204) Wet	0.9 minimum
Coefficient of Friction (ASTM D204) Dry	1.0 minimum
Water Permeability	0.4 gal./sq. yd./sec. minimum

2.4 COLOR

A. 50/50 blend of color TBD from manufacturer's standard range and Black.

2.5 TEST RESULTS

A. Impact Attenuation ASTM F1292

1. G-max: Less than 200

2. Head Injury Criteria: Less than 1000

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive poured-in-place playground safety surfacing. Ensure all applicable site work, including subsurface preparation, fencing, playground equipment installation and all other relevant work, has been completed. Notify owner if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

B. Acceptance of Prior Work: Upon completion of the base and drainage work, the Site General Contractor shall submit a letter, addressed to the Owner, signed by the Site General Contractor and the Synthetic Playground Surfacing Installer. The letter shall confirm Synthetic Playground Surfacing base has been reviewed and is acceptable for installation of the Synthetic Playground Surfacing. Any discrepancies, problems, and/or conflicts shall be addressed prior to issuance of the letter. Continuing with the installation of the Resilient Rubberized Playground Surfacing over the base without issuance of such letter shall be considered as an approval of the base by the Resilient Rubberized Playground Surfacing Installer.

3.2 WEATHER LIMITATIONS

A. Ambient and surface temperatures must be 50°F and rising.

B. Installation should not be conducted during rainfall or when rainfall is imminent.

C. Do not apply when surface temperature is more than 140°F.

D. Apply the synthetic surfacing material only during favorable weather conditions. Work is to proceed only when adequate curing can be guaranteed by the manufacturer and installer.

E. All materials shall be installed in strict compliance with the manufacturer´s specifications and instructions.

F. The Contractor shall be responsible to have the entire playground area closed and secured of all activities 24 hours per day through the curing and completion of the synthetic playground surface.

3.3 PREPARATION

A. Prepare subsurface in accordance with manufacturer's instructions to ensure proper support and drainage for poured-in-place playground safety surfacing. Finished elevations of subsurface shall be as indicated on the Drawings.

B. It shall be the responsibility of the general contractor to determine if the substrate meets all design specifications, i.e. cross slopes, planarity and specific project criteria. After all the above conditions are met, the synthetic playground surfacing contractor must, in writing, accept the planarity of the stone receiving base, before work can commence.

3.4 AGGREGATE SUBSURFACE

A. Work performed by others. Not part of the synthetic playground surfacing installer's scope of work.

3.5 INSTALLATION

A. Ensure prepared subsurface is dry, clean and free of any foreign or loose material.

B. Components of the pour in place system shall be mixed mechanically on site in accordance with manufacturer's recommendations. Hand Mixing will not be acceptable. Installation of poured-in-place surfacing shall be seamless and completely bonded to subsurface. Material shall cover foundations and shall be tight around elements penetrating the surface.

C. Install geotextile fabric over a compacted aggregate base as indicated. Fabric shall cover the entire area and shall be lapped a minimum 4 inch width at seams. Seams shall be adhered in accordance with manufacturer's recommendations. The fabric shall be installed smooth, and free of tensile stresses, folds, and wrinkles. The fabric shall be protected from clogging, tears, or other damage.

D. Impact Course: The impact course shall be installed in one continuous pour on the same day. When second pour is required, the edge of the previous work shall be fully coated with polyurethane binder to ensure 100 percent bond with new work.

E. Wear Course: Wear surface shall be bonded to impact course. Adhesive shall be applied to impact course in small amounts so that the wear surface can be applied before adhesive dries. Surface shall be hand troweled to a smooth, even finish. When wear course is composed of different color patterns, pour shall be continuous and seamless.

1. When seams are required due to color change of field conditions, the adjacent wear surface shall be placed as soon as possible, before initial pour has cured. The edge of initial pour shall be coated with adhesive and wear course mixture shall be immediately applied.

F. Install poured-in-place, bonded rubber playground safety surfacing in accordance with manufacturer's instructions at locations indicated on the Drawings.

G. Install edges in accordance with manufacturer's instructions and as indicated on the Drawings.

3.6 TOTAL THICKNESS

A. Overall depth of the poured rubber shall be based on the critical fall heights and installers test results. Depth of EPDM shall be no less than ½ inch.

3.7 PROTECTION

A. Do not allow foot traffic on poured-in-place playground safety surfacing until a minimum of 80 percent cure is obtained. Estimated time to obtain 80 percent cure will range from 6 to 72 hours depending on temperature and humidity.

B. Protect completed poured-in-place playground safety surfacing from damage during installation and cure time.

C. Protect completed poured-in-place playground safety surfacing from damage from subsequent construction activity.

3.8 CLEAN UP

A. The site shall be kept clean and free of debris throughout the installation. Empty barrels, sacks, bags, and remnant materials shall be stored or disposed daily in a proper container or legal manner.

END OF SECTION

SECTION 32 1817

LOOSE FILL PLAYGROUND SURFACING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes

1. Engineered Wood Fiber (EWF) for playground safety surface.

B. Contractor shall coordinate work between all Subcontractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. Code of Federal Regulations (CFR).

1. 29 CFR 1926, Safety and Health Regulations for Construction.

C. Americans with Disabilities Act (ADA)

D. ASTM International (ASTM).

1. ASTM C136—Standard Test Method for Sieve Analysis of Fine and Coarse Aggregate.

2. ASTM D2859—Flammability of Finished Floor Cover.

3. ASTM F1292—Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment.

4. ASTM F1487—Standard Consumer Safety Performance Specification for Playground Equipment for Public Use.

5. ASTM F1951—Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

6. ASTM F2075—Standard Specification for Engineered Wood Fiber for Use as a Playground Safety Surface Under and Around Playground Equipment.

7. ASTM F2223—Standard Guide for ASTM Standards on Playground Surfacing.

E. Consumer Product Safety Commission (CPSC)

1. CPSC Pub. No. 325—Handbook for Public Playground Safety.

1.3 SUBMITTALS

A. Material certificates or other data indicating compliance with these Specifications for color, and accessories.

B. Manufacturer's warranty.

C. Product Data

1. Manufacturer's descriptive data, catalogue cuts.

2. Manufacturer's specifications, handling and storage requirements, installation procedures, and safety data sheets to include warnings and critical height performance standards for synthetic surfacing and loose fill surfacing.

3. A list to include part numbers of furnished protective surfacing materials and the components for synthetic surfacing and loose fill surfacing.

4. Impact attenuation and critical height performance for each thickness of synthetic surfacing and loose fill surfacing provided.

D. Samples

1. Mulch: A minimum ½ pound sample.

E. Material Test Reports

1. Test results to substantiate that the product meets or exceeds all ASTM and ADA requirements for each standard listed.

F. Qualification Data: For Installer. Include list of similar project experience of size for a minimum of 5 projects over the past 5 years.

G. Certificate: Prior to delivery of materials, certificates of compliance attesting that materials meet the specified requirements. Certified copies of the material certificates shall include composition and tests to which the material has been subjected.

H. Operation and Maintenance Data: Two bound copies of manufacturer's operation and maintenance manuals.

1.4 QUALITY ASSURANCE

A. Product shall be IPEMA Certified.

B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Store materials in a dry area at a minimum temperature of 40 degrees F.

C. Protect materials during handling and installation to prevent damage or contamination.

1.6 WARRANTY

A. Provide minimum 1 year manufacturer's warranty from the date of substantial completion of installation against color fading, defects in materials and workmanship and shall maintain required impact attenuation characteristics.

B. Provide manufacturer's standard warranty, as applicable, for all products furnished under this Section. Warranty shall be registered in Owner's name.

C. Bind warranties in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8½-by-11-inch paper.

D. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.

E. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of Contractor.

F. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 PRODUCTS

2.1 ENGINEERED WOOD FIBER

A. Shredded virgin wood fiber consisting of randomly sized particles.

B. Particles shall generally be ten times longer than they are wide and frequently have whiskery strands on all faces of the particles.

1. Contains no more than 15 percent fines.

C. Thickness: Sufficient to meet impact attenuation requirements as determined by designated fall height of playground equipment.

2.2 TEST RESULTS

A. IPEMA Certified.

B. Impact Attenuation: ASTM F1292

1. Criteria:

a. Maximum deceleration (G-max): Less than 120 for 12" thickness.

b. Head Injury Criteria (HIC): Less than 1,000.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive loose fill playground safety surfacing. Ensure all applicable site work, including subsurface preparation, fencing, playground equipment installation and all other relevant work, has been completed. Notify owner if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

3.2 PREPARATION

A. Prepare subsurface in accordance with manufacturer's instructions to ensure proper support drainage for loose fill playground safety surfacing. Finished elevations of subsurface shall be as indicated on the Drawings. Finished elevations of adjacent areas/borders/edging shall be as indicated on the Drawings. Subsurface shall be installed in a true, even plane and sloped to drain unless otherwise indicated on the Drawings.

3.3 INSTALLATION

A. Install loose fill playground safety surfacing in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Ensure prepared subsurface is dry, clean and free of any foreign or loose material.

C. Install edges in accordance with manufacturer's instructions and as indicated on the Drawings.

D. Hand spread and rake for a smooth, even finish.

3.4 PROTECTION

A. Owner shall protect completed loose fill playground safety surfacing from damage during installation and cure time.

B. Owner shall protect completed loose fill playground safety surfacing from damage from subsequent construction activity.

END OF SECTION

SECTION 32 1818

PLAYGROUND SAFETY SURFACING MATTING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes

1. Rubber Matting installed over Engineered Wood Fiber (EWF) for playground safety surface.

B. Contractor shall coordinate work between all Subcontractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. Code of Federal Regulations (CFR).

1. 29 CFR 1926, Safety and Health Regulations for Construction.

C. Americans with Disabilities Act (ADA)

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2. ASTM D2859—Flammability of Finished Floor Cover.

3. ASTM F1292—Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment.

4. ASTM F1487—Standard Consumer Safety Performance Specification for Playground Equipment for Public Use.

5. ASTM F1951—Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

6. ASTM F2075—Standard Specification for Engineered Wood Fiber for Use as a Playground Safety Surface Under and Around Playground Equipment.

7. ASTM F2223—Standard Guide for ASTM Standards on Playground Surfacing.

E. Consumer Product Safety Commission (CPSC)

1. CPSC Pub. No. 325—Handbook for Public Playground Safety.

1.3 SUBMITTALS

A. Material certificates or other data indicating compliance with these Specifications for color, and accessories.

B. Manufacturer's warranty.

C. Product Data

1. Manufacturer's descriptive data, catalogue cuts.

2. Manufacturer's specifications, handling and storage requirements, installation procedures, and safety data sheets to include warnings and critical height performance standards for synthetic surfacing and loose fill surfacing.

3. A list to include part numbers of furnished protective surfacing materials and the components for synthetic surfacing and loose fill surfacing.

4. Impact attenuation and critical height performance for each thickness of synthetic surfacing and loose fill surfacing provided.

D. Samples

1. Mulch: A minimum ½ pound sample.

E. Material Test Reports

1. Test results to substantiate that the product meets or exceeds all ASTM and ADA requirements for each standard listed.

F. Qualification Data: For Installer. Include list of similar project experience of size for a minimum of 5 projects over the past 5 years.

G. Certificate: Prior to delivery of materials, certificates of compliance attesting that materials meet the specified requirements. Certified copies of the material certificates shall include composition and tests to which the material has been subjected.

H. Operation and Maintenance Data: Two bound copies of manufacturer's operation and maintenance manuals.

1.4 QUALITY ASSURANCE

A. Product shall be IPEMA Certified.

B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Store materials in a dry area at a minimum temperature of 40 degrees F.

C. Protect materials during handling and installation to prevent damage or contamination.

1.6 WARRANTY

A. Provide minimum 1 year manufacturer's warranty from the date of substantial completion of installation against color fading, defects in materials and workmanship and shall maintain required impact attenuation characteristics.

B. Provide manufacturer's standard warranty, as applicable, for all products furnished under this Section. Warranty shall be registered in Owner's name.

C. Bind warranties in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8½-by-11-inch paper.

D. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.

E. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of Contractor.

F. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 PRODUCTS

2.1 RUBBER MATTING

A. Rubber panels cut to fit and tied together with cable ties.

2.2 ENGINEERED WOOD FIBER

A. Shredded virgin wood fiber consisting of randomly sized particles.

B. Particles shall generally be ten times longer than they are wide and frequently have whiskery strands on all faces of the particles.

1. Contains no more than 15 percent fines.

C. Thickness: Sufficient to meet impact attenuation requirements as determined by designated fall height of playground equipment.

2.3 TEST RESULTS

A. IPEMA Certified.

B. Impact Attenuation: ASTM F1292

1. Criteria:

a. Maximum deceleration (G-max): Less than 120 for 12" thickness.

b. Head Injury Criteria (HIC): Less than 1,000.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive loose fill playground safety surfacing. Ensure all applicable site work, including subsurface preparation, fencing, playground equipment installation and all other relevant work, has been completed. Notify owner if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

3.2 PREPARATION

A. Prepare subsurface in accordance with manufacturer's instructions to ensure proper support drainage for loose fill playground safety surfacing. Finished elevations of subsurface shall be as indicated on the Drawings. Finished elevations of adjacent areas/borders/edging shall be as indicated on the Drawings. Subsurface shall be installed in a true, even plane and sloped to drain unless otherwise indicated on the Drawings.

3.3 INSTALLATION

A. Install rubber matting over EWF surfacing. If existing EWF surfacing is not currently meeting IPEMA certified safety levels, contractor shall add EWF prior to installation of rubber matting.

B. Use heavy-duty (75 lbs.) self-locking cable ties to make a continuous surface as shown on plans. Ties should be one for every 4-5 holes and at each corner.

C. Ensure prepared subsurface is dry, clean and free of any foreign or loose material.

3.4 PROTECTION

A. Owner shall protect completed loose fill playground safety surfacing from damage during installation and cure time.

B. Owner shall protect completed loose fill playground safety surfacing from damage from subsequent construction activity.

END OF SECTION

SECTION 32 9200

TURF AND GRASS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Provide all labor, materials, equipment, services, and perform all operations necessary to complete the work of this section as indicated within the drawings and specified herein which shall include, but is not limited to, the following:

1. Supplying screened loam.
2. Preparation and spreading of stockpiled topsoil (if available).
3. Fine grading.
4. Fertilizers and additives as necessary.
5. Seeding.
6. Erosion Control Matting.
7. Maintenance including watering.

B. Contractor is responsible for all health and safety.

1.2 QUALITY ASSURANCE

A. The Contractor must be a member in good standing of the Associated Landscape Contractors of America.

B. The Contractor must show previous evidence of having successfully installed and maintained landscape projects of similar scope to the subject project with regard to quantities of seeding involved, complexity and a minimum of five (5) years experience on projects similar to this one. The Owner's Representative shall have the right to review the qualifications and references of the Contractor for approval to work on this project.

C. Source Quality Control:

1. Analysis and standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

D. Within 30 days after award of Contract and before any seeding materials are delivered to the job site, submit to the Owner a complete list of all seeding and other items proposed to be installed. At least 10 days prior to shipment delivery of materials, the Contractor shall submit to the Owner a one (1) cubic foot representative sample, certifications, certified test results for materials as specified below. The Contractor shall provide a listing of the addresses (locations) identifying the origin of the soil to be delivered. If the origin is from multiple locations, test results must be provided for each source as well as the blended final product and all locations shall be provided at the time of submission of required information specified above. No material shall be ordered or delivered until the required submittals have been submitted and approved by the Owner. Delivered materials shall closely match the approved samples. Approval shall not constitute final acceptance. The Owner reserves the right to reject, on or after delivery, any material that does not meet these specifications.

E. Existing Topsoil from Stockpile may be used providing it can be made to comply with the specifications for screened loam. The Contractor shall provide representative samples for testing and approval. Two (2) test samples of shall be taken and analyzed from each potential loam borrow pit and two each shall be taken and analyzed of existing topsoil stockpiled on site. Site of sample shall comply with testing lab requirements. Contractor shall deliver samples to testing laboratory, have testing report sent directly to the Owner's Representative and pay all costs. Report shall be submitted at least one (1) month before any loaming is to be done.

1. Mechanical and chemical analysis shall be by a public extension service agency or a certified private testing laboratory in accordance with the current "Standards" of the Association of Official Agriculture Chemists and acceptable to the Landscape Architect.

2. Soil test report shall include a mechanical sieve analysis with soil classification. Organic content shall be reported. Chemical analysis shall include pH (1:1 soil-water ratio), buffer pH, Soluble Salts (1:2 soil-water ratio), Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Magnesium, Manganese, Ferric Iron and Sulfate.

3. Test report shall clearly recommend appropriate additives including limestone and fertilizer requirements.

1.3 RELATED SECTIONS

A. Section 31 2310—EARTHWORK

1.4 SUBMITTALS

A. Submit the following under provisions of Section 01 3300—SUBMITTAL PROCEDURES:

1. Sod—statement of composition percentages of purity and germination of each variety.

2. Soil analysis in accordance with the current "Standards of the Association of OFFICIAL Agricultural Chemists".

3. Provide watering and fertilizing schedule to Landscape Architect for approval.

4. Provide two marked up prints to the Landscape Architect indicating square footages for all lawn areas with quantities of all soil additives and sod for each area prior to beginning work.

1.5 PROJECT CONDITIONS

A. All areas to be seeded shall be inspected by the Contractor before starting work and any defects, such as incorrect grading, etc., shall be reported to the Landscape Architect prior to beginning this work. The commencement of work by the Contractor shall indicate his acceptance of the areas to be seeded, and he shall assume full responsibility for the work of this Section.

1.6 REFERENCES

A. The work shall conform to the codes and standards of the following agencies, publications as further cited herein:

B. AAN: American Association of Nurserymen, Inc., "Standards for Nursery Stock" ANSI Z60.1—1980, or current edition.

C. ASTM: ASTM International (ASTM), 1916 Race Street, Philadelphia, Pennsylvania, 19103, USA as Published in "Compilation of ASTM Standards in Building Codes".

D. BHCU: Bailey Hortorium of Cornell University, 1976, Hortus Third, A Concise Dictionary of Plants Cultivated in the United States and Canada (for nomenclature).

E. NAA: National Arborist Association, 3537 Stratford Road, Wantagh, New York, 11793, USA, as published in "Standards for Pruning Shade Trees...", 1979, or latest edition (for pruning standards).

F. USDA: United States Department of Agriculture, 1941 Yearbook, "Climate and Man" (for average last frost date at locality).

1.7 QUALITY CONTROL/QUALIFICATIONS

A. Provide affidavits from manufacturers major suppliers where required by these Specifications.

B. Fine grading and installation of sod shall be done under the supervision of a qualified foreman acceptable to the Landscape Architect.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver all items to the site in their original containers with all labels intact and legible at time of Owner's inspection.

B. Immediately remove from the site all seeding materials, which are not true to name, and all materials, which do not comply with the provisions of this Section of these Specifications.

C. Use all means necessary to protect seeding materials before, during, and after installation and to protect the installed work and materials of all other trades.

D. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.

PART 2 PRODUCTS

2.1 SCREENED LOAM

A. Screened Loam shall be "coarse sandy loam" determined by mechanical analysis (ASTM D422) and based on the "USDA" Classification System". Screened Loam has the following mechanical analysis:

Textural Class	Percentage of Total Weight	Average Percentage
Sand (0.05–2.0 mm dia. range)	45–75	60
Silt (0.002–0.05 mm dia. range)	15–35	25
Clay (Less than 0.002 mm dia. range)	5–20	15

Coarse Sandy loam shall have: less than 30% fine/very fine sand, and 50% or more medium/coarse/very coarse sand.

B. Screened Loam shall be a natural product consisting primarily of natural topsoil, free from subsoil, and obtained from an area which has never been stripped, as noted above, the location of the source of the Loam must be submitted to the Landscape Architect. Screened Loam shall not contain less than 3 percent nor more than 10 percent organic matter as determined by the loss on ignition of oven-dried samples, at 100°C ± 5°C. To adjust organic matter content, the soil may be amended, prior to site delivery, by the addition of composted leaf mold or peat moss. Use of organic amendments is accepted only if random soil sampling indicates a through incorporation of these materials. No mixing or amending of Loam will be permitted on site. The Loam shall not be delivered when in a wet or frozen condition.

C. Screened Loam shall consist of fertile, friable, natural loam capable of sustaining vigorous plant growth. Loam shall be without admixture of subsoil, and refuse, resulting in a homogeneous material free of stones greater than ½″ in the longest dimension, be free of lumps, plants, glass, roots, sticks, excessive stone content, debris, and extraneous matter. Screened Loam shall fall within the pH range of 6.0 to 6.5 except as where noted on plans and details. It shall be uncontaminated by salt water, foreign matter and substances harmful to plant growth. The maximum soluble salt index shall be 100. Screened Loam shall not have levels of aluminum great than 200 parts per million.

D. If limestone is required to amend the screened loam to bring it within a pH range of 6.0 to 6.5 no more than 200 pounds of limestone per 1,000 square feet of loam, incorporated into the soil, or 50 pounds of limestone per 1,000 square feet of loam, surface application, within a single season.

E. The Owner will reject any material delivered to the site that, after post-delivery testing, does not meet these specifications. If the delivered screened loam does not meet the specifications stated in this document the delivered screened loam will be removed by the Contractor at the Contractor's expense and at the time of rejection.

F. The Contractor shall take representative samples of topsoil from the site and from topsoil to be hauled in and shall submit samples to a Soil Testing Laboratory for chemical analysis, and physical analysis. The Contractor shall indicate to the testing agencies that turf is to be planted and who the Owner is. The Contractor shall forward to the Owner two copies of analysis and recommendations of the testing agencies.

G. Topsoil, which has been stockpiled on the site, may be used provided it can be made to comply with these Specifications herein for screened loam.

H. All loam provided from off-site sources shall be brought to the site meeting all specification requirements. There must be no mixing or amending of soil on site. No loam shall be spread prior to screening. The loam must not be handled or moved when in a wet or frozen condition.

I. To assure loam borrow purchased and topsoil stockpiled fulfills specified requirements regarding textural analysis, organic matter content, and pH, soil testing results will be obtained by the Contractor and submitted to the Owner's Representative for approval one (1) month before any soil is delivered to the site.

2.2 SOIL ADDITIVES

A. Sand shall be clean sand, free of deleterious materials. Sand shall meet AASHTO M-6 or ASTM C33 with grain size of 0.02″–0.04″.

B. Commercial fertilizer, peat, humus or other additives shall be used to counteract soil deficiencies as recommended by the soil analysis and as directed by the Owner's Representative.

C. If stored at the site, protect fertilizer from the elements at all times.

D. Fertilizer shall be commercial fertilizer, based upon soil tests. Fertilizer mixture containing at least sixty percent (60%) of organic material.

1. Percentages of nitrogen, phosphorous and potash shall be based on laboratory test recommendations as approved by the Landscape Architect. For purpose of bidding, assume ten percent (1 0%) nitrogen, twenty percent (20%) phosphorus and six percent (6%) potash by weight. At least fifty percent (50%) of the total nitrogen shall contain no less than three percent (3%) water-insoluble nitrogen.

2. Fertilizer shall be delivered to the site, mixed as specified, in the original unopened standard size bags showing weight, analysis and name of manufacturer. Containers shall bear the manufacturer's guaranteed statement of analysis, or a manufacturer's certificate of compliance covering analysis shall be furnished to the Landscape Architect. Store fertilizer in a weatherproof place and in such a manner that it will be kept dry and its effectiveness will not be impaired.

3. Fertilizer shall be applied in two (2) applications. The first application shall be within one (1) week before the sodding at the rate of thirty-five (35) pounds per thousand (1,000) square feet harrowed into the top two (2) inches of sod bed. The second application shall be done as a maintenance application.

4. At least four (4) days shall lapse after the application of lime and fertilizer before sodding shall begin.

E. Humus shall be natural humus, reed peat or sedge peat. It shall be free from excessive amounts of zinc, low in wood content, free from hard lumps and in a shredded or granular form. According to the methods of testing of A.O.A.C., latest edition, the acidity range shall be approximately 5.5 pH to 7.5 pH and the organic matter shall be not less than 85% as determined by loss on ignition. The minimum water absorbing ability shall be 200% by weight on an oven-dry basis.

F. Manure shall be well-rotted, unbleached stable manure not less than eight months and not more than two years old. It shall be free from sawdust, shavings or refuse of any kind and shall not contain over twenty-five (25) percent straw. The Contractor shall furnish information as to the kind of disinfectant or chemicals, if any, that may have been used in storage of the manure.

G. Lime: Natural dolomitic limestone containing not less than 85 percent of total carbonates with a minimum of 30 percent magnesium carbonates, ground so that not less than 85 percent of total carbonates with a minimum of 30 percent magnesium carbonates, ground so that not less than 90 percent passes a 10-mesh sieve and not less than 50 percent passes a 100-mesh sieve.

H. Superphosphate shall be composed of finely ground phosphate rock as commonly used for agricultural purposes containing not less than 18% available phosphoric acid. Superphosphate shall be applied with the fertilizer at the rate of twenty (20) pounds per thousand (1,000) square feet. At least four (4) days shall lapse after the application of lime and fertilizer before sodding shall begin.

I. Aluminum Sulfate: Commercial grade.

J. Bonemeal: Commercial, raw, finely ground; 4 percent nitrogen and 20 percent phosphoric acid.

K. Water: The Contractor shall be responsible for furnishing his own supply of water to the site at no extra cost. If possible, the Owner will furnish the Contractor upon request with an adequate source and supply of water at no charge. However, if the Owners water supply is not available or not functioning, the Contractor will be held responsible to furnish water.

1. Water shall be free from impurities injurious to vegetation.

2.3 SEED

A. Lawn Areas

1. Seed mixture shall be fresh, clean, new crop seed. Grass shall be of the previous year's crop and in no case shall weed seed content exceed 1% by weight. The seed shall be furnished and delivered in the proportion specified below in new, clean, sealed and properly labeled containers. All seed shall comply with State and Federal seed laws. Submit manufacturers Certificate of Compliance. Seed that has become wet, moldy or otherwise damaged will not be acceptable.

a. Manufacturer: Pearl's Premium or an equivalent seed blend to the following:

Purity	Seed Species	Germination Rate
19.75%	Dakota Tall Fescue	90%
19.75%	Frontier Perennial Ryegrass	92%
19.65%	Deepblue Kentucky Bluegrass	88%
19.65%	Harpoon Hard Fescue	80%
19.65%	Carmen Chewings Fescue	90%
01.47%	Inert Matter	

00.05%	Other Crop Seed
00.03% (max.)	Weed Seed

2. Seed mixture to be applied at the following rate:

   a. Five (5) pounds per 1,000 square feet.

3. Seed shall be mixed by a dealer.

2.4 EROSION CONTROL MATTING

A. Shall be on all slopes 2:1 and greater in slope.

B. Jute mesh shall be a uniform, open, plain weave cloth of undyed and unbleached single jute yarn. The yarn shall be of a loosely twisted construction and it shall not vary in thickness more than one-half its normal diameter. Jute mesh shall be furnished in rolled strips and shall meet the following requirements:

Width—48 inches, plus or minus one inch
78 warp—ends per width of cloth (minimum)
41 weft—ends per yard (minimum)
Weight shall average 1.22 pounds per linear yard with a tolerance of plus or minus 5%.

C. Staples shall be U-shaped and shall be approximately six inches long and one inch wide. Machine made staples shall be of No. 11 gauge or heavier steel wire. Handmade staples shall be made from 12-inch lengths of No. 9 gauge or heavier steel wire.

PART 3 EXECUTION

3.1 PREPARATION OF PLANTING SOIL

A. Mix specified soil amendments and fertilizers with topsoil and/or loam borrow at rates specified by testing agency. Delay mixing of fertilizer if planting will not follow placing of planting soil within a few days.

B. Loam, organic material and bonemeal for plant backfill for both planting beds and individual plants shall be thoroughly premixed in the proportions of one (1) part of organic material with seven (7) parts of loam together with ten (10) pounds of bonemeal per cubic yard of mixture.

C. Maintain at all times during the planting operations one or more stockpiles of approved loam borrow or topsoil from stockpile.

3.2 FINE GRADING AND LOAMING

A. After the areas to be loamed have been brought to rough grade, and immediately prior to spreading the loam borrow or topsoil, the subgrade shall be loosened by disking or rototilling to a depth of at least three inches to permit bonding of the loam to the subsoil. Remove all stones greater than one (1) inch in diameter and all debris or rubbish. Such material shall be removed from the site, at no additional cost to the Owner.

B. Provide a minimum depth of six (6) inches of planting soil in all areas indicated for seeding and all areas disturbed by excavation and construction operations.

C. Screened loam borrow or screened topsoil from stockpile shall be placed and spread over approved areas to a depth sufficiently greater than six inches so that after natural settlement and light rolling, the completed work will conform to the lines, grades, and elevations indicated. Supply additional loam, after testing and approval as may be needed, to give the specified depths and finished grades under the Contract without additional cost to the Owner.

D. Disturbed areas outside the limit of seeding shall be spread with six (6) inches of screened loam or screened topsoil to the finished grade as specified herein above.

E. No subsoil or loam shall be handled in any way if it is in a wet or frozen condition.

F. Sufficient grade stakes be set for checking the finished grades. Stakes must be set in the bottom of swales and at top of slopes. Grades shall be established which are accurate to one tenth of a foot either way. Connect contours and spot elevations with an even slope.

G. After loam has been spread, it shall be carefully prepared by scarifying or harrowing and hand raking. All large stiff clods, lumps, brush, glass, roots, stumps, litter and other foreign matter, and stones over one inch in diameter shall be removed from the loam. Loam shall also be free of smaller stones in excessive quantities as determined by the Owner's Representative.

H. The whole surface shall then be rolled with a hand roller weighing not more than 100 pounds per foot of width. During the rolling, all depressions caused by settlements or rolling shall be filled with additional loam and the surface shall be regraded and rolled until it presents a smooth and even finish to the required grade.

I. Contractor shall obtain Owner's Representatives written approval of fine grading and bed preparation before doing any seeding or sodding.

3.3 SEEDING

A. All areas indicated on the plan shall be loamed and seeded only after written approval of the Owner's Representative of bed preparation. All disturbed areas outside the limit of seeding shall be seeded.

B. Immediately before seeding, the ground shall be restored, as necessary, to a loose friable condition by dicing or other approved method to a depth of not less than 2″. The surface shall be cleared of all debris and of all stones 1″ or more in diameter.

C. Seeding shall be done only during the period from April 1 to May 30 or August 15 to October 15. The actual planting of seed shall be done, however, only during periods within this season which are normal for such work as determined by weather conditions and by accepted practice in this locality. At his option, and on his responsibility, the Contractor may plant seed under unseasonable conditions at no increased cost to the Owner.

D. Seeding of lawns shall be done only by experienced workmen under the supervision of a qualified foreman.

E. Soil additives shall be spread and thoroughly incorporated into the layer of loam by harrowing or other methods approved by the Owner's Representative. The following soil additives shall be incorporated.

1. Spread ground limestone as required by soil analysis to achieve a pH of 6 to 6.5, but the maximum amount applied shall be one pound per square yard.

2. Spread fertilizer at the rate of forty (40) pounds per one thousand (1,000) square feet or more as required by soil analysis.

3. Spread Superphosphate at the rate of twenty (20) pounds per one thousand (1,000) square feet.

4. Incorporate humus in the soil as required by soil analysis prior to delivery to site. Contractor shall have loam retested with organic matter incorporated and shall obtain approval prior to brining any loam on the site.

F. Seed only when the bed is in a friable condition, not muddy or hard.

G. Seed all areas to be seeded with specified grass seed, sowing evenly with an approved mechanical seeder at the rate of 6 pounds per 1,000 square feet. Sow 3 pounds per 1,000 square feet in one direction and 3 pounds per 1,000 square feet at right angles to the first seeding. Spread seed when soil is moist. Cultipacker, or approved similar equipment, may be used to cover the seed and to firm the seedbed in one operation. In areas inaccessible to cultipacker, the seeded ground shall be lightly raked and rolled in two directions with a water ballast roller. Extreme care shall be taken during seeding and raking to insure that no change shall occur in the finished grades and that the seed is not raked from one spot to another. Hydroseeding is an acceptable manner of seeding, providing the Contractor certifies in writing that the hydro-seed fertilizer mix is as herein specified and applied at the equivalent rate of 6 pounds per 1,000 square feet.

H. If covering and rolling is not properly accomplished by the seeding machine, the seed shall be lightly raked into the ground, after which the ground shall be rolled with a five hundred pound roller and thoroughly and evenly watered with a fine spray to penetrate the soil to a depth of at least two (2) inches.

I. Promptly after seeding, wet the seedbed thoroughly, keeping all areas moist throughout the germination period.

J. Mulch shall be placed immediately after seeding. Straw or salt marsh hay that has been thoroughly fluffed shall be spread evenly and uniformly at the rate of two to three tons per acre. Lumps and thick mulch materials shall be thinned. All mulch anchor stakes, strings and matting shall be removed before final acceptance of lawns. In addition, following mulching, all slopes of 3:1 or greater shall be covered with jute, biodegradable tobacco netting or approved equal. Securely stapled in place. Overlap all joints in netting a minimum of 6″.

K. Hydroseed mix: All work shall be installed using an approved spraying machine specifically used for this purpose. Amounts of fertilizer used shall be as the testing agency recommendations prescribe and as directed by the Owner's Representative. The Contractor shall submit to the Owner's Representative for approval prior to the start of any seeding work, a certified statement as to the number of pounds and types of fertilizer, amounts and types of grass seed and processed fiber per one hundred (100) gallons of water.

1. Hydromulch shall be Terra-Sorb GB or approved equal

    a. Add Terra-Sorb to the hydroseed tank at the rate of sixty (60) pounds per acre.

3.4 EROSION CONTROL MATTING

A. Jute mesh shall be placed within 48 hours after finish grading or topsoiling of an area is completed. If seeding is specified, within 24 hours after seeding of an area is completed. The jute mesh shall be placed in a manner that will minimize disturbance of the underlying soil. All equipment and application processes shall be approved by the LANDSCAPE ARCHITECT prior to use.

B. The surface shall be smoothed and all gullies and potholes backfilled prior to applying jute mesh. All rocks or clods larger than two inches in size and all sticks and other foreign material that will prevent contact of the jute mesh with the surface shall be removed. If the surface is extremely dry, the ENGINEER may require watering prior to placement.

C. Jute mesh shall be placed uniformly, in contact with the underlying soil, at the locations shown on the Drawings or directed by the LANDSCAPE ARCHITECT. The top edge of each strip shall be anchored by placing a tight fold of mesh vertically in a six inch deep slot or trench in the soil and tamping and stapling in place. Edges of adjacent strips shall be lapped six inches with a row of staples at a maximum interval of three feet in the lapped area. Bottom edges shall be lapped 12 inches over the next lower strip, if applicable, or buried as specified for top edges.

D. Check slots shall consist of separate four foot strips of jute mesh placed at right angles to the direction of water flow immediately prior to placing the general covering of jute mesh. Check slots shall be anchored by burying the top edge of the strip as described above.

E. Check slots shall be spaced so that one check slot, or junction slot of the jute mesh occurs every 75 feet on gradients of less than 4% and every 50 feet on gradients of more than four percent. On slope drains, a check slot or an end slot shall occur every 25 feet unless otherwise specified.

F. Edges of jute mesh shall be buried around the edges of catch basins and other structures.

G. Jute mesh shall be held in place by wire staples driven vertically into the soil. The mesh shall be fastened at intervals not more than three feet apart in three rows for each strip of mesh, with one row along each edge and one row alternately spaced in the middle. All ends of the mesh and check slots shall be fastened at six inch intervals across their width.

H. The Contractor shall maintain the areas covered by jute mesh until final acceptance of the project. Prior to final acceptance, any damaged areas shall be reshaped as necessary, reseeded, if applicable; and the jute mesh satisfactorily repaired or replaced.

3.5 MAINTENANCE FOR SEEDED AREAS

A. Maintenance shall begin immediately after any area is seeded and shall continue until final acceptance, but in no case, less than the following period.

1. Sixty (60) days after substantial completion of seeding.

a. Maintenance may continue until the next growing season if in the opinion of the Owner's Representative the season enters a winter dormancy and no maintenance should continue.

b. Seeded lawns shall be maintained until all areas have a close stand of grass which has received a minimum of three mowings, has no bare spots greater than two inches in diameter, and at least 90% of the grass established shall be permanent grass species.

B. Maintenance shall include reseeding, mowing, watering, weeding and fertilizing.

C. Watering of Seeded Areas:

1. First Week: The Contractor shall provide all labor and arrange for all watering necessary to establish an acceptable lawn. In the absence of an adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least two inches.

2. Second and Subsequent Weeks: Water seeded areas as necessary to supplement natural rain to the equivalent of one (1) inch rainfall per week The Contractor shall water the lawn as required to maintain adequate moisture, in the upper two inches of soil, necessary for the promotion of deep root growth.

3. Watering shall be done in a manner, which will provide uniform coverage, prevent erosion due to application of excessive quantities over small areas, and prevent damage to the finished surface by the watering equipment. The Contractor shall furnish sufficient watering equipment to apply one complete coverage to the seeded areas in an eight (8) hour period.

D. Protection:

1. Seeded areas shall be protected by stakes and caution tape or snowfence as directed by the Landscape Architect. Wire shall not be used.

2. Barriers must be raised immediately after seeding and shall be maintained until acceptance.

E. Reseeding: After the grass in seeded areas has appeared, all areas and parts of areas which, in the opinion of the Owner's Representative, fail to show a uniform stand of grass, for any reason whatsoever, shall be reseeded and such areas and parts of areas shall be seeded repeatedly until all areas are covered with a satisfactory growth of grass. Reseeding together with necessary grading, fertilizing, and trimming shall be done at the expense of the Contractor.

F. Mowing:

1. At the time of the first cutting, there shall be a uniform stand between 3″ and 3½″ high, and mower blades shall be set between 2½″ and 3″ high.

2. Mowing shall include removal of clippings.

G. Fertilizing: A second application of fertilizer, as specified herein, shall be applied after one (1) season of growth of a minimum of two (2) months duration, but only during the months of April, May, August or September. Fertilizer shall be applied at the rate of thirty (30) pounds per one thousand (1,000) square feet.

H. Liming: If more than one initial application of limestone is required by the soils analysis to bring the pH of the stockpiled topsoil/loam borrow to a specified range, the Contractor shall be responsible for all additional required lime applications.

3.6 CLEANUP AND PROTECTION

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

B. Protect seeding work and materials from damage due to landscape operations, operations by other Contractors or trades, and trespassers.

1. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

3.7 ACCEPTANCE

A. The Owner shall inspect all work for Acceptance upon written request of the Contractor. The request shall be received at least 10 calendar days before the anticipated date of inspection. Upon completion and re-inspection of all repairs or renewals necessary in the judgment of the Owner, he shall certify in writing to the Contractor as to the Acceptance of the work.

3.8 ACCEPTANCE IN PART

A. The work may be accepted in parts when it is deemed to be in the Owner's best interest to do so and when approval is given to the Contractor in writing to complete the work in parts. Acceptance and use of such areas by the Owner shall not waive any other provisions of this Contract.

3.9 CLEANUP

A. When any of this work is done while buildings are occupied, pavements shall be kept clear at all times, broom cleaned to prevent tracking dirt into buildings.

B. After completion of all planting operations, dispose of all debris and excess material to the satisfaction of the Owner. All pavements shall be swept and hosed clean.

3.10 FINAL INSPECTION AND ACCEPTANCE

A. At the end of the guarantee period, the Owner will inspect all guaranteed work for the Final Acceptance upon written request of the Contractor. The request shall be received at least 10 calendar days before the anticipated date for final inspection.

B. Upon completion and re-inspection of all repairs or renewals necessary in the judgment of the Owner at that time, he shall certify in writing to the Contractor as to the Final Acceptance of the project.

END OF SECTION