

Project Manual and Specifications

**Sage Park
Softball Field #1 Renovations
Berlin, CT
Bid No. 2020-23**

**Issued for BID
June 10, 2020**

K^AESTLE BOOS
a s s o c i a t e s , i n c

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blank pages are intentional for
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**INVITATION TO BID
SOFTBALL FIELD #1 RENOVATIONS
AT SAGE PARK
BID # 2020-23**

Sealed bids addressed to the Town of Berlin for the Softball Field #1 Renovations at at Sage Park, Surranna Drive, Berlin, CT, will be received by Maryssa Tsois, Purchasing Agent Berlin Town Hall, 240 Kensington Road, Berlin, CT, 06037, no later than **11:00 A.M.** local time on **Thursday JULY 9, 2020**. Due to COVID precautions bids will be opened privately, after that time, recorded, and made available to plan holders. (if COVID closures remain in effect - have delivery personnel call 860-828-7048 upon arrival at Town Hall and they will be greeted at the front door), The Town will not accept submissions by e-mail or fax. The Town will reject bids received after the date and time noted above.

Specifications and bid proposal documents for the proposed contract are available after **NOON** on **WEDNESDAY, JUNE 10, 2020** on the Town's website, www.town.berlin.ct.us, under Departments, Purchasing, Current Bids and RFPs, . **Each bidder is responsible for checking the Town's website to determine if the Town has issued any addenda and, if so, to complete its proposal in accordance with the ITB as modified by the addenda.**

A non-mandatory Pre-Bid Conference will be held on **Thursday June 25, 2020 at 10:00 A.M.** at the Softball Field. The pre-bid conference is non-mandatory, however it is recommended that all Bidders attend.

As Security, each Bid must be accompanied by a Certified Check or Cashier's Check drawn upon either a State Bank and Trust Company or a National Banking Association, to the order of the **Town of Berlin**, or the Bid must be accompanied by a Bid Bond having as surety thereto, such Surety Company or Companies as are authorized to do business in the State of Connecticut of an amount not less than **(5%)** of the Bid. **NO BID WILL BE ACCEPTED UNLESS ACCOMPANIED BY THE REQUIRED BID DEPOSIT.**

All Requests for Information (RFI) are to be emailed to the attention of Eric Q. Roise at eroise@kba-architects.com. RFIs must be received by the Architect no later than **Friday, June 26, 2020 at NOON – Last day to receive RFIs.**

All Bidders must submit a Contractors Qualification Statement with the bid as outlined in the specification.

Bidders shall not include Federal Excise Taxes or State of Connecticut Sales Taxes. Public projects are exempt.

Bidder interviews will be scheduled for July 10, 2020. All bidders to keep this date available for a interview and scope review meeting at Town Hall. Bidders to be interviewed shall be notified within 5 hours of bid opening.

Bids, including all Alternate pricing, must be held firm and may not be withdrawn for Sixty (60) days after the bid opening.

The Town of Berlin is an Affirmative Action/Equal Opportunity Employer; Minority/Women's Enterprises are encouraged to respond. The Town reserves the right to amend or terminate this Invitation to Bid, reject all bids, waive any informalities, and award the contract to the bidder that is deemed to be in the best interests of the Town.

Arosha Jayawickrema,
Town Manager

INSTRUCTION TO BIDDERS

SOFTBALL FIELD #1 Renovations – Sage Park, Berlin, CT

PROPOSAL

Proposals are being sought for the **SOFTBALL FIELD #1 Renovations – Sage Park, Berlin, CT**. All work shall be done in full accordance with the plans and specifications.

KEY EVENT DATES

- Bid Documents Available: Wednesday, June 10, 2020.
- **NON-MANDATORY** Pre-Bid Construction Meeting: Thursday June 25, 2020, 10:00 a.m.
- **FINAL QUESTIONS BY CONTRACTORS:** Friday June 26, 2020.
- **Bid Opening:** Thursday July 9, 2020, 11:00 a.m.
No bids will be accepted after said date and time
- **Bidder Interviews:** Friday July 10, Time TBD

ALTERNATE BIDS

No Alternate or Supplementary Bids will be considered unless such Bids are specifically requested in the Supplemental Specifications and shown on the Bid Proposal Form.

RECEIPT AND OPENING OF BIDS

Separate sealed bids will be received at the office Maryssa Tsolis, Purchasing Agent Berlin Town Hall, 240 Kensington Road, Berlin, CT, 06037, until the time and date stated in the Invitation to Bid. Due to COVID precautions bids will be opened privately, after that time, recorded, and made available to plan holders. (if COVID closures remain in effect - have delivery personnel call 860-828-7048 upon arrival at Town Hall and they will be greeted at the front door), The Town will not accept submissions by e-mail or fax. The Town will reject bids received after the date and time noted above.

One (1) Original and five (5) copies of the Bid, Bidding documents, and the Bidder's Qualification Statement shall be submitted in sealed envelopes clearly labeled with the name and address of the Bidder, the date and time of the Bid opening and the words **SOFTBALL FIELD #1 Renovations – Sage Park, Berlin, CT** so as to guard against opening prior to the time set therefore. Bids may be forwarded by mail. If mailed, the sealed envelope containing the proposal, marked as described above, shall be enclosed in another envelope properly addressed for mailing and received in time for bid.

Bids cannot be faxed.

The Town may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening thereof. Any contractor wishing to view competing bids are requested to contact Eric Roise KBA, eroise@kba-architects.com.

DETERMINATION OF AWARD

This Contract will be awarded to the lowest, responsible, qualified bidder based upon his/her written bid(s). The Town shall determine the "lowest, responsible, qualified bidder" on the basis of the bidder submitting the lowest Total Base Bid Amount; responsiveness of his/her proposal; demonstration of

qualification, history of the ability and necessary equipment to perform the required work; and certification that he/she can perform the required work in accordance with the Contract Documents.

Bids will be compared on the basis of the Total Bid of the items listed in the Bid proposal.

UNIT PRICES

The unit prices for each of the several items in the proposal of each bidder shall include its prorated share of overhead so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price represents the total bid. Any bid not conforming to this requirement may be rejected as informal. The special attention of all bidders is called to this provision, for should conditions make it necessary to revise the quantities, increase or decrease thereof may be made without limit, and adjustment and compensation shall be made on the basis of the unit prices for such items.

ALLOWANCES:

Bidders shall include a \$40,000 allowance in their bid costs for existing conditions repair. This allowance shall be separate from other expected bid costs and shall be broken out in the schedule of values as a separate line item.

PREPARATION OF PROPOSAL

Each bid shall be handwritten in ink or typed and submitted on the prescribed form and all blank spaces for bid prices must be filled in both words and figures. Bid prices shall include all labor, materials, and equipment necessary to complete the work in accordance with the Contract Documents. Connecticut prevailing wage law applies to this contract (attached)

Each Bidder shall include in his/her Bid the following information:

Principals:

Names:

Home addresses, including Town, State, Zip Code:

Firm:

Name:

Treasury Number:

Address:

Town, State, Zip Code:

Phone Number:

Fax Number:

Email Address:

SECURITY FOR PROPOSAL

Each proposal must be accompanied by a bid bond with a surety acceptable to the Town in the amount equal to at least ten percent (10%) of the amount of the bid. The successful Bidder, upon his failure or refusal to execute and deliver the Contract, certificates of insurance, or bonds required within ten days,

unless otherwise agreed upon, after he has received notice of the acceptance of the Proposal, shall forfeit to the Town, as liquidated damages for such failure or refusal, the security deposit with his Proposal.

COLLUSIVE AGREEMENTS

Each Bidder submitting a Bid to the Town of Berlin for the work contemplated by the Documents, on which bidding is based, shall execute and attach thereto the Non-Collusion Affidavit on the form herein provided, to the effect that he/she has not colluded with any other person, firm or corporation in regard to any Bid submitted.

Before executing any Subcontract, the successful Bidder shall submit the name of any proposed Subcontractor for prior approval and an affidavit in the form provided herein.

BIDDER'S QUALIFICATION STATEMENT

Each Bidder shall submit on the form furnished for that purpose (a copy of which is included in the Contract Documents) a Bidder's qualification statement, his/her experience record in the type of work embraced in the Contract, and his/her organization and equipment available for the work contemplated, and other pertinent information so contained on said form, and when specifically requested, the Town of Berlin shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his/her obligations under the Contract, and the Bidder shall furnish the Town of Berlin all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Town of Berlin that the Bidder is qualified to carry out properly the terms of the Contract.

The Town of Berlin also reserves the right to consider as not responsible any Bidder who does not habitually perform with his/her own forces at least fifty-one (51%) percent of the dollar value of the work involved in this Contract.

ACT CONCERN WORKERS' COMPENSATION

Effective October 1, 1986, an Act concerning Workers' compensation insurance requirements for Contractors on public works projects and state licenses requires that municipalities, prior to entering into contractual obligation for construction or repair of any public works project, must obtain the evidence that the Contractor can prove that he/she is not liable to the State for any workers' compensation payments.

PREVAILING WAGE LAW

This project is subject to Connecticut prevailing wage law and reporting requirements. Selected Contractor will be required to submit certified payrolls with all requests for payment.

WITHDRAWAL OF BIDS

Bids may be withdrawn personally or on written or telefax request dispatched by the bidder in time for delivery in the normal course of business prior to the time fixed for opening, provided that written confirmation of any telefax withdrawal over the signature of the bidder is placed in the mail and postmarked prior to the time set for bid opening. Negligence on the part of the bidder in preparing his/her bid confers no right of withdrawal or modification of his/her bid after such bid has been opened.

FAMILIARITY WITH LAWS, SITE CONDITIONS, AND DOCUMENTS

Each bidder is required to be familiar with and to comply with the terms and conditions of the specifications and all other Contract Documents and with all Federal, State and Local Laws, Ordinances or Regulations, which in any manner relate to the performance of the work in accordance with the Contract.

TAX EXEMPTION

The Town is exempt from paying tax and for that reason the bid price shall *not* include any tax on the items specified.

INSURANCE

The Contract requires the Contractor to maintain in force during the performance of the Work, policies of Worker's Compensation Insurance and Public Liability and Property Damage Insurance, covering the operations of the Contractor, subcontractors, and the agents of any of them, the use of any motor vehicles employed by the Contractor, subcontractors, and the agents of any of them.

Certificates evidencing the fact that the Contractor has procured the required insurance must be filed with the Town of Berlin Finance Office at the time of the execution of the Contract. Bidders should examine the General Conditions for the details of the insurance requirements.

ERRORS INTERPRETATIONS, AND ADDENDA

Should a bidder find any omissions, discrepancies, or errors in the Specifications or other Contract Documents or should he/she be in doubt as to the meaning of the Specifications or other Contract Documents, he/she should immediately notify the Town of Berlin's Authorized Representative which may correct, amend, or clarify such documents by a written interpretation or addendum. No oral interpretations shall be made to any bidder and no oral statement of the Town of Berlin shall be effective to modify any of the provisions of the Contract Documents.

EMPLOYEE DISCRIMINATION

The Contractor agrees and warrants that in the performance of this Contract, he/she will not discriminate or permit discrimination against any person or groups of persons on the grounds of race, color, religion or national origin, age, marital status, sex, or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved in any manner prohibited by the laws of the United States or the State of Connecticut and further agrees to provide such information requested by the Town concerning the employment practices and procedures of the Contract as related to the provisions of this section.

SUBCONTRACTORS

The bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this Contract must be acceptable to the Town of Berlin and that approval of the proposed subcontract award cannot be given by the Town unless and until the successful bidder submits all information and evidence requested by the Town regarding the proposed subcontractor. Although the bidder is not required to attach such information and evidence to his/her bid, the bidder is hereby advised

of this requirement so that appropriate action will be taken to prevent subsequent delay in subcontract awards.

All contracts made by the Contractor with subcontractors shall be governed by the terms and conditions of the prime Contract. The Contractor shall see to it that his/her subcontractors are fully informed in regard to these terms and conditions.

EXECUTION OF CONTRACT

If notified of the acceptance of this proposal within the acceptance period of ninety (90) days, the bidder agrees to execute the contract and all related documents for this work within five days of receipt of the "Notice to Proceed."

TIME REQUIREMENTS

Time is a major factor for the completion of this contract. All work must be completed within the time limitations stipulated in the Supplemental Conditions. A monetary penalty as stipulated in the Supplemental Conditions will be imposed for work under this contract not completed within the aforementioned time period.

RIGHT OF THE TOWN TO TERMINATE CONTRACT

In the event that any of the provisions of this Contract are violated by the Contractor, or by any of his/her subcontractors, the Town of Berlin may serve written notice upon the Contractor of its intention to terminate the Contract per the general conditions of the contract.

PAYMENTS

Monthly estimates and/or invoices shall be furnished to the Town of Berlin for verification and approval of the amount of work done and the amount earned by the Contractor. An amount of 95% of the estimated amount due, less any payments previously made and/or any monies to be held will be paid to the Contractor. The balance will be retained by the Town of Berlin until final completion of the work. Final payment will not be made until final completion and acceptance by the Town of all work covered by the contract. The Contractor agrees that he will indemnify and save the Town of Berlin harmless for all claims growing out of the lawful demands of subcontractors, laborers, suppliers, and assignees.

END OF SECTION

FORM OF PROPOSAL
BID #2020-23

SOFTBALL FIELD #1 RENOVATIONS
SAGE PARK
BERLIN, CT

TO: Maryssa Tsolis, Purchasing Agent
Town of Berlin
230 Kensington Road
Berlin, CT 06037

Pursuant to and in compliance with your "Invitation to Bid" relating thereto, the undersigned,

(Name of Firm)

having visited the site and carefully examined the Drawings, Bidding Documents and complete Specifications **dated June 8, 2020** together with all Addenda issued and received prior to scheduled closing time for recipient of Bids as prepared by the Architects, KAESTLE BOOS ASSOCIATES, INC., 416 Slater Road, New Britain, Connecticut, hereby offers and agrees as follows:

To provide all labor, materials, and all else whatsoever necessary to install and properly finish all work in connection with the

SOFTBALL FIELD #1 RENOVATIONS
SAGE PARK
BERLIN, CT

to the satisfaction of the Architect and Owner for the sum of:

(written) _____ (\$ _____) (numerals)

to provide all labor, materials, and all else whatsoever necessary to construct all improvements described in the specifications. Bid sum shall include contract allowances as outlined in Section 01 10 00 "Summary".

If awarded this Contract, we will execute a Contract with the **Town of Berlin**, Owner of the property using the draft agreement included with the bid documents.

UNIT PRICES

Should the amount of improvements required be increased or decreased due to special considerations found at the site or because of a request of the **Town of Berlin**, the undersigned agrees that the following supplemental UNIT PRICES will be the basic price in place for computing the EXTRA or CREDIT.

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

The amounts shown are net changes to the Contract for additional work and include the Contractor's and any Subcontractor's amounts for overhead and profit. For deleted work, the net credit to the Contract shall be 10% less.

All work is to be accomplished in accordance with applicable Sections of the Specifications.

C.Y. = cubic yard	S.F. = square foot
S.Y. = square yard	V.F. = vertical foot
L.F. = linear foot	EA = Each

ITEMS

1. Mass Earth Excavation –Mass earth excavation including the completion of the excavation, formation and compaction of subgrade, and the disposal of surplus or unsuitable material according to Division 31 Section “Earth Moving.” \$ _____/C.Y.
2. Warning Track – Preparation and placement of warning track material and base including compaction according to Division 32 Section “Warning Track” \$ _____/25 S.Y..
3. Sod –Preparation of lawn areas, and placement of sod including all maintenance and establishment requirements, according to Division 32 Section “Sod.” \$ _____/25 S.Y.
4. 4 ft. High Black PVC coated Chain-Link Fencing – Contractor shall provide the additional cost for the materials, labor, and other items necessary for the installation of a complete fencing system including but not limited to excavation, footings, posts, caps, fabric, top and bottom rails, tension rods, ties, and repair of disturbed areas, according details sheet L4.01 and Division 32 specification section “Chain Link Fences and Gates” \$ _____/ 20 L.F.

5. 8 foot High Black PVC coated Chain-Link Fencing – Contractor shall provide the additional cost for the materials, labor, and other items necessary for the installation of a complete fencing system including, but not limited to excavation, footings, posts, caps, fabric, top and bottom rails, tension rods, ties and repair of disturbed areas, according to details sheet L4.01 and Division 32 specification section “Chain Link Fences and Gates”. \$_____/20 L.F.

ALTERNATES

The undersigned Bidder further proposed and agrees that should the following Alternates be accepted and included in the Contract, the amount of the Lump sum Bid, as heretofore stated, shall be adjusted by the amount of said Alternates. All materials and workmanship shall be in strict accordance with the Drawings and specification and shall be in place prices.

1. Alternate No. 1: Deduct: Provide Topsoil and Seed in lieu of Sod. – Contractor shall provide the credit cost for the materials, labor and other items necessary for seeding all areas shown as sod, including all seed establishment and maintenance requirements per the Specifications and as located on the drawings
\$_____
2. Alternate No. 2 ADD: 12 x16 Prefabricated Shed: – Contractor shall provide the additional cost for the materials, labor, and other items necessary for providing and installing a new prefabricated wood frame storage shed and warning track pad as specified and shown on the project drawings..
\$_____
3. Alternate No. 3 ADD: 12 x20 Prefabricated Shed: – Contractor shall provide the additional cost for the materials, labor, and other items necessary for providing and installing a new prefabricated wood frame storage shed and warning track pad as specified and shown on the project drawings..
\$_____
4. Alternate No. 4 ADD: New Scoreboard: – Contractor shall provide the additional cost for the materials, labor, and other items necessary for removing the existing scoreboard, uprights and providing and installing a new Scoreboard, uprights, and all electrical conditions required for a fully operational scoreboard to be located adjacent to the existing scoreboard location. as specified and shown on the project drawings..
\$_____

QUALIFICATIONS:

By submitting this proposal the bidder certifies that he/she meets or exceeds the required qualifications. Bidders must have prior specific experience with natural turf playing fields consisting of the successful construction of no less than five natural turf athletic fields that are 55,000 sf or greater in the past 5 years. Natural Turf field construction shall have consisted of Seeded or Sodded natural turf, topsoil placement and establishment, laser graded base, with irrigation. Bidders must provide verification of experience with this Proposal and include a Qualification Statement with this form for the proposal to be considered.

CONTRACT TIME

The undersigned Bidder hereby certifies that Substantial Completion and Final Completion will be achieved in accordance with the time designated in the General Conditions of the Contract for Construction.

The undersigned hereby certifies that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work. The Bid includes Addenda listed below and they are hereby acknowledged:

Addendum No. # _____

Dated _____

Addendum No. # _____

Dated _____

Addendum No. # _____

Dated _____

ATTACHMENTS

Enclosed herewith, is the Bid Security which is in the form of:

Bid Bond ()

Certified Check ()

Non Collusion Affidavit ()

In the Amount of

\$ _____ Dollars

SIGNATURE

Contractor Firm

Authorized Signature

Printed Name and Title

Business Address

City and State

Telephone Number

Telephone Fax Number

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

(To be included with bid)

State of.....)

County of.....)

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

(1) He is _____ of _____
_____, the Bidder that has submitted the attached Bid;

(2) He is 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 affidavit, 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 to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by 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 **Town of Berlin**, owner, or any person interested in the proposed 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.

(Signed)

(Title)

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

_____(Title)

My Commission Expires: _____

DRAFT AIA® Document A101™ – 2017

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)

«Town of Berlin »« »
«240 Kensington Road »
« Berlin, CT 06037 »
« »

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

« »« »
« »
« »
« »

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

«Softbal Field #1 RENOVATIONS»
Sage Park»
«Berlin, CT»

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

«Kaestle Boos Associates, Inc. »« »
«416 Slater Road , P.O. Box 2590 »
«New Britain, CT 06050-2590 »
« »

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

The parties should complete A101™-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™-2017, 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.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

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EXHIBIT A INSURANCE AND BONDS

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, Invitation to Bid #2020-23 issued by the Town of Berlin (including the Invitation to Bid, General Conditions and Instructions to Bidders, General Specifications and Special Provisions, Bid Form, Non-Collusion/Non-Conflict Affidavit, Prevailing Wage Information, and all Appendices and Addenda), Contractor's Bid (dated July x, 2020), 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: no later than August 3, 2020. Contractor shall coordinate the scheduling and performance of the Work with the Town. .
(Check one of the following boxes.)

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

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work by not later than: October 31, 2020 exclusive of sod/seed establishment

. TIME IS OF THE ESSENCE IN THE COMPLETION OF THIS PROJECT. If, in the sole opinion of the Town, the Contractor is not adhering to the Project schedule and/or is not supplying sufficient labor and/or equipment to complete the work by the substantial completion date contained herein, upon forty-eight (48) hours written notice, the Town shall have the right to direct the Contractor to increase its labor and/or equipment to meet established project schedules without additional compensation provided the Town is not responsible or in any way liable for the Contractor not adhering to the Project schedule. Any and all such additional labor or supervision shall be at Contractor's sole cost and expense and may include, but shall not be limited to, Town directing the Contractor to increase the workers on its crews, supply additional equipment, work overtime, work a second shift during a single day, work weekends, or any combination thereof, without any additional compensation being due to Contractor for such additional personnel.

« **Liquidated Damages.** It is understood by the parties that time is of the essence with regard to the timely completion of the Project. Failure of the Contractor to achieve substantial completion of the Project within the calendar days stated herein will result in the Owner and the public incurring damages, additional costs and inconveniences that would be impossible or extremely difficult to accurately quantify at the time. Therefore, the parties agree that, if the Contractor fails to satisfactorily complete the Project hereunder within the time specified or within any extension of time that may have been allowed, there shall be deducted from any monies due or that may become due the Bidder, the sum of **ONE HUNDRED DOLLARS AND NO CENTS (\$100.00)** for each and every calendar day, including Saturdays, Sundays and legal holidays, that the Project remains incomplete. This sum shall not be imposed as a penalty, but as liquidated damages due Owner from Contractor by reason of the damages incurred, inconvenience and additional costs and expenses to the public together with other problems suffered as a result of any such delay thereby occasioned.

»

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work

100%

Substantial Completion Date

October 31, 2020

Final Completion Date

Final Punch List

April 9, 2022 final acceptance of seeded lawns

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

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 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item**Price**

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement. (Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item**Price****Conditions for Acceptance**

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item**Price**

Electrical Allowance

\$40,000

§ 4.4 Unit prices, if any:

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item**Units and Limitations****Price per Unit (\$0.00)**

§ 4.5 Liquidated damages, if any:

(Insert terms and conditions for liquidated damages, if any.)

«\$100/day »

§ 4.6 Other:

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

« »

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 « First » day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the « Thirtieth » day of the « same » month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than « Thirty » (« 30 ») 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 of values 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 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 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; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

«5% »

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

<< >>

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

<< >>

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

<< >>

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 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 Article 12 of AIA Document A201–2017, 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 and all conditions precedent to final payment have been satisfied.

§ 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 the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the 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 Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

[☐] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

[☒] Litigation in a court of competent jurisdiction

[☐] Other (*Specify*)

☐ ☐

If the Owner and Contractor do not select a method of binding dispute resolution, 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.

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 A201–2017.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(*Name, address, email address, and other information*)

«Jennifer Ochoa, Director Parks and Recreation »
« Town of Berlin »
«230 Kensington Road »
« Berlin, CT 06037 »
« (860) 828-7010 »
« »

§ 8.3 The Contractor's representative:
(*Name, address, email address, and other information*)

« »
« »
« »
« »
« »
« »
« »

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

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

<< >>

§ 8.7 Other provisions:

<< >>

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

<< >>

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

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

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

- [☐] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

<< >>

- [☐] The Sustainability Plan:

Title	Date	Pages

- [☐] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

« »

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

OWNER (Signature)

« »« »

(Printed name and title)

CONTRACTOR (Signature)

« »« »

(Printed name and title)

STATEMENT OF BIDDER'S QUALIFICATIONS
(To be submitted by the Bidder on separate sheets WITH THE BID)

To be considered for this proposal the bidder must be able to certify that he/she meets or exceeds the required qualifications. Bidders must have prior specific experience with natural turf field construction consisting of the successful construction of no less than five natural grass turf athletic fields that are 55,000 sf or greater in the past 5 years. Field construction shall have consisted of Natural turf, Topsoil preparation, laser graded base, irrigation and infield construction. Bidders must provide verification of experience with the bid documents and include the information requested in this Qualification Statement to be considered a responsive bidder..

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. The Bidder may submit any additional information he desires.

1. Name of Bidder and IRS Employers Identification Number.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. General character of work performed by your company.
7. Have you ever failed to complete any work awarded to you? If so, where and why?
8. List any pending or current litigation that involves your company.
9. List 5 successful turf installation projects involving natural turf athletic fields with irrigation that are 55,000 sf or greater in the past 5 years.
10. List your major equipment available for this contract.
11. List all the ASBA certified field builders employed (or subcontracted) by your firm
12. Experience in construction work similar in importance to this project.
13. Background and experience of the principal members of your organization, including the officers.
14. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner.
15. Include the following certification on qualification statements: The undersigned hereby authorizes and requests any person, 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 _____, 201__.

(Name of Bidder)

By _____

Title _____

Enclose answers on separate pages with your Bid

BID BOND

KNOW ALL MEN BY THESE PRESENT, that we, the undersigned, _____

_____ as Principal; and _____

_____ as Surety, are hereby held and firmly bound

unto the _____, in the penal sum of _____

Dollars (\$ _____) lawful money of the United States of America to be paid to the

Said _____, as liquidated damages for the payment of which sum, well and truly to be made, we jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____ day of _____, 201

The condition of the above obligation is such that whereas the Principal has submitted to the _____, a certain Bid (Proposal), attached hereto and hereby made a part hereof, to enter into a contract in writing for the Construction of **Softball field #1 Renovations, Sage Park Berlin, CT**

NOW THEREFORE,

(a) if said Bid shall be rejected, or in the alternate,

(b) if said Bid shall be accepted and the Principal shall execute and deliver a contract in the form of contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid, then, this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by and extension of the time within which the Principal may accept such Bid; and said Surety does hereby waive notice of any such extension.

(SEAL)

Notary Public

_____(L.S.)

By _____
Title

Surety

*By _____
Attorney-in-Fact

Signed and Sealed in the Presence of:

*Important: Furnish proof of authority of officers or agents of Surety to this document.

DRAFT AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

«SOFTBALL FIELD #1 RENOVATIONS
Sage Park»
«Berlin, CT»

THE OWNER:

(Name, legal status and address)

«Town of Berlin
240 Kensington Road»« »
« Berlin, CT 06037»

THE ARCHITECT:

(Name, legal status and address)

«Kaestle Boos Associates, Inc.
416 Slater Road, P.O. Box 2590
New Britain, CT 06050-2590 »« »
« »

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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties. There are no intended third-party beneficiaries to the Agreement.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and

enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work. Contractor shall conduct its own due diligence and familiarize itself with the site(s) where the Work will be performed.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term “Contractor” means the Contractor or the Contractor’s authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect’s administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, conducted its own due diligence and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor’s review is made in the Contractor’s capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor’s notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor’s best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor’s proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.4.4 The Contractor shall pay prevailing wages and require all subcontractor to pay prevailing wage rates in accordance with Connecticut law.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. The Town of Berlin is exempt from the payment of Connecticut sales tax.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15. Failure to provide notice within the time period and in the form required herein shall constitute a knowing waiver of claim by Contractor.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when

fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect.

Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine. Under no circumstances shall Owner be responsible or liable for any delay damages, including any Eichleay or other type of extended overhead or lost profit claims or damages, idle equipment costs, lost productivity or labor inefficiency costs or lost opportunity costs. Contractor acknowledges that it was aware of and considered this provision when submitting its bid and Contractor accepts the risk of delays.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does preclude recovery of damages for delay by either party under other provisions of the Contract Documents, except for Owner's right to recover liquidated damages in the event of Contractor's failure to achieve substantial completion by the stated date.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract

Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and

insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the

Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously and expressly made in writing and expressly identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§11.1.1a The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. All insurance shall be written on an occurrence basis unless the Owner approves in writing coverage on a claims made basis. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment and without limitation of the foregoing, shall be written with minimum coverage as follows:

INSURANCE REQUIREMENTS

The selected vendor must maintain insurance that meets the Town of Berlin's insurance requirements (listed below), to protect the Town of Berlin from claims for loss or injury which might arise out of or result from the operations under this contract. Additionally, the selected vendor must file Certificates of Insurance with the Town of Berlin, naming the Town of Berlin as an additional insured.

Worker's Compensation, employer liability (or statutory limits - greater of two), \$1,000,000.

Comprehensive General Liability with limits of not less than \$1,000,000.00 per occurrence.

Professional Liability with limits not less than \$1,000,000.

Umbrella Liability of not less than \$1,000,000.

Comprehensive Automobile Liability (owned, non-owned, hired) of \$1,000,000.00 each accident

§ 11.1.2 The Contractor shall provide payment and performance bonds in the amount of the full penal sum of the Agreement and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and

Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of

when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise commits a substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by

applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential and Incidental Damages

The Contractor and Owner waive Claims against each other for consequential and incidental damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been

rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending

mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____
of _____, as Principal
hereinafter called Principal, and _____,
as Surety, hereinafter called Surety, are held and firmly bound unto the **Town of Berlin**, as Obligee, hereinafter called the Obligee, in the full penal sum of _____ Dollars (\$_____) for the payment whereof Principal and 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 said Principal has entered into a certain written contract with said Obligee, dated the _____ day of _____, 200__ for the Construction of **Softball field #1 Renovations, Sage Park, Berlin, CT** which contract, together with all Contract Documents now made or which may hereafter be made in extension, modification or alternation thereof, any hereby referred to, incorporation in and made a part of this bond as though herein fully set forth.

NOW, THEREFORE, if the said Principal shall well and truly keep, perform and execute all the terms, conditions and stipulations of said contract according to its provisions on his or its part to be kept and performed and shall indemnify and reimburse the obligee for any loss that it may suffer through failure of the Principal to faithfully observe and perform each and every obligation and duty imposed upon the Principal by the said contract, at the time and in the manner therein specified, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect.

PROVIDED, HOWEVER, that any alterations which may be made in the terms of said contract or in the work done or to be done under it, or the giving by the Obligee of any extension of time for the performance of said contract or any other, shall not in any way release the Principal and/or the Surety, or either of them, their representative, heirs, executors, administrators, successors or assigns from liability hereunder, notice to the Surety or Sureties of any such alteration, extension or forbearance being hereby specifically and absolutely waived.

AND PROVIDED FURTHER that no action, suit or proceeding shall be had or maintained against the Surety on this instrument unless the same be brought or instituted and process served upon the Surety within three years from the expiration of the guaranty period provided in the contract, whether the work be completed by the Principal, Surety, or Obligee.

PERFORMANCE BOND, Cont.

IN WITNESS WHEREOF, the said Principal and Surety have SIGNED AND SEALED this instrument this _____ day of _____, 201____.

Attest:

Principal

By: _____

Surety

By: _____

Approved as to form and correctness

Important: Attach herewith proof of authority of officers or agents to sign bond.

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that _____

of _____, as Principal hereinafter called Principal, and _____, a Corporation, organized and existing under the laws of the State of _____, as Surety, hereinafter called Surety, are held and firmly bound unto the **Town of Berlin**, as Obligee, hereinafter called the Obligee, in the full penal sum of

(\$_____) for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE OBLIGATION IS SUCH THAT WHEREAS said Principal has entered into a certain written contract with said Obligee, dated the _____ day of _____, 200____, which written contract provides for the Construction of **SOFTBALL FIELD #1 RENOVATIONS, SAGE PARK, BERLIN, CT.**

Which contract, together with all plans and specifications now made or which hereafter be made in extension, modification of alteration thereof, are hereby referred to, incorporated in and made part of this bond as though herein fully set forth.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall pay for all labor and materials furnished to himself or his subcontractors for use in the prosecution of the work and used therein, then this obligation to be void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed, pursuant to the provision of Section 49-41 of the General Statutes of the State of Connecticut, Revision of 1958, and Sections 49-42 and 49-43 of the 1961 Supplement to the General Statutes; and the rights and liabilities hereunder shall be determined and limited by said sections to the same extent as if they were copies at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have SIGNED AND SEALED this instrument this _____ day of _____, 20 ____.

Attest:

Principal

By _____

LABOR AND MATERIAL PAYMENT BOND, Cont.

Attest:

Surety

By _____

Approved as to form and correctness

Important: Attach herewith proof of officers or agents to sign Bond.

CONNECTICUT
PREVAILING WAGE RATES
JUNE 7, 2020

**Minimum Rates and Classifications for
Heavy/Highway Construction**

ID#: 20-13142

**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: CT KBA#19032.01

Project Town: Berlin

State#: Berlin

FAP#: CT KBA#19032.01

Project: Renovations to Softball Field #1 (Sage Park, Berlin)

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	35.72	33.16
2) Carpenters, Piledrivermen	34.53	25.64
2a) Diver Tenders	34.53	25.64
3) Divers	42.99	25.64
03a) Millwrights	34.94	26.19
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	51.0	21.80
4a) Painters: Brush and Roller	34.62	21.80
4b) Painters: Spray Only	36.62	21.80
4c) Painters: Steel Only	35.62	21.80
4d) Painters: Blast and Spray	37.62	21.80
4e) Painters: Tanks, Tower and Swing	36.62	21.80

Project: Renovations to Softball Field #1 (Sage Park, Berlin)

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)	38.5	28.61+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	36.67	35.77 + 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)	43.62	32.06
----LABORERS-----		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	31.0	22.15
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	31.25	22.15
10) Group 3: Pipelayers	31.5	22.15
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	31.5	22.15
12) Group 5: Toxic waste removal (non-mechanical systems)	33.0	22.15
13) Group 6: Blasters	32.75	22.15
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	32.0	22.15
Group 8: Traffic control signalmen	18.0	22.15
Group 9: Hydraulic Drills	29.3	18.90
----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	33.23	22.15 + a
13b) Brakemen, Trackmen	32.26	22.15 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		

14) Concrete Workers, Form Movers, and Strippers	32.26	22.15 + a
15) Form Erectors	32.59	22.15 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	32.26	22.15 + a
17) Laborers Topside, Cage Tenders, Bellman	32.15	22.15 + a
18) Miners	33.23	22.15 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	39.72	22.15 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	39.52	22.15 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	37.54	22.15 + a
21) Mucking Machine Operator	40.31	22.15 + a
----TRUCK DRIVERS----(*see note below)		
Two axle trucks	29.86	25.79 + a
Three axle trucks; two axle ready mix	29.97	25.79 + a
Three axle ready mix	30.03	25.79 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	30.08	25.79 + a
Four axle ready-mix	30.13	25.79 + a
Heavy duty trailer (40 tons and over)	30.35	25.79 + a

Project: Renovations to Softball Field #1 (Sage Park, Berlin)

Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	30.13	25.79 + a
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----POWER EQUIPMENT OPERATORS----

Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	42.45	25.30 + a
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Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	42.11	25.30 + a
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Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), 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)	41.32	25.30 + a
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Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	40.91	25.30 + a
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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	40.28	25.30 + a
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Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	40.28	25.30 + a
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Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	39.95	25.30 + a
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Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24	39.59	25.30 + a
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Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	39.17	25.30 + a
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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).	38.71	25.30 + a
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Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	36.54	25.30 + a
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Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	36.54	25.30 + a
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Group 12: Wellpoint Operator.	36.48	25.30 + a
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Project: Renovations to Softball Field #1 (Sage Park, Berlin)

Group 13: Compressor Battery Operator.	35.86	25.30 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	34.66	25.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	34.23	25.30 + a
Group 16: Maintenance Engineer/Oiler	33.54	25.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	38.11	25.30 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	35.53	25.30 + a

****NOTE: SEE BELOW**

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

-

20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
21) Heavy Equipment Operator	42.26	6.5% + 19.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
23) Driver Groundmen	26.5	6.5% + 9.00
23a) Truck Driver	40.96	6.5% + 17.76

----LINE CONSTRUCTION----

24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.1	6.5% + 10.70
27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20

As of: June 3, 2020

28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45
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Project: Renovations to Softball Field #1 (Sage Park, Berlin)

Welders: Rate for craft to which welding is incidental.

*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

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)**
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson**
- 3) Cranes (under 100 ton rated capacity)**

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

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

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

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

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.

As of: June 3, 2020

Project: Renovations to Softball Field #1 (Sage Park, Berlin)

~~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.



Opportunity ★ Guidance ★ Support



THIS IS A PUBLIC WORKS PROJECT

Covered by the

PREVAILING WAGE LAW

CT General Statutes Section 31-53

**If you have QUESTIONS regarding your wages
CALL (860) 263-6790**

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least \$100,000)

- (1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);
- (2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;
- (3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least \$100,000;
- (4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;
- (5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;
- (6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;
- (7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;
- (8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;
- (9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

- (10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;
- (11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;
- (12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
- (13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;
- (14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and
- (15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.
- (16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of <http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm>; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTIMATELY ARISE CONCERNING THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

November 29, 2006

Notice
To All Mason Contractors and Interested Parties
Regarding Construction Pursuant to Section 31-53 of the
Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.
- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

STATUTE 31-55a

- SPECIAL NOTICE -

To: All State and Political Subdivisions, Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement 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 Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. 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.


Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

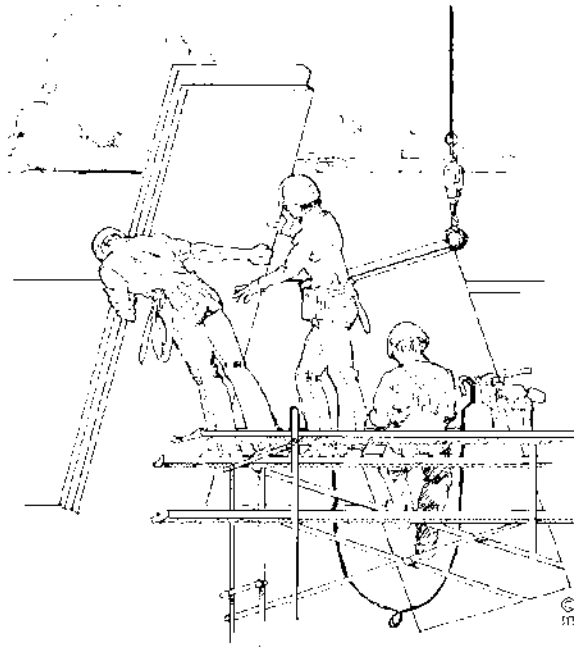
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

 Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be \$_____, which includes all work, regardless of whether such project
consists of one or more contracts.

CONTRACTOR INFORMATION

Name: _____

Address: _____

Authorized Representative: _____

Approximate Starting Date: _____

Approximate Completion Date: _____

Signature

Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109


Date Issued: _____

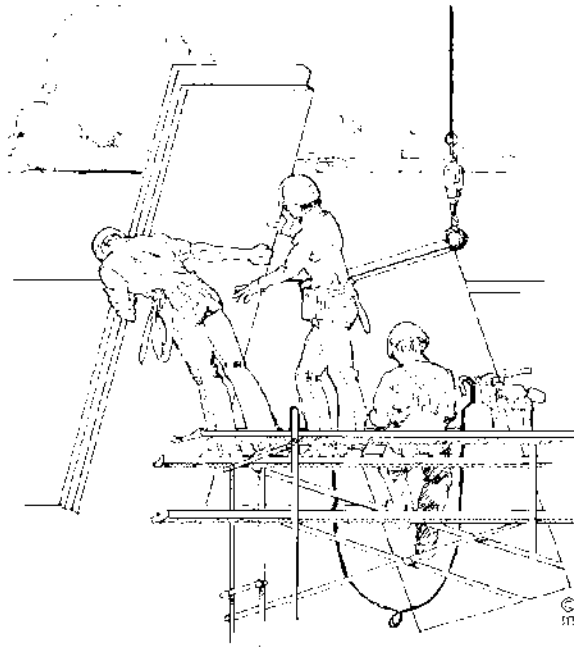
~NOTICE~

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CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be \$_____, which includes all work, regardless of whether such project
consists of one or more contracts.

CONTRACTOR INFORMATION

Name: _____

Address: _____

Authorized Representative: _____

Approximate Starting Date: _____

Approximate Completion Date: _____

Signature

Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM
Construction Manager at Risk/General Contractor/Prime Contractor

I, _____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

Street

City

and all of its subcontractors will pay all workers on the

Project Name and Number

Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

Signed

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

Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.												PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS										Connecticut Department of Labor Wage and Workplace Standards Division 200 Folly Brook Blvd. Wethersfield, CT 06109							
CONTRACTOR NAME AND ADDRESS:												SUBCONTRACTOR NAME & ADDRESS						WORKER'S COMPENSATION INSURANCE CARRIER POLICY # EFFECTIVE DATE: EXPIRATION DATE:											
PAYROLL NUMBER		Week-Ending Date		PROJECT NAME & ADDRESS																									
PERSON/WORKER, ADDRESS and SECTION		APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION		DAY AND DATE						Total ST Hours	BASE HOURLY RATE	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS				GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY								
						S	M	T	W	TH	F	S																	
				Trade License Type & Number - OSHA 10 Certification Number												Total O/T Hours	TOTAL FRINGE BENEFIT PLAN CASH	FICA	FEDERAL WITH- HOLDING	STATE WITH- HOLDING		LIST OTHER							
HOURS WORKED EACH DAY																													
												\$ Base Rate	1. \$ 2. \$ 3. \$																
												\$ Cash Fringe	4. \$ 5. \$ 6. \$																
												\$ Base Rate	1. \$ 2. \$ 3. \$																
												\$ Cash Fringe	4. \$ 5. \$ 6. \$																
												\$ Base Rate	1. \$ 2. \$ 3. \$																
												\$ Cash Fringe	4. \$ 5. \$ 6. \$																
												\$ Base Rate	1. \$ 2. \$ 3. \$																
												\$ Cash Fringe	4. \$ 5. \$ 6. \$																
12/9/2013												*IF REQUIRED																	
WWS-CP1												*SEE REVERSE SIDE												PAGE NUMBER ____OF					

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker’s compensation, income taxes, etc.).

Please specify the type of benefits provided:

- 1) Medical or hospital care _____
- 4) Disability_____
- 2) Pension or retirement _____
- 5) Vacation, holiday_____
- 3) Life Insurance _____
- 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____ of _____, (hereafter known as Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker’s compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.
2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

(Signature)

(Title)

Submitted on (Date)

Weekly Payroll Certification For Public Works Projects (Continued)				PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS										Week-Ending Date: Contractor or Subcontractor Business Name:					
WEEKLY PAYROLL																			
PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION	DAY AND DATE						Total ST Hours	BASE HOURLY RATE	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS				GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				S	M	T	W	TH	F	S									
			Trade License Type & Number - OSHA 10 Certification Number								Total O/T Hours			TOTAL FRINGE BENEFIT PLAN CASH					
				HOURS WORKED EACH DAY															
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
*IF REQUIRED																			
12/9/2013 WWS-CP2				NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)										PAGE NUMBER ____ OF					

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS										Connecticut Department of Labor Wage and Workplace Standards Division 200 Folly Brook Blvd. Wethersfield, CT 06109												
In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.										WEEKLY PAYROLL												
CONTRACTOR NAME AND ADDRESS: Landon Corporation, 15 Connecticut Avenue, Northford, CT 06472										SUBCONTRACTOR NAME & ADDRESS XYZ Corporation 2 Main Street Yantic, CT 06389					WORKER'S COMPENSATION INSURANCE CARRIER Travelers Insurance Company POLICY # #BAC8888928 EFFECTIVE DATE: 1/1/09 EXPIRATION DATE: 12/31/09							
PAYROLL NUMBER	Week-Ending Date	PROJECT NAME & ADDRESS																				
1	9/26/09	DOT 105-296, Route 82																				
PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE							Total ST Hours	BASE HOURLY RATE	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS				GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY		
				S	M	T	W	TH	F	S					FICA	FEDERAL	STATE	LIST OTHER				
				20	21	22	23	24	25	26	Total O/T Hours	TOTAL FRINGE BENEFIT PLAN CASH										
				HOURS WORKED EACH DAY																		
Robert Craft 81 Maple Street Willimantic, CT 06226		M/C	Electrical Lineman E-1 1234567 Owner OSHA 123456		8	8	8	8	8		S-TIME 40	\$ 30.75 Base Rate	1. \$ 5.80 2. \$ 3. \$ 2.01	\$1,582.80				P-xxxx	\$1,582.80	#123 \$ xxx.xx		
Ronald Jones 212 Elm Street Norwich, CT 06360	65%	M/B	Electrical Apprentice OSHA 234567		8	8	8	8	8		S-TIME 40	\$ 19.99 Base Rate	1. \$ 2. \$ 3. \$	\$1,464.80	xx.xx	xxx.xx	xx.xx	G-xxx	\$1,464.80	#124 \$xxx.xx		
Franklin T. Smith 234 Washington Rd. New London, CT 06320 SECTION B		M/H	Project Manager			8					S-TIME 8	\$ Base Rate	1. \$ 2. \$ 3. \$	\$1,500.00	xx.xx	xx.xx	xx.xx	M-xx.x		#125 xxx.xx		
											S-TIME	\$ Base Rate	1. \$ 2. \$ 3. \$									
											O-TIME	\$ Cash Fringe	4. \$ 5. \$ 6. \$									

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

- 1) Medical or hospital care Blue Cross 4) Disability _____
2) Pension or retirement _____ 5) Vacation, holiday _____
3) Life Insurance Utopia 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of 9/26/09,

I, Robert Craft of XYZ Corporation, (hereafter known as

Employer) in my capacity as Owner (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such employee's name first appears.

Robert Craft owner 10/2/09
(Signature) (Title) Submitted on (Date)

Section B: Applies to CONNDOT Projects ONLY

That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

Robert Craft owner 10/2/09
(Signature) (Title) Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

THIS IS A PUBLIC DOCUMENT

DO NOT INCLUDE SOCIAL SECURITY NUMBERS

Information Bulletin

Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- **ASBESTOS WORKERS**

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- **ASBESTOS INSULATOR**

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- **BOILERMAKERS**

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

- The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- **ELECTRICIANS**

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- **ELEVATOR CONSTRUCTORS**

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. **License required by Connecticut General Statutes: R-1,2,5,6.*

- **FORK LIFT OPERATOR**

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- **GLAZIERS**

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- **IRONWORKERS**

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- **INSULATOR**

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- **LABORERS**

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal)).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- **PAINTERS**

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- **LEAD PAINT REMOVAL**

- Painter's Rate

1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

- Laborer's Rate

1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- **PLUMBERS AND PIPEFITTERS**

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- **POWER EQUIPMENT OPERATORS**

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- **ROOFERS**

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- **SHEETMETAL WORKERS**

Fabricate, assemble, install and repair sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, fascia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- **SPRINKLER FITTERS**

Installation, alteration, maintenance and repair of fire protection sprinkler systems.

****License required per Connecticut General Statutes: F-1,2,3,4.***

- **TILE MARBLE AND TERRAZZO FINISHERS**

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are required to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➤ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.

**Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES**

- ⇒ Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

- a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

- a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Veterans’ Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.
- b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

- a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year’s Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

- a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

- a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

- a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

**SOFTBALL FIELD #1
UConn EXTENSION SERVICE
TOPSOIL TESTING RESULTS**



UConn Soil Nutrient Analysis Laboratory

6 Sherman Place, Unit 5102, Union Cottage
Storrs, CT 06269-5102
860-486-4274
www.soiltest.uconn.edu

UConn
COLLEGE OF AGRICULTURE,
HEALTH AND NATURAL
RESOURCES
PLANT SCIENCE AND LANDSCAPE
ARCHITECTURE

Soil Test Report

Order Number: 11386

Prepared For:

Eric Roise
Kaestle Boos Associates, INC
416 Slater Road, P.O. Box 2590
New Britain, CT 06050

eroise@kba-architects.com
860.259.1717

Sample Information:

Sample Name: SOSBfield
Lab Number: 978
Area Sampled:
Received: 1/30/2020
Reported: 2/7/2020

Results

Nutrients Extracted From Your Soil (Modified Morgan)

		Below Optimum	Optimum	Above Optimum	Excessive*
Calcium	1875 lbs/acre				
Magnesium	344 lbs/acre				
Phosphorus	4 lbs/acre				
Potassium	216 lbs/acre				

* Excessive only defined for Phosphorus (>40 lbs/acre)

Soil pH (1:1, H ₂ O)	6.2	<u>Element</u>	<u>ppm</u>	<u>Soil Range in CT</u>
Est. Cation Exch. Capacity (cmole+/100g)	9.5	Boron (B)	0.3	0.1 - 2.0
		Copper (Cu)	0.1	0.3 - 0.8
Buffered pH (Mod. Mehlich)	6.3	Iron (Fe)	1.9	1.0 - 40.0
		Manganese (Mn)	2.4	3.0 - 20.0
		Zinc (Zn)	0.6	0.1 - 70.0
		Sulfur (S)	21.1	10 - 100
		Aluminum (Al)	24.3	10 - 300
<u>Base Saturation</u>	<u>%</u>	<u>Suggested</u>		
Potassium	3	2.0 - 7.0		
Magnesium	15	10 - 30		
Calcium	49	40 - 50		
		Est. Total Lead (Pb)	low	

Limestone & Fertilizer Recommendations for New Lawn Construction

Limestone (Target pH of 6.6)

50 lbs / 1000 sq ft

Comments:**LIMESTONE:**

Incorporate any recommended ground limestone thoroughly into the top 6 inches of soil before seeding or sodding.

FERTILIZER:

Soil test PHOSPHORUS values are BELOW OPTIMUM. Apply prior to seeding or sodding and before final grading, 10 lbs of 0-46-0 (triple superphosphate) or 20 lbs of 0-20-0 (superphosphate) or 134 lbs of 0-3-0 (rock phosphate) per 1000 sq ft. Incorporate the phosphorus fertilizer into the top 4 to 6 inches of soil.

After final grading, if seeding, apply 20 lbs or 5-10-5 or 10 lbs of 10-20-10 or 25 lbs of 4-1-4 or 4-3-4 per 1000 sq ft, or the equivalent, and mix into the soil surface with the seed. If sodding, apply to the soil surface 10 lbs of 10-10-10 or 25 lbs of 4-3-4 per 1000 sq ft or the equivalent after final grading but before sod placement.

In future years, follow the fertilizer suggestions on the SUGGESTED FERTILIZER PRACTICES FOR LAWNS fact sheet or retest the soil (at least three months after an application of fertilizer) for current recommendations.

If you have questions about this report or fertilizer recommendations, contact the UConn Soil Nutrient Analysis Lab at (860) 486-4274 or email soiltest@uconn.edu.

If you have questions about any other plant, pest or disease problems, contact the UConn HOME and GARDEN EDUCATION CENTER, Dept. of Plant Science and Landscape Architecture. Phone: (877) 486-6271; email: ladybug@uconn.edu; website: www.ladybug.uconn.edu.

References (Crop Related):

Soil Test Interpretation and Recommendations

<http://www.soiltest.uconn.edu/documents/interpretationofsoiltestresults6-2016.pdf>

Fertilizer Practices for Lawns

<http://www.soiltest.uconn.edu/documents/suggfertpraclawn6-16.pdf>

Fertilizer Conversions & Garden Measurements

<http://www.soiltest.uconn.edu/documents/fertilizerandgardenmeasurements2-5-15.pdf>

PLANT SCIENCE AND LANDSCAPE ARCHITECTURE

RESULTS REPORT

February 07th, 2020

Name: Eric Roise

Kaestle Boos Associates, INC – For Sage Park, Berlin CT

416 Slater Road, P.O. Box 2590, New Britain, CT 06050

Order Number: 11386

Lab Number: MA20-89

Sample Name: SOSBFIELD

Textural Analysis

Percentages are based on the Fine Earth Fraction (Less than 2mm)

Sand: 47.6 %

Silt: 46.0 %

Clay: 6.4 %

According to USDA criteria, this sample classifies as a **SANDY LOAM**. Classification is based on particles that are sand size or finer (i.e. Less than 2 millimeters in diameter.)

University of Connecticut Soil Nutrient Analysis Laboratory

6 Sherman Place Unit 5102 Storrs, CT 06269-5102

Tel: (860) 486-4274 Fax: (860) 486-4562 Web: www.soiltest.uconn.edu

SECTION 01 10 00 – SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. Instructions to Bidders, AIA Document A201, “General Conditions of the Contract for Construction, 2007 Edition as amended, and Division 01 General Requirements are bound herein, are hereby made a part of this Section, and shall be binding on all Contractors and Subcontractors who perform this work.

1.2 SUMMARY

A. This Section includes the following:

1. Project information.
2. Work covered by the Contract Documents.
3. Work under other contracts.
4. Use of premises.
5. Owner's occupancy requirements.
6. Work restrictions.
7. Specification formats and conventions.

B. Related Sections include the following:

1. Division 01 Section “Temporary Facilities and Controls” for limitations and procedures governing temporary use of Owner’s facilities.

1.3 PROJECT INFORMATION

A. Project Identification: The Project consists of
Softball Field #1 Renovations – Sage Park

1. Project Location: **Sage Park, Suranna Dr. Berlin, CT 06037**

B. Owner's Representative:

Jennifer Ochoa, Director Parks and Recreation.
230 Kensington Rd. Berlin, CT 06037
jochoa@town.berlin.ct.us
860-828-7010

C. Architect Identification:

Eric Roise, Project Manager
Kaestle Boos Associates, Inc., New Britain, CT
eroise@kaestleboos-architects.com

1.4 WORK COVERED BY THE CONTRACT DOCUMENTS

A. The Work includes but is not necessarily limited to:

1. The Work includes selective demolition of the existing field including removal of existing chain link fencing and backstops removal of existing infield mix, removal of various walks, irrigation, drainage and improvements. Existing dugouts, outfield fence and field lights are to remain and be protected, unless otherwise noted. Construction includes renovations, regrading and seeding of outfield areas, construction of a new infield area, new backstop and fencing, and new irrigation system. Alternates include a new scoreboard, and new prefabricated storage building, and seed in lieu of Sod.
2. The bid drawings, bid documents and project manual for ‘Softball Field #1 - Renovations – Sage Park, Berlin CT’ as modified by addenda are hereby incorporated into this specification in whole. All Materials, installation and warranties required for a working, acceptable athletic field shall be included in the bid price.
3. All areas disturbed by the contractors activities that are not covered by pavements or other improvements shall be topsoiled and seeded as lawn. Any improvements damaged by the contractors activities shall be repaired or replaced at no cost to the Owner.

1.5 ALLOWANCES

- A. Bidders shall include in their bid sum an allowance of \$40,000 for Electrical or drainage work yet to be identified. Use of this allowance will be at the Owner’s discretion. This allowance shall be included in the bid sum, and itemized as a line item in the schedule of values. Un-used portions of the allowance shall be credited to the Owner at completion of the project.

1.6 PREVAILING WAGES

- A. Prevailing wages per Connecticut General Statutes apply to this project. Bids shall include accommodation for prevailing wages as noted in this specification. Certified payroll information shall be included with all contractors applications for payment.

1.7 WORK SEQUENCE

- A. General: The Contractor shall utilize the proposed Schedule as the basis for a detailed construction schedule, to be submitted to the Owner, Architect, and Owner’s Representative for review and approval. The schedule must clearly demonstrate the proper sequencing of construction and relocation activities, and how operational and environmental conditions will be satisfactorily maintained in all occupied spaces.

B. The Sequence of work per the following schedule:

Bids Due

Thursday, July 9, 2020 – 11:00 a.m.

- | | |
|---|---------------------------|
| a. Bidder Interviews / Scope Reviews | Friday, July 10, 2020 TBD |
| b. Recommendation to Town Council | Monday July 13, 2020 |
| c. Town Council Meeting to Award Contract | Tuesday July 21, 2020 |

Construction (August – October 2020)

- | | |
|---|-----------------------------------|
| a. Construction Submittals, & Manufacturing | July 21- August |
| b. Construction Start | August 3, 2020 |
| c. Substantial Completion | October 31, 2020 |
| d. Close-Out, Warranty | October 31 - November 31, 2020 |
| e. Grow-in / Lawn Establishment (sod) | October 31, 2020 – April 30, 2021 |
| f. Project Complete (sod) | May 1, 2021 |

1.8 CONTRACTOR USE OF PREMISES

- A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.
- B. Use of Site: Confine operations to areas within Contract limits indicated. Do not disturb portions of the Project site beyond areas in which Work is indicated.
1. Confine the parking of workmen's and construction vehicles, and the storage of construction materials to a designated staging area determined by the **Architect and Owner**
 2. Keep driveways and entrances clear and available to Owner, Owner's employees, and emergency vehicles at all times. Staging at access ways may be required in order to permit completion of the work of this Project. Do not use these areas for parking or storage of materials.
 3. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Site Security: Continuously maintain the security of the site and the Work. Cooperate with the Owner in particularly sensitive areas where security and special safeguards are required.
1. Provide security guards or patrols as necessary for adequate protection of the interests of the Contractor, Owner, and the general public on the site, or in public ways around the site.
 2. Ensure that all gates and other openings are secured at the end of each work day.
 3. Ensure property signage is installed to signify the project areas is closed.

1.9 OWNER OCCUPANCY

- A. Completion Requirements: Timely completion of the project is critical. Aggressive construction scheduling and careful monitoring of crucial path milestones cannot be overemphasized.
- B. Partial Owner Occupancy: Owner will occupy the remainder of Sage park premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits, unless otherwise directed by authorities having jurisdiction.
 - 1. Maintain access to existing walkways, driveway, concession building, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner, and authorities having jurisdiction.
 - 2. Provide not less than 72 hours' notice to Owner and Architect of activities that will affect Owner's operations.

1.10 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, except otherwise indicated.
 - 1. Extended & Weekend Hours:
(8:00 am to 4:00 pm maximum weekend) as Approved by Owner

1.11 CODES, STANDARDS AND PERMITS

- A. All work under this contract shall conform to all codes and standards in effect as of the date of receipt of Bids which are applicable to this Project. All work shall further conform to specific requirements and interpretations of local authorities having jurisdiction over the Project, These Codes, standards, and authorities are referred to collectively as "the governing codes and authorities", and similar terms, throughout the Specifications. Determination of applicable codes and standards and of the authorities having jurisdiction, shall be the responsibility of each Contractor, as shall be the analysis of all such codes and standards in regard to their applicability to the Project for the purposes of determining necessary construction to conform to such code requirements, for securing all approvals and permits necessary to proceed with construction, and to obtain all permits necessary for the Owner to occupy the facilities for their intended use. In the case of conflicts between the requirements of different codes and standards, the most restrictive or stringent requirements shall be met.
 - 1. The Contractor shall maintain at the site, for the duration of the construction operations at the site, two (2) copies of all relevant codes and standards listed herein or determined to be applicable to the work. Maintain one copy of such codes in the Construction Manager's site office, for the exclusive use of the Owner the Architect and its consultants.

B. The codes that were used in the design of the Project are as follows:

1. State of Connecticut State Building Code
2. Architectural Access Board 521 CMR, as amended (AAB)
3. The Americans with Disabilities Act, Title II, including ADA Regulations.
4. ADA Standards for Accessible Design, 28 CFR 36 (7-1-94 Edition) ADA Accessibility Guidelines (ADAAG).
5. Section 504, Rehabilitation Act 1973 including 504 Regulations.
6. Uniform Federal Accessibility Standards, 41 CFR 101-19.6.

C. Code Enforcement and Approvals: Secure the general building permit for the work. Conform to all conditions and requirements of the permit and code enforcement authorities. Provide names and license numbers of its responsible representatives to complete application for permit.

1.12 SPECIFICATION FORMATS AND CONVENTIONS

A. These Specifications with the accompanying Drawings are intended to describe and illustrate all material, labor, and equipment necessary to complete ‘Synthetic Turf Replacement, Scalise Field – Sage Park, Berlin CT’

B. Specification Format: The Specifications are organized into Divisions and Sections using the 48-division format and CSI/CSC’s “MasterFormat” numbering system.

1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

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

3. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
4. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

- D. In general, the Specifications will describe the “quality” of the work and the Drawings, the “extent” of the work. The Drawings and Specifications are cooperative and supplementary, however, and each item of the work is not necessarily mentioned in both the Drawings and the Specifications. All work necessary to complete the project, so described, is to be included in this Contract.
- E. In case of disagreement between Drawings and Specifications, or within either document itself, the Architect shall construe the Documents to require the better quality or greater quantity of work for the Owner that can reasonably be construed therefrom. Any work done by the Contractor without consulting the Architect, when the same requires a decision, shall be done at the Contractor’s risk.

1.13 SOCIAL SECURITY TAXES

- A. The Contractor and each Subcontractor shall pay the taxes measured by the wages of all their employees as required by the Federal Social Security Act all amendments thereto, and accept the exclusive liability for said taxes. The Contractor shall also indemnify and hold the Owner, and its respective officers, agents and servants, and the Architect harmless on account of any tax measured by the wages aforesaid of employees of the Contractor and his Subcontractors, assessed against the Owner under authority of said law.

1.14 UNEMPLOYMENT INSURANCE

- A. The Contractor and each Subcontractor shall pay unemployment insurance measured by the wages of his employees as required by law and accept the exclusive liability for said contributions. The Contractor shall also indemnify and hold harmless the Owner, and the Architect on account of any contribution measured by the wages of aforesaid employees of the Contractor and his Subcontractors, assessed against the Owner under authority of law.

1.15 OCCUPATIONAL SAFETY AND HEALTH ACT

- A. The Contractor shall comply with the requirements of the Occupational Safety and Health Act of 1970 and the Construction Safety Act of 1969, including all standards and regulations which have been promulgated by the Governmental Authorities which administer such Acts and said requirements, standards and regulations are incorporated herein by reference.
 - 1. The Contractor shall comply with M.G.L. Chapter 306 of the Acts of 2004, which requires that everyone employed at the job site to complete a course in construction safety and health approved by the U.S. Occupational Safety and Health Administration, known as the “OSHA-10 hour course”.
- B. The Contractor shall comply with said regulations, requirements and standards and require and be directly responsible for compliance therewith on the part of his agents, employees material men and Subcontractors; and shall directly receive and be responsible for all citations, assessments, fines or penalties which may be incurred by reason of his agents, employees, material men or Subcontractors failing to so comply.

- C. The Contractor shall indemnify the Owner and Architect and save them harmless from any and all losses, costs and expenses, including fines and reasonable attorney's fees incurred by the Owner, the Construction Manager and Architect by reason of the real or alleged violation of such laws, Ordinances, regulations and directives, Federal, State, and Local, which are currently in effect or which become effective in the future, by the Contractor, his Subcontractors or material men.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION 01 10 00

SECTION 01 22 00 — UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
 - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - 2. Division 01 Section "Quality Requirements" for general testing and inspecting requirements.

1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.
- B. Abbreviations: The following abbreviations for units of measurement are used in unit prices:
 - 1. C.Y.: cubic yard
 - 2. S.Y.: square yard
 - 3. S.F.: square foot
 - 4. L.F.: linear foot
 - 5. EA.: each
 - 6. LB.: pound

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead and profit.
 - 1. Unit price amounts are net changes in the Contract Sum for additional work and include the Contractor's and any Subcontractor's amount for overhead and profit.
 - 2. For deleted work, the net credit to the Contract Sum shall be 10% less.

- B. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- C. List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

- A. Provide the following unit prices as listed on the Bid Form:
 - 1. Mass Earth Excavation:
 - a. Description: Mass Earth Excavation including the completion of the excavation, formation and compaction of the subgrade, and the disposal of surplus or unsuitable material according to Division 31 Section "Earth Moving."
 - b. Unit of Measurement: C.Y.
 - 2. Warning Track:
 - a. Description: Preparation of existing lawn areas and installation of new stone dust warning track per details and Division 32 specification 'Warning Track'
 - b. Unit of Measurement: 25 Square Yards.
 - 3. Sod:
 - a. Description: Prepare existing lawn areas and sod including all preparation and maintenance requirements according to Division 32 Section "Lawns and Grasses.."
 - b. Unit of Measurement: 25 Square Yards
 - 4. 4' High Black Vinyl Coated Chain-Link Fencing:
 - a. Description: Contractor shall provide the additional cost for the materials, labor, and other items necessary for the installation of a complete fencing system including, but not limited to excavation, footings, posts, caps, fabric, top and bottom rails, tension rods, ties and repair of disturbed areas, according to Division 32 sections.
 - b. Unit of Measurement: 20 L.F.

5. 8' High Black Vinyl Coated Chain-Link Fencing:
 - a. Description: Contractor shall provide the additional cost for the materials, labor, and other items necessary for the installation of a complete fencing system including, but not limited to excavation, footings, posts, caps, fabric, top and bottom rails, tension rods, ties and repair of disturbed areas, according to Division 32 sections.
 - b. Unit of Measurement: 20 L.F.

END OF SECTION 01 22 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: DEDUCT: Seed in lieu of Sod

Contractor shall provide the credit cost for the materials, labor, and other items necessary for seeding all areas shown on plan as Sod. Include all maintenance and establishment requirements for seed vs. sod areas. Cost shall be the net difference for providing seed vs. sod. Provide and install per Specifications and as located on Drawings L4.03.

B. Alternate No. 2 ADD: 12' x 16' Prefabricated Shed:

Contractor shall provide the addition cost for the materials, labor, and other items necessary for providing and installing a 12'x16' prefabricated wood frame shed per the Specifications and as located on drawings. As part of this alternate the contractor shall also provide and install a 14'x 18' gravel pad to be placed under the prefabricated shed. Gravel pad shall be per detail for 'warning track' shown on plan, and appropriate specification section..

C. Alternate No. 3 ADD: 12' x 20' Prefabricated Shed:

Contractor shall provide the addition cost for the materials, labor, and other items necessary for providing and installing a 12' x 20' prefabricated wood frame shed per the Specifications and as located on drawings. As part of this alternate the contractor shall also provide and install a 14'x 22' gravel pad to be placed under the prefabricated shed. Gravel pad shall be per detail for 'warning track' shown on plan, and appropriate specification section..

D. Alternate No. 4 ADD: New Scoreboard

Contractor shall provide the addition cost for the materials, labor, and other items necessary for a complete and fully functional Scoreboard, uprights and electrical wiring per the Specifications and as located on drawings. Alternate costs shall include removal of the existing scoreboard, uprights and modifying electrical as required for the new Scoreboard.

END OF SECTION 01 23 00

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, as follows:
 - 1. **"Architect's Supplemental Instruction" (ASI)** form, included at end of Part 3, is an Owner/Architect-initiated supplemental instruction.
 - a. Architect's Supplemental Instructions, including attachments, will be issued to the contractor electronically via email, in the form of a "portable document file" (.PDF).

1.4 CONTRACTOR REQUEST FOR INFORMATION

- A. Contractor-Initiated Requests for Information: If clarification is required to the Contract Documents, the Contractor may submit a "Request for Information" (RFI) to the Architect. This request will be responded to by the Architect with a "Response to Request for Information" (RRFI) form.
 - 1. RFI forms shall be submitted in a typewritten, standardized format, including title and description, and sequentially numbered.
 - 2. Submit RFI, including attachments, electronically in the form of a "portable document file" (.PDF).
 - 3. RFI forms are not to be submitted as requests for shop drawing approval. Comply with requirements in Division 01 Section "Submittal Procedures."
 - 4. **"Response to Request for Information" (RRFI)**, included at the end of Part 3, will be issued in response to Contractor's Request for Information (RFI).

- a. A Response to Request for Information (RRFI), including attachments, will be issued to the contractor electronically via email, in the form of a “portable document file” (.PDF).
 - b. If the RRFI directs the Contractor to carry out the Work with no change in Contract Sum or Contract Time, but the Contractor anticipates a change associated with the Work, the Contractor must submit to the Architect in writing within 5 days of receipt of the RRFI, the reason for the anticipated change in Contract Sum and/or Contract Time. A change in Contract Time must be submitted with a revised CPM Schedule in accordance with Division 01 Section “Construction Progress Documentation.”
- B. The Contractor shall review any RFI’s submitted by Subcontractors prior to submission to the Architect to ensure such RFI’s are not already clearly and unambiguously answered in the Contract Documents.
1. The Contractor shall pay for the Architect’s time and expenses for reviewing RFI’s which are already clearly answered or inferable from the Contract Documents in accordance with the Architect’s standard rates. Such payments will be paid by the Contractor through the Owner.

1.5 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
1. **“Proposal Requests” (PR)** included at the end of Part 3, including attachments, will be issued to the contractor electronically via email, in the form of a “portable document file” (.PDF).
 2. Proposal Requests issued by the Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by first submitting a “Request for Information” (RFI) to Architect. This request will be responded to by the Architect with a “Response to Request for Information” form, wherein the Contractor may submit a Change Order Proposal.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made; and the labor hours for each class of labor at the hour rate. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

5. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Change Order Proposal Form: Use CSI Form 13.6A, "Change Order Request (Proposal)," with attachments CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail," or similar document acceptable to Architect, for Change Order Proposals.
1. Submit Change Order Proposals (COP), including attachments from vendors and subcontractors and the initiating document, electronically in the form of a "portable document file" (.PDF).
 2. Each Change Order Proposal is to include reference to the initiating document (PR, RRFI, etc.), a title and description, and be sequentially numbered.
 3. **"Response to Change Order Proposal" (RCOP)**, included at the end of Part 3, will be issued in response to Contractor's Change Order Proposal (COP).
 - a. A Response to Change Order Proposal (RCOP) will be issued to the Contractor electronically via email, in the form of a "portable document file" (.PDF).
 - b. Following review of a COP by the Architect, if corrections are required prior to inclusion in a Change Order, resubmit revised COP with revision number and include all backup documentation and the initiating document.

1.6 CHANGE ORDER PROCEDURES

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

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on **AIA Document G714**. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records of time and material for work required by the Construction Change Directive.
1. After completion of change, submit a Change Order Proposal associated with the Work of a Construction Change Directive, including an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
 2. The **Architect** will prepare a Change Order upon approval by the Architect and Owner of a Change Order Proposal.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 FORMS

A. The following forms referenced in this Section are attached:

1. ASI – Architect’s Supplemental Instructions, 1 page.
2. RRFI – Response to Request for Information, 1 page.
3. PR – Proposal Request, 1 pageRCOP – Response to Change Order Proposal, 1 page.

END OF SECTION 01 26 00

ASI - ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS

PROJECT

City, State

KBA #

Page: 1 of 1

CONTRACTOR:
(or CM)

GENERAL CONTRACTOR OR CM
Address

ASI NO. (3 digit)-(2 digit)

City, State, Zip
Attn: M.

ISSUED BY:

(Name and Credentials)
(Project Architect, Landscape Architect, etc.)

COPIES TO:

- ☐ KBA – CT/MA
- ☐ Owner
- ☐ Official
- ☐ Consultant
- ☐ Consultant

DATE:

(Month, Day, Year)

The Work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Proceeding with the Work in accordance with these instructions indicates your acknowledgement that there will be no change in the Contract Sum or Contract Time. If the Contractor believes that additional cost or time is involved, the Contractor shall make Claims as provided in the General Conditions of the Contract.

Description: ASI Title

Description of work.....

Attachments: Sketches, Bulletins, etc.

P R – P R O P O S A L R E Q U E S T

PROJECT

City, State

KBA #

Page: 1 of 1

CONTRACTOR:
(or CM)

GENERAL CONTRACTOR OR CM
Address

PR NO. (3 digit)-(2 digit)

City, State, Zip
Attn: M.

ISSUED BY:

(Name and Credentials)
(Project Architect, Landscape Architect,
etc.)

DATE:

(Month, Day, Year)

COPIES TO:

- ☐ KBA – CT/MA
- ☐ Owner
- ☐ Official
- ☐ Consultant
- ☐ Consultant

Please submit an itemized quotation for changes in the Contract Sum and/or Contract Time for proposed modifications to the Contract Documents described herein. Notify the Architect in writing of the date on which you anticipate submitting your proposal.

THIS IS NOT A CHANGE ORDER, CONSTRUCTION CHANGE DIRECTIVE, OR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED IN THE PROPOSED MODIFICATIONS.

Description: PR Title

Response

Attachments:

RCOP – RESPONSE TO CHANGE ORDER PROPOSAL

PROJECT

City, State

KBA #

Page: 1 of 1

CONTRACTOR:
(or CM)

GENERAL CONTRACTOR OR CM
Address

RCOP NO. (3 digit)-(2 digit)

City, State, Zip
Attn: M.

ISSUED BY:

(Name and Credentials)
(Project Architect, Landscape Architect, etc.)

COPIES TO:

- ☐ KBA – CT/MA/NH
- ☐ Owner
- ☐ Official
- ☐ Consultant
- ☐ Consultant

DATE:

(Month, Day, Year)

-
- ☐ Change Order Proposal has been reviewed by the Architect and is recommended to the Owner for approval.
 - ☐ Change Order Proposal is rejected.
 - ☐ Owner will not require the Contractor to proceed with the Work described in Change Order Proposal
 - ☐ Work described in Change Order Proposal is required by the Contract Documents. ☐ Refer to comments below.
 - ☐ Revise and resubmit Change Order Proposal.
 - ☐ Overhead/Profit is incorrect.
 - ☐ Labor and material costs breakdown is insufficient.
 - ☐ Backup documentation is insufficient.
 - ☐ Refer to comments below.
-

Description: RCOP Title

Response.....

Attachments: COP No.

RRFI – RESPONSE TO REQUEST FOR INFORMATION

PROJECT

City, State

KBA #

Page: 1 of 1

CONTRACTOR:
(or CM)

GENERAL CONTRACTOR OR CM
Address

RRFI NO.: (3 digit)-(2 digit)

City, State, Zip
Attn: M.

ISSUED BY:

(Name and Credentials)
(Project Architect, Landscape Architect, etc.)

COPIES TO:

- ☐ KBA – CT/MA
- ☐ Owner
- ☐ Official
- ☐ Consultant
- ☐ Consultant

DATE:

(Month, Day, Year)

The Work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Proceeding with the Work in accordance with these instructions indicates your acknowledgement that there will be no change in the Contract Sum or Contract Time. If the Contractor believes that additional cost or time is involved, the Contractor shall make Claims as provided in the General Conditions of the Contract.

Description: RRFI Title

Response.....

Attachments: RFI #

NEW BRITAIN, CT

FOXBOROUGH, MA

BOSTON, MA

RUMFORD, RI

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 01 Section "Allowances" for procedural requirements governing handling and processing of allowances.
 - 2. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 3. Division 01 Section "Unit Prices" for administrative requirements governing use of unit prices.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - c. Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment. No payment shall be processed until schedule of values has been submitted and approved by the Architect.

- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section. For major trades with line item values exceeding \$25000, provide separate line items for identifiable units of work within such trade with a value not exceeding \$25000. Provide separate line items for labor and material.

1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
2. Submit draft of AIA Document G702 and AIA Document G703 Continuation Sheets.
3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Change Orders (numbers) that affect value.
 - d. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training in the amount of 5 percent of the Contract Sum. Include the following mandatory line items:
 - a. Mobilization
 - b. Demobilization
 - c. Builders Risk Insurance
 - d. Bonds
 - e. Scheduling
 - f. Construction Photographic Documentation
 - g. Field Engineering
 - h. Daily Site Cleanup
 - i. Safety Program
 - j. Full-Time Project Manager
 - k. Full-Time Project Superintendent
 - l. Dumpsters

General Contract O & P (not to be included in each line item).
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing.
7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
 1. In order to expedite monthly payment during the course of the Project, the Contractor shall review with the Architect a preliminary draft of each Application for Payment before final copies of the Application are formally submitted. The draft copy shall be typed and include the application date and application number. The draft copy shall include the total of each column and extension of each row on the Application as if this was the formal submission. The cover sheet shall include the Original Contract Sum and a summary of Changes to the Contract Sum, retainage, and payments to date as if this was the formal submission.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.

2. Include amounts of Change Orders issued before last day of construction period covered by application.
 - a. List each Change Order at the end of the Schedule of Values. Under each Change Order number, list each Change Order Proposal by number with a brief description of the Work and its value.
- E. Transmittal: Submit five signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list.
 5. Schedule of unit prices.
 6. Submittals Schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.

- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 - 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 - 1. Evidence of completion of Project closeout requirements.
 - 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 - 3. Updated final statement, accounting for final changes to the Contract Sum.
 - 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 - 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 - 6. AIA Document G707, "Consent of Surety to Final Payment."
 - 7. Evidence that claims have been settled.
 - 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 - 9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination Drawings.
 - 2. Contractor's use of Architect's CAD files.
 - 3. Administrative and supervisory personnel.
 - 4. Project meetings.
- B. The Contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to specific Subcontractors.
- C. Related Sections include the following:
 - 1. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 2. Division 01 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with subcontractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
 - 5. No claim for extra compensation of extension of Contract time will be allowed for conditions resulting from a lack of said coordination.

- B. Prepare memoranda outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of subcontractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.
 - 9. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.4 CONTRACTOR'S USE OF ARCHITECT'S DIGITAL DATA FILES

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing Coordination Drawings.
 - 1. At the Contractor's written request, Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Coordination Drawings, subject to the terms and conditions of the Contractor's use of CAD Files Agreement attached after this Section.
 - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. The following digital data files will be furnished for each appropriate discipline:
 - 1) Site Layout Plans.

1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
- B. Key Personnel Names: Within 7 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site.

Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct weekly meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting.
2. Agenda: Prepare the meeting agenda, and distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved and distribute the meeting minutes to everyone concerned, including the Owner and Architect within 3 days of the meeting.

- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner, Project Manager, and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner and Architect; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for requests for information (RFIs).
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Submittal procedures.
 - k. Preparation of Record Documents.
 - l. Use of the premises and existing building.
 - m. Work restrictions.
 - n. Owner's occupancy requirements.
 - o. Responsibility for temporary facilities and controls.
 - p. Parking availability.
 - q. Office, work, and storage areas.
 - r. Equipment deliveries and priorities.
 - s. First aid.

- t. Security.
 - u. Progress cleaning.
 - v. Working hours.
 - 3. Minutes: The Architect will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. The Contract Documents.
 - b. Options.
 - c. Related requests for information (RFIs).
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written recommendations.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: The Contractor shall distribute minutes of the meeting to everyone concerned, including the Owner, Project Manager, and Architect within 3 days of the meeting.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

- D. Progress Meetings: Schedule weekly progress meetings. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Architect, each contractor concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) Requests for information (RFIs).
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
 3. Minutes: The Architect will record and distribute the meeting minutes.
- E. Coordination Meetings: Schedule Project coordination meetings at regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of the Contractor, each subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Schedule Updating: Revise Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
3. Reporting: The Contractor shall record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 FORMS

- A. The following forms referenced in this Section are attached:
 1. CAD Files Agreement, 1 page.

END OF SECTION 01 31 00

CAD FILES AGREEMENT

Date

(address)

Dear (Contractor's Name):

At your request, Kaestle Boos Associates, Inc. ("KBA") will provide electronic files for your convenience and use in the preparation of shop drawings related to the construction of the **Softball Field #1 Renovations-Sage Park, Berlin, CT**

subject to the following terms and conditions.

KBA's electronic files are compatible with AutoCAD Autodesk Architectural Desktop 2013. KBA makes no representation as to the compatibility of these files with your hardware or your software beyond the specified release of the referenced specifications.

Data contained on these electronic files is part of KBA's instruments of service and shall not be used by you or anyone else receiving this data through or from you for any purpose other than as a convenience in the preparation of shop drawings for the referenced project; however, they are not to be used in place of Contractor's shop drawings. Any other use or reuse by you or by others, will be at your sole risk and without liability or legal exposure to KBA. You agree to make no claim and hereby waive, to the fullest extent permitted by law, any claim or cause of action of any nature against KBA, its officers, directors, employees, agents or subconsultants which may arise out of or in connection with your use of the electronic files.

Furthermore, you shall, to the fullest extent permitted by law, indemnify and hold harmless KBA from all claims, damages, losses and expenses, including attorney's fees arising out of or resulting from your use of these electronic files.

These electronic files are not contract documents. Significant differences may exist between these electronic files and corresponding hard copy contract documents due to addenda, change orders or other revisions. KBA makes no representation regarding the accuracy or completeness of the electronic files you receive. In the event that a conflict arises between the signed contract documents prepared by KBA and electronic files, the signed contract documents shall govern. You are responsible for determining if any conflict exists. By your use of these electronic files, you are not relieved of your duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions and coordinate your work with that of other contractors for the project.

Because of the potential that the information presented on the electronic files can be modified, unintentionally or otherwise, KBA reserves the right to remove all indicia of its ownership and/or involvement from each electronic display.

KBA will furnish you electronic files of the following drawing sheets: (Insert list of drawings)

Under no circumstances shall delivery of the electronic files for use by you be deemed a sale by KBA and KBA makes no warranties, either express or implied, of merchantability or fitness for any particular purpose. In no event shall KBA be liable for any loss of profit or any consequential damages.

CONTRACTOR – (PRINTED NAME)

CONTRACTOR – (SIGNATURE)

DATE

**DO NOT REMOVE
THIS PAGE INTENTIONALLY LEFT BLANK**

SECTION 01 33 00-SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
 - 3. Division 01 Section "Closeout Procedures" for submitting warranties.
 - 4. Divisions 02 through 33 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing,

fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
3. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled date of fabrication.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals, except as permitted in Division 01 Section "Project Management and Coordination" for use in preparing coordination drawings.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow two weeks for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow two weeks for review of each resubmittal.
 - a. Resubmittals will be reviewed no more than two times at the Owner's expense. Resubmittals which fail to comply with Contract requirements will be reviewed at the Contractor's expense, based on an hourly rate of \$75 per hour, not to exceed \$600 for each subsequent submittal.
 - b. The Owner reserves the right to deduct said reimbursement from the Contractor's application for payment on a monthly basis.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of supplier.
 - f. Name of manufacturer.
 - g. Number and title of appropriate Specification Section.
 - h. Drawing number and detail references, as appropriate.
 - i. Other necessary identification.
 4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
 5. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
 - a. Transmittal Form: Provide locations on form for the following information:
 - 1) Revise list below to suit Project.
 - 2) Project name.
 - 3) Date.
 - 4) Destination (To:).
 - 5) Source (From:).
 - 6) Names of subcontractor, manufacturer, and supplier.
 - 7) Category and type of submittal.
 - 8) Submittal purpose and description.
 - 9) Specification Section number and title.
 - 10) Drawing number and detail references, as appropriate.

- 11) Transmittal number, numbered consecutively.
- 12) Submittal and transmittal distribution record.
- 13) Remarks.
- 14) Signature of transmitter.

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

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.
 - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Indication of full or partial submittal.
 - o. Transmittal number.
 - p. Submittal and transmittal distribution record.
 - q. Other necessary identification.
 - r. Remarks.

F. Options: Identify options requiring selection by Architect.

G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

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

1. Note date and content of previous submittal.

2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked "Approved" or "Approved as Corrected."
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating "No Exception Taken" or "Make Corrections Noted" taken by Architect.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Submit electronic submittals via email as PDF electronic files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. Submit Product Data before or concurrent with Samples.
 5. Submit Product Data in one of the following formats:
 - a. PDF electronic file.
 - b. Five paper copies of Product Data, unless otherwise indicated. Architect will return four copies. Mark up and retain one returned copy as a Project Record Document.

- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Schedules.
 - f. Design calculations.
 - g. Compliance with specified standards.
 - h. Notation of dimensions established by field measurement.
 - i. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 4. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.

- 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- G. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- H. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- I. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- J. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- K. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
1. Name of evaluation organization.
 2. Date of evaluation.
 3. Time period when report is in effect.
 4. Product and manufacturers' names.
 5. Description of product.
 6. Test procedures and results.
 7. Limitations of use.

- N. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
 2. Required substrate tolerances.
 3. Sequence of installation or erection.
 4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- O. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- P. Material Safety Data Sheets (MSDSs): Submit information as required by law.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
1. Provide "Combined Contractor/KBA Inc. Submittal Review Stamp" attached after this Section.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. "Approved": The portion of Work covered by the submittal may proceed provided it complies with the Contract Documents.
 2. "Approved as Corrected": The portion of Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal, and with the Contract Documents.

3. “Not Approved” or “Revise and Resubmit”: Revise or prepare a new submittal in accordance with notations; resubmit. Do not proceed with that portion of the Work covered by the submittal.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Incomplete or partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

3.3 FORMS

- A. The following form referenced in this Section is attached:
 1. Combined Contractor/KBA Inc. Submittal Review Stamp, 1 page.

END OF SECTION 01 33 00

COMBINED CONTRACTOR AND K.B.A. INC. SUBMITTAL REVIEW STAMP

CONTRACTOR: _____	
PROJECT: _____	
PARAGRAPH. NO.: _____	SUBMITTAL NO.: _____
CONTRACTOR HAS DETERMINED AND VERIFIED MATERIALS, FIELD MEASUREMENTS AND FIELD CONSTRUCTION CRITERIA AND HAS CHECKED AND COORDINATED THE INFORMATION CONTAINED IN THIS SUBMITTAL WITH THE REQUIREMENTS OF THE WORK AND OF THE CONTRACT DOCUMENTS AND RECOMMENDS APPROVAL BY THE ARCHITECT/ENGINEER.	
BY: _____ DATE: _____	
KAESTLE BOOS ASSOC. PROJECT NO.: <u>KBA# 18030.00</u>	
ARCHITECTS/ENGINEERS DATE RECEIVED STAMP:	<div style="border: 1px solid black; width: 200px; height: 80px; margin: 0 auto;"></div>
COMMENTS MADE ON THE SUBMITTALS DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS. REVIEWING IS ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED AT THE SITE; FOR INFORMATION THAT PERTAINS SOLELY TO THE FABRICATION PROCESSES OR TO THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION; AND FOR COORDINATION OF THIS WORK WITH THE WORK OF ALL TRADES.	
ACTION STAMP: <div style="border: 1px solid black; width: 420px; height: 60px; margin: 0 auto;"></div>	

↑
TO BE FILLED IN BY THE CONTRACTOR

TO BE FILLED IN BY KAESTLE BOOS ASSOC., INC.

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SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
 - 1. Division 01 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections
 - 2. Divisions 02 through 48 Sections for specific test and inspection requirements.

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 Architect or Project Manager.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated,

qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

- D. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- E. 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 industry standards.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as 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.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

1.4 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 SUBMITTALS

- A. Qualification Data: 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.

- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
1. Specification Section number and title.
 2. Description of test and inspection.
 3. Identification of applicable standards.
 4. Identification of test and inspection methods.
 5. Number of tests and inspections required.
 6. Time schedule or time span for tests and inspections.
 7. Entity responsible for performing tests and inspections.
 8. Requirements for obtaining samples.
 9. Unique characteristics of each quality-control service.
- C. Reports: Prepare and submit certified written reports that include the following:
1. Date of issue.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- 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.

1.6 QUALITY ASSURANCE

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

- D. 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.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications 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. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency 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. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.
 - g. Payment for preconstruction testing is the responsibility of the Contractor.

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

1.7 QUALITY CONTROL

- A. Contractor Responsibilities: Where quality-control services are indicated, Contractor shall engage a qualified testing agency to perform these services.
 1. Contractor will furnish Architect with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Payment for these services will be made by the Contractor.
 3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be the responsibility of the Contractor at no additional cost to the Owner.
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. 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.
 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. 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 as specified in Division 01 Section "Submittal Procedures."
- 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 Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 1. Notify Architect, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 - 2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if

bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies requirements for temporary utilities, support facilities, and security and protection facilities.
 - 1. Temporary utilities required include but are not limited to:
 - a. Water service and distribution.
 - b. Temporary electric power and light.
 - c. Storm and sanitary sewer.
 - 2. Temporary support facilities required include but are not limited to:
 - a. Field offices and storage containers.
 - b. Dewatering facilities and drains.
 - c. Temporary enclosures.
 - d. Temporary Project identification signs.
 - e. Waste disposal services.
 - f. Construction aids and miscellaneous services and facilities.
 - g. Temporary roads and walks.
 - h. Tire cleaning surface.
 - 3. Security and protection facilities required include but are not limited to:
 - a. Barricades, warning signs, lights.
 - b. Enclosure fence for the construction area.
 - c. Environmental protection.
- B. Related Sections include the following:
 - 1. Division 32 Section “Synthetic Grass Sports Surfacing”

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum and paid for by the Contractor unless explicitly stated otherwise in the Contract Documents. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water Service: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- D. Owners sanitary facilities can be utilized by the contractor.

1.5 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
 - 1. Building Code requirements.
 - 2. Health and safety regulations.
 - 3. Utility company regulations.
 - 4. Police and Fire Department rules.
 - 5. Environmental protection regulations.
- B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", OSHA Part 1926, Construction Safety and Health Regulations, and NECA Electrical Design Library "Temporary Electrical Facilities."
 - 1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.

1.6 PROJECT CONDITIONS

- A. Temporary Utilities (if required): Prepare a schedule indicating dates for implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

- C. Prevention of Fire: Take all necessary precautions for the prevention of fire during construction. Keep the area within the contract limits orderly and clean and promptly remove combustible rubbish from the site.
 - 1. Store combustible materials on the site only as established in the Contractor's approved Safety Plan.
 - 2. Comply with all suggestions, official recommendations, and lawful requirements of the local fire department regarding fire protection.
- D. Provide and maintain in good working order under all conditions, suitable and adequate fire protection equipment and services.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- B. Lumber and Plywood: Comply with requirements in Division 06 Section "Miscellaneous Rough Carpentry."
 - 1. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.
 - 2. For fences, barriers, sidewalk bridges and similar uses, provide minimum 5/8" thick exterior plywood.
- C. Paint: Comply with requirements of Division 09 Section "Painting."
 - 1. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.
- D. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- E. Portable Chain-Link Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide concrete bases for supporting posts.

2.2 EQUIPMENT

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

- B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.
 - 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the work, at no additional cost to the Owner.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
 - 3. Make all necessary arrangements and pay for the services of police officers and firefighters at the prevailing wage for such services as may be required for traffic control or fire watch for the performance of any portion of the Work.
- B. Parking: Use the Contractor Staging/Work area, as indicated in the Phasing Drawings, for construction personnel.
- C. Project Identification and Temporary Signs: Prepare one project identification and other signs of the size indicated; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood. Do not permit installation of unauthorized signs.
- D. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous,

dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

- 1. Provide sufficient quantity of dumpsters at strategic locations within the Contract limit lines for collection of waste from the work of all subcontractors on site.**

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence and gates in a manner that will prevent people and animals from easily entering site except by entrance gates. Existing gates and Fence can be utilized for this purpose. Supplement existing fence as required to fully secure site. Remove temporary site enclosure fence when the need has ended or prior to substantial completion.
 1. Provide vehicle gates at site entrances.
 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.
 3. Make all necessary arrangements with Municipal Police department when regular or off-duty police officers will be needed for traffic control for site operations.
- B. Temporary Enclosures: The Contractor shall provide all temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.
 1. Install tarpaulins securely, with fire-retardant-treated wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.
 2. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire-retardant treated material for framing and main sheathing.
- C. Protect all new finished surfaces against possible damage from operations under this Contract.
 1. Restore or replace all surfaces that are damaged by operations under this Contract to their original condition, to the satisfaction of the Architect, at no additional expense to the Owner.
- D. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."
 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
 2. Store combustible materials, inflammable materials and volatile liquids in containers in fire-safe containers and locations under the Contractor's control and supervision, or without adequate ventilation and fire protection.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.

4. Do not permit accumulation of flammable rubbish to remain in the building overnight.
5. Observe strict safety precautions and provide supervision of welding operations, burning with a torch, combustion type temporary heating units, and similar sources of fire ignition.
6. No gasoline may be stored in or close to the field at any time.
7. Comply with requirements of local Fire Department, obtain Hot Work Permit for each day required, and pay all fees and other charges.

3.4 SITE CLEANING AND MAINTENANCE

- A. Perform an inspection of the site, including areas outside of the Site boundaries, with the Owner's Representative present, prior to the start of any Work, to determine the existing conditions.
- B. The Contractor shall take all necessary precautions to prevent the spreading of dirt and dust throughout the area of the Work. During demolition and all other work, take to contain dust and other debris from the Work within the limits of the site under the Contractor's control. Promptly clean up all dirt, dust and debris escaping from the work areas or dropped from vehicles traveling to and from the Work.
 1. Equip all vehicles used for transportation to, and removal of material from the site with covers, maintained in good condition, adequate to contain dust and debris within lawful acceptable limits.
 2. Provide facilities for preventing the spread of objectionable matter outside the site areas through washing of vehicles and vehicle wheels; decontamination of vehicles transporting hazardous waste containing materials such as asbestos, lead, or other matter; and by all other means necessary.
 3. When excavation begins, provide a 24' x 60', or larger as indicated, tire cleaning surface at each construction entrance. Provide adequate drainage and maintain surface for the duration of construction.
 4. Contractor shall keep all pavements and areas outside the area of the construction clean of dirt and debris.
- C. Prior to Substantial Completion, remove all spots, stains, dirt and dust from all surfaces, including areas within other buildings and any portion of property of others, which were the result of the work of this project, to the satisfaction of the Architect.
 1. Requirements for final cleaning are contained in Division 01 Section, "ACloseout Procedures."
- D. Repair any damage to the site, the property of others or the Owner's equipment caused by the Contractor or its Subcontractors, at no additional cost to the Owner.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired. Temporary facilities provided by the Contractor shall be removed by the Contractor.
- D. As a condition of the Architect's certification of Substantial Completion, restore site areas of the site damaged by work under this Contract to their condition existing at the start of the work, unless otherwise directed by the Architect.

END OF SECTION 01 50 00

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Progress cleaning.
 - 5. Starting and adjusting.
 - 6. Protection of installed construction.
 - 7. Correction of the Work.
- B. Related Sections include the following:
 - 1. Division 01 Section "Submittal Procedures" for submitting surveys.
 - 2. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

- A. Qualification Data: For land surveyor and professional engineer.
- B. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Final As-Built Project Surveys: Submit two hard copies signed by land surveyor and one AutoCAD (2013 or newer) copy.

1.4 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional, land surveyor who is registered in the State of Connecticut to practice in the State of Connecticut and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 3. Examine roughing and finished work prior to proceeding with additional work.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before

fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Project Manager promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, building structures, drainage structures, piping (inverts and elevations), grading, fill and topsoil placement, utility slopes, and all facility improvements as part of the project.
- D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Identification: Identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.

2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 4. Maintain minimum headroom clearance of 7'-8" in spaces without a suspended ceiling.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

4. All anchors and fasteners used on the exterior of the building and where dampness and corrosion can reasonably be anticipated to be corrosion resistant.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
 1. All paint used on products to comply with federal regulations controlling the use of volatile organic components. (VOCs).

3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

- A. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- B. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes in accordance with the Contract Documents and applicable Codes. The work shall include the following:
 - 1. Footings.
 - 2. Pads and walks.
- B. Related Sections include the following:
 - 1. Division 31, Section "Structural Fill"
 - 2. Division 31, Section "Earthwork"

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast furnace slag, and silica fume; subject to compliance with requirements.

1.4 QUALITY ASSURANCE

- A. Concrete work shall conform to all requirements of A.C.I. 301-16 "Specifications for Structural Concrete ", published by the American Concrete Institute, Farmington Hills, Michigan, except as modified by the Supplemental Requirements below.
- B. Concrete supplier and Contractor shall certify that they are familiar with the above reference standard, and a copy shall be available on the job. A.C.I Standard 301-16 is available from American Concrete Institute, P.O. Box 9094, Farmington Hills, Michigan 48333-9094.
- C. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- E. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
- F. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- G. Concrete Testing Service: Contractor engages a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- H. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I.
- I. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 1. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- J. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."
 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Owner's independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete subcontractor.
 2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures,

curing procedures, construction contraction and isolation joints, and joint-filler strips, semi rigid joint fillers, forms and form removal limitations, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Submit reinforcing steel placing drawings for all reinforced concrete footings, buttresses, piers, walls and tie beams.
 - 1. Shop drawings for the reinforcement detailing, fabricating, bending and placing concrete reinforcement shall comply with ACI 315 “Manual of Standard Practice for Detailing Reinforced Concrete Structures”. All walls shall be drawn in elevation with all reinforcing included in the elevation including corner bars, dropped bars at column and door pockets and openings. The elevations shall be drawn to a minimum of ¼” = 1’-0”.
 - 2. Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement. “SCHEDULING OF REINFORCING IS PROHIBITED”
 - 3. Subsequent submissions of shop drawings shall be dated and numbered and shall have all revision clearly noted with clouding of each revision.
 - 4. All reinforcing shall be properly labeled and indicated in elevations.
- D. Qualification Data: For Installer, manufacturers, and testing agency.
- E. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- F. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.

4. Steel reinforcement and accessories.
5. Repair materials.

G. Field quality-control test and inspection reports.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.
- B. Store materials protected from exposure to harmful weather conditions and at a temperature above 40° Fahrenheit.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

ACI 301-16
ACI 117

2.2 CONCRETE

- A. Concrete compressive strength for foundation walls and footings shall have:
 1. Compressive strength = 4000 psi minimum at 28 days.
 2. Slump = 4" +/- 1"
 3. Air Content = 6 to 8% for all walls, footings and slabs exposed to freezing temperatures.
- B. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- C. Cementitious Materials:
 1. Portland Cement: ASTM C 150, Type I/II gray
 2. Flyash ASTM C618 Class C and ACI318-05
 3. Sand ASTM C33 SSD
- D. Normal-Weight Aggregates: ASTM C 33. Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 1. Maximum Coarse Aggregate Size: ¾" nominal.
 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- E. Water: ASTM C94 and potable.

F. Air-Entraining Admixture: ASTM C 260

1. For Footings, foundation walls, column piers and buttresses and all other concrete exposed to freeze/thaw action. - Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size.

G. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494
2. Retarding Admixture: ASTM C 494
3. Water-Reducing and Retarding Admixture: ASTM C 494
4. High-Range, Water-Reducing Admixture: ASTM C 494
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494
6. Plasticizing and Retarding Admixture: ASTM C 1017

H. Do not use admixtures containing calcium chloride. All concrete shall contain a water-reducing and densifying admixture such as MASTER BUILDERS POZZOLITH or an approved equal as follows:

1. All admixtures shall be incorporated as an integral part of the mix design.
2. Admixture shall be manufactured by a firm having not less than 10 years experience in manufacturing and field testing of the product

I. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85° and 90° F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes.
2. When air temperature is above 90° F, reduce mixing and delivery time to 60 minutes.

2.3 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1 or better.
 - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - c. Structural 1, B-B or better; mill oiled and edge sealed.
 - d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- E. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
 - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.4 STEEL REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."
- B. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.5 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.8 CURING MATERIALS

- A. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- B. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.9 MISCELANEOUS RELATED MATERIALS

- A. Grout for leveling plates shall be "Five Star" non-shrink, nonmetallic grout as manufactured by Five Star Products, or approved equal.
- B. Bonding Agent: ASTM C 1059, Type II, non-re-dispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
 - 1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Give the RDP at least 2 working days' notice before placing concrete. Execution shall be in accordance with A.C.I. STANDARD 301-16, except as noted below.
- B. Employ a licensed land surveyor to check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices, before structural steel erection work proceeds. Contractor shall submit to the RDP the anchor bolt survey with all discrepancies between elevations, locations, conditions, etc., shown on the drawings and those actually encountered in the field noted on the survey. Do not proceed with erection until corrections have been made or until compensating adjustments to structural steel work have been agreed upon with RDP.

3.2 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch for smooth-formed finished surfaces.
 - 2. Class B, 1/4 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.

- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.3 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. Install dovetail anchor slots in concrete structures as indicated.

3.4 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form removal operations and curing and protection operations are maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.5 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.6 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 4. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.

5. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
6. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

3.7 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by RDP.
- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- D. Discharge concrete from mixer within 1 1/2 hours of batching.

3.8 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Formed Surfaces: Cure formed concrete surfaces, including foundation walls and footings and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- C. Cure concrete according to ACI 308.R-16, by one of the following methods contractor shall be responsible for utilizing an appropriate curing method to achieve the required strength, moisture levels and other parameters.
 1. After placing and finishing, use one or more of the following methods to preserve moisture in the concrete:

- a. Ponding, continuous fogging, or continuous sprinkling;
- b. Application of mats or fabric kept continuously wet;
- c. Continuous application of steam (under 150°F);
- d. Application of sheet materials conforming to ASTM C171;
- e. Curing and Sealing Compound

3.9 COLD AND HOT WEATHER CONCRETE:

- A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 1. When average high and low temperature is expected to fall below 40°F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot Weather Placement: Comply with ACI 301 and as follows:
 1. Maintain concrete temperature below 90°F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Fog spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.
 3. Loss of slump, flash set, or cold joints due to temperature of concrete as placed will not be acceptable. When temperature of concrete exceeds 90°F, obtain acceptance by the RDP of proposed precautionary measures to be undertaken. When temperature of steel reinforcement, embedments, or forms is greater than 120°F, fog steel reinforcement, embedments, and forms with water immediately before placing concrete. Remove standing water before placing concrete.

3.10 EMBEDDED ITEM INSTALLATION

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.11 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces exposed to public view.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
 - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.12 MISCELLANEOUS CONCRETE ITEMS

- A. Grout beam bearing plates and column leveling plates after they are set to true levels.
- B. Install Sika Latex acrylic bonding agent in strict accordance with manufacturer's recommendations, including but not limited to the removal of all foreign materials by mechanical means such as chipping or sandblasting, and dampening the surface with clean water before installation.
- C. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.13 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.

- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semi-rigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brushcoat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- E. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Contractor shall engage a qualified testing agency to perform tests and to submit reports and the Owner will engage a qualified firm to perform Special Inspections per the Statement of Special Inspections. The Statement of Special Inspections document will be implemented by the RDP.
- B. Inspections:

1. Steel reinforcement placement.
 2. Headed bolts and studs.
 3. Verification of use of required design mixture.
 4. Concrete placement, including conveying and depositing.
 5. Curing procedures and maintenance of curing temperature.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 60 cu. yd. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C 1064 one test hourly when air temperature is 40°F and below and when 80°F and above, and one test for each composite sample.
 5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 6. Compression Test Specimens: ASTM C 31.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - c. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 8. Test results shall be reported in writing to RDP, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

9. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
10. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
11. Correct deficiencies in the Work that test reports and inspections indicate does not comply with the Contract Documents.

END OF SECTION 03 30 00

SECTION 11 68 43 – SCOREBOARD (Alternate)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes: Exterior, electronic scoreboards for softball including control center and other accessories for complete functional installation.
- B. The work covered in this section is affected by Alternates.
- C. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work.
- D. Scoreboard work shall include installing a new handhole to intercept existing power and control conduits and all wiring and conduit from this handhole to new scoreboard.
- E. Contractor is responsible for all health and safety.

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. 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 B221 - Aluminum Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
 - 2. ASTM A6 – Steel Shapes
- D. State of Connecticut
 - 1. State Building Code, including all Amendments, Supplements, and Errata.
- E. National Electrical Code (NEC).
- F. Federal Communications Commission, Part 15 Rules & Regulations, EN60950-1, EN55022 & EN55024.
- G. UL AND C-UL Standard for Electric Signs

1.4 SUBMITTALS

- A. Product data for scoreboards, controls, and accessories shall include descriptions of control functions etc. for review and approval by the Landscape Architect and Owner.
- B. Installation drawings, face layout, dimensions, construction, electrical wiring diagrams, and method of anchorage for review and approval by the Landscape Architect and Owner.
- C. Footing/ foundation drawings shall be signed and sealed by a structural engineer licensed to practice in the State of Connecticut.
- D. Copies of all Warranties for review and approval by the Landscape Architect and Owner.
- E. Manufacturer's installation instructions for review and approval by the Landscape Architect and Owner.
- F. Finish Samples for review and approval by the Landscape Architect and Owner.

1.5 PRODUCT DELIVERY AND STORAGE

- A. Materials delivered to the site shall be examined for damage or defects in shipping. Any defects shall be noted and reported to the Owners representative. Replacements, if necessary, shall be immediately re-ordered, so as to minimize any conflict with the construction schedule. Sound materials shall be stored above ground under protective cover or indoors so as to provide proper protection.

1.6 QUALITY ASSURANCE

- A. Source limitation: All components including scoreboard, control center, control cable, and other accessories and installation hardware shall be products of a single manufacturer.
- B. Manufacturer qualifications: Company specializing in manufacturing electronic scoreboards with 10 years' minimum experience.
- C. Scoreboards shall be designed for exterior installation with weatherproof housing and optical isolation interface to reduce potential damage from electrical storms.
- D. Should service be necessary, specialized personnel shall not be required. Modular "plug and play" components will be housed in an internal protective enclosure.
- E. Scoreboards and other electrical components shall be certified for use in United States and Canada by Underwriter Laboratories, (UL) Inc. and shall bear either UL or C-UL label only.
- F. Scoreboards and other electrical components shall be electrically grounded in accordance with National Electrical Code (NEC), Article 600.
- G. Scoreboard footings, uprights, cabinetry and attachment shall meet or exceed the 2009 IBC standard of 150 mph wind loading.

1.7 WARRANTY

- A. Provide warranty to cover defects in materials and workmanship.
 - 1. 5 years' parts and labor warranty for scoreboards, wired controls, and accessories from substantial completion date.
 - 2. 5 years' part and labor guarantee for wireless controls and receivers from substantial completion date.
 - 3. Lifetime telephone support.

PART 2 PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Daktronics, Scoreboard Enterprises, Mansfield, MA. Mark Hurley, 508-339-8113, scoreboard enterprises.com
- B. Nevco, Inc., 301 East Harris Avenue, Greenville, Illinois 62246; Dan Scheider, (618) 664-0360, dschneider@nevco.com, www.nevco.com
- C. OES Scoreboard, Northeast Scoreboards, PO Box 85, Hadlyme, CT 06469, Brian Barzee, (860) 790-0282, northeastscoreboards@gmail.com
- D. Or approved equal.

2.2 MATERIALS - GENERAL

- A. Aluminum faces and perimeter frame: Fabricated from .050 minimum thickness, ASTM B221 aluminum sheet with reinforcement and slotted mounting brackets top and bottom.
- B. Finish: Acrylic polyurethane paint. Color as selected by the Landscape Architect from manufacturer's standard range.
 - 1. Entire board, including but not limited to, front sides, back, top, bottom, and support columns shall be painted to match face of board color.
 - 2. Provide white striping to separate scoreboard features.
- C. Brackets: Integrated universal bracket system.
- D. Fasteners, anchors, and other exposed hardware: Corrosion resistant.
- E. Electronics: Low voltage, solid state, 2-wire cable, multiplex system, quartz crystal controlled. Electrical components shall be modular in nature. Electric accessories, LED digits and lights shall be modular in nature and able to be easily replaced by the use of weather proof plugs and connections.
- F. Provide gold plated electrical contacts on interconnecting wiring to reduce corrosion and improve reliability.

- G. Provide optical communication interface to reduce threat of damage from electrical storms and ESD.
- H. LED (light emitting diode) units: modular, dimmable, Seven-bar, segmented digits with protective aluminum cover, rated typical life 100,000 hours and be designed to provide excellent visibility from all angles and sides.
 - 1. Color: **White**
- I. Junction boxes where required: Sheet metal box and cover, 4-1/2 x 2-1/8 x 2-1/8 inches min. complying with NEMA standards.
- J. Control cable: UL listed, 2-wire, RG-58/U, coaxial cable, 1/4 inch diameter.
- K. Uprights shall be steel i-beams of sufficient size and length per manufacturer, based on scoreboard and accessories specified. Bottom of scoreboards shall be mounted 10'-0" minimum above grade.
- L. Scoreboard uprights, exposed conduit and fasteners shall all be primed and painted to match scoreboard.
- M. Provide scoreboard with all electrical junction boxes, conduits, mounting hardware, and other accessories as required for proper operation are to be included. All exposed conduit and accessories are to be painted to match scoreboard.
- N. Concrete: See Division 3 Section – "Poured in Place Concrete"

2.3 SOFTBALL SCOREBOARD

- A. Provide one (1) of the following:
- B. Type: Exterior, electronic baseball scoreboard with LED displays for balls, strikes, outs, scores by inning, and totals for runs; Model BA2022 as manufactured by Daktronics or approved equal.
 - 1. Size: 16 feet long x 6.5 feet high x 8 inches deep.
 - 2. Finish: Acrylic Polyurethane paint – Cardinal Red with black trim/stripping
 - 3. Approximate weight: 525 pounds.
 - 4. Mounting Hardware: Corrosion resistant, properly sized for scoreboard weight and windloading.
 - 5. White on black captions:
 - a. 15 inches high: "BALL", "STRIKE", "OUT".
 - b. 8 inches high: Inning numbers "1" through "7", "TOTAL".
 - 6. High Intensity Amber LED displays:
 - a. 18 inches high digits: Player balls, strikes, outs, hits, errors.

7. Power requirement:

- a. POWER with ETNs Amber/Red): 120 VAC, 180 W, . Requires earth ground.
- C. Provide each scoreboard or accessory with control cable of length required. Electrical junction boxes, conduits, mounting hardware, and other accessories as required for installation are to be included.
- D. 10 inches white vinyl captions: "HOME" & "GUEST". 'HOME' to be replaced with "REDCOATS"
- E. WIRELESS CONTROLS: Scoreboard shall be able to be operated wirelessly, or with hard wired connection. Provide Wireless operation via hand-held mobile device (by others). Scoreboard shall be able to be controlled by smartphone or tablet using manufacturer's available application.

1. Control features:

- a. Provide radio receiver within scoreboard for controls
 - b. Provide and install remote mounted MX-1 interface box using radio transmitter. Best location for box to be determined in the field, based on power availability
 - c. Provide and install weather sealed enclosure for interface box
1. Wireless Receiver: Internally scoreboard mounted, Modular Plug & Play operation receiver compatible with controller with a minimum of 15 channel operation. Injection molded case, [5-1/2 by 3-3/4 by 2 inches] [140 by 95 by 51 mm] mounted at scoreboard in accordance with instructions.
- a. Maximum range: [1500 feet] from control center to receiver.
 - b. Power adapters: Provide for each scoreboard receiver.
 - 1) Input: 120 volts, 0.4 amps, 50/60 Hz.
 - 2) Output: 9 volts, 1.67 amps, 15 watts.
 - c. Provide suitable, RF transparent, NEMA 4 enclosure for receiver, to be located upon scoreboard supporting structure per installation diagrams.

PART 3 EXECUTION

3.1 PREPARATION

- A. Verify exact scoreboard and control center quantities and junction box locations with The Architect.
- B. Coordinate requirements for electrical power, concrete, steel erection, auxiliary framing and supports, suspension cables, and other components to be provided under other Specification

Sections to ensure adequate provisions are made for complete, functional installation of scoreboards.

- C. Coordinate scoreboard electrical requirements to ensure proper power source, conduit, wiring, and boxes are provided. Prior to installation, verify type and location of power supply.

3.2 INSTALLATION

- A. Install scoreboards, footings, uprights and accessories in accordance with manufacturer's instructions and approved installation drawings.
- B. Before installation, field test scoreboards and accessories for operating functions. Ensure that scoreboards accurately perform all operations. Correct deficiencies.
- C. Rigidly mount scoreboards and accessories level and plumb with brackets and fasteners.
- D. Clean exposed surfaces.
- E. Protect scoreboards and finishes from other construction operations.

3.3 DEMONSTRATING AND TRAINING

- A. Test remote operation of all features of scoreboard for each control. Adjust channel and antennas as required to optimize performance and operation.
- B. Provide demonstration and training session for Owner's representative covering operation and maintenance of electronic scoreboard.

END OF SECTION 11 68 43

SECTION 13 12 51 – PREFABRICATED STRUCTURES (alternate)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes prefabricated wood storage sheds.
- B. Providing all Engineering Design, materials, fabrication, freight, installation, supervision, and other miscellaneous items required for storage shed structures in accordance with these Specifications and Contract Drawings.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 03 Section “Cast in Place Concrete”.
 - 2. Division 32 Section “Earthwork”

1.3 SUBMITTALS

- A. Shop Drawings: Contractor shall provide fully dimensioned shop drawings and manufacturer’s technical literature for all improvements and confirm colors, fabrication, reinforcing, and anchoring systems for approval.
- B. Samples
 - 1. Color samples for siding and roofing for selection by Owner
- C. Design Loads:
- D. General: The structure shall be properly braced for wind and construction loads until all structural elements are secured. Lateral and longitudinal bays shall be cross-braced as required.
- E. Deflection: Structural elements shall be sized to limit the live load deflections to 1/200 of the span.

1.4 QUALITY ASSURANCE

- A. Engineer Qualifications: Professional engineer legally authorized to practice in the State of Connecticut and experienced in providing engineering services of the kind indicated for prefabricated wood structures similar to this Project in material, design, and extent, and that have a record of successful in-service performance.

- B. Submit evidence of product liability Certificate of Insurance for life of the product.

1.5 Warranty:

- A. Product shall be guaranteed for five (5) years on the structure and three (3) years on the finish together with labor. Damage resulting from abnormal use, vandalism, or incorrect installation (if done by other than authorized installer of the manufacturer) is not applicable. The coating system shall be guaranteed for a ten (10) year period against defective materials and workmanship.
- B. Project schedule, including phasing with other trades and designation for all tasks, milestone dates for drawing submittal, fabrication time, key material delivery dates and designated dates of installation.
- C. Detailed Certificate of Insurance, including products/completed operations liability insurance, shall be provided.

1.6 PROJECT CONDITIONS

- A. A visitation to the site prior to bid by a qualified representative of the prefabricated wood-framed structure manufacturer is recommended. No allowance will be made after the award of contract for any problems encountered which would have been discovered during the pre-bid visitation. In addition, the representative of the manufacturer will revisit the site within six (6) months after completion of the project for reinspection with the Owner.
- B. Field Measurements: Check actual locations of other construction to which prefabricated wood-framed structure must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings to avoid delaying the Work.
 - 1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating products without field measurement. Coordinate construction to ensure that actual dimensions correspond to guaranteed dimensions. Allow for trimming and fitting at no additional cost to the Owner.
- C. Code compliance: Approval Drawings shall be based upon the criteria indicated herein. Achieving compliance to the Codes indicated is mandatory and is the manufacturer's responsibility.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design Product: Subject to compliance with the Plans and Specifications herein provide Carefree Building Storage Master Cottage or comparable product.

2.2 STORAGE SHEDS

- A. ALTERNATE #2 Wood storage shed shall be 12'x16'. Provide one, complete shed.
ALTERNATE #3 Wood storage shed shall be 12'x 20'. Provide one, complete shed.
- B. Sheds shall be weatherproof.
- C. Foundation lumber shall be pressure treated 4 x 4 timbers.
- D. Framing lumber shall be manufactured to conform to PS 20, "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review. Species shall be one of the following: Southern Yellow Pine; Douglas Fir; Hem-Fir.
- E. Exterior: Vinyl clapboard siding shall be applied over 1/2-inch plywood sheathing. Provide solid vinyl trim.
- F. Roof sheathing shall be 1/2" CDX plywood.
- G. Flooring shall be pressure treated 2 x 6 floor joists at 12 inches on center, covered with 3/4-inch UL exterior grade plywood.
- H. Roofing shall include aluminum drip edges and 30-year architectural roof shingles.
- I. Roof structure shall be engineered roof trusses 16 inches on center utilizing metal barbed structural connectors pressed into the wood with up to 20 tons of force.

SHEDS SHALL HAVE :

- J. Entire structure shall be painted in latex/acrylic exterior paint. Color to be selected by Architect.
- K. Each shed shall have a Garage Door on one end, and a Mandoor halfway down Right (facing garage door) side of shed
- L. Screened wall louvers/vents shall be provided on both gable ends.
- M. Provide garage package including, garage door with ramp and heavy-duty pressure treated floor.
- N. Exterior man door shall be Solid wood or Fiberglass with insulated core with pre-hung frame. includee exterior commercial lever handled, keyed lockset and bolt.
- O. Provide galvanized steel floor guards.
- P. Provide overhead storage loft.
- Q. Provide large trim and overhangs.
- R. Stud walls shall be 16 inches on center approximately 8 feet high. Headers shall be provided over doors and studs provided in corners.

- S. Provide 1 solar powered shed LED light kit for each shed. Kit to be self contained with light, batteries solar panel, wiring and motion detector. Mount solar panel on south facing gable end or eave. Mount minimum 10' above grade. Mount light with in shed to provide overall lighting. Light to be motion activated with automatic timer function.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Confirm completion of pavements and other improvements are properly sequenced prior to installation of storage sheds.
- B. Coordinate and furnish anchorages, drawings, instructions, and directions for installing wood sheds.
- C. Coordinate delivery to Project site.

3.2 INSTALLATION

- A. Sheds maybe fabricated on site.
- B. Fabricate wood storage sheds on site in location where indicated on Drawings. Anchor shed to slab in conformance with manufacturer's recommendations and in accordance with Connecticut State Building Codes.

3.3 PROTECTIONS/CLEAN UP

- A. Clean all surfaces after erection in accordance with manufacturer's recommendations.
- B. Remove and properly dispose of all packaging and construction debris.

END OF SECTION 13 12 50

SECTION 31 20 00 – EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Earthmoving for this project is anticipated to be minimal, however this section is included to accommodate Alternate work and any possible changes to the scope of work that would require earthmoving activities.
- B. This Section includes, but is not limited to the following:
 - 1. Site excavating, grading, filling, backfilling, compacting, and preparing sub-grades for the entire project including but not limited to: foundations, footings, drainage structures, and athletic fields.
 - 2. Granular fill course for curbs and other site improvements.
 - 3. Excavating and backfilling for field and structures.
 - 4. Processed aggregate for pavements and other improvements.
 - 5. General fill for establishing project sub-grades.
 - 6. Excavation of rock and/or boulders, including replacement with suitable earthwork materials.
 - 7. Removal of encountered unsatisfactory soils, including lawful off-site disposal and replacement with suitable earthwork fill material.
- C. Related Sections include the following:
 - 1. Division 01 Section “Alternates.”
 - 2. Division 32 Section “Athletic Field Construction”
 - 3. Division 32 Section “Topsoil”
 - 4. Division 33 Section “Field Sub Drainage System”

1.3 DEFINITIONS

- A. Backfill: Suitable soil materials used to fill an excavation as approved by Architect and Geotechnical Engineer.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Layer placed between the subbase course and proposed improvements.
- C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.

- D. Borrow: Suitable soil or earthwork products imported from off-site for use as fill or backfill as approved by Architect and Geotechnical Engineer.
- E. Excavation: Removal of material encountered above subgrade elevations.
 - 1. Additional Excavation: Excavation below subgrade elevations as directed by Architect. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Mass Excavation: Excavations more than 8 feet in width and pits more than 30 feet in either length or width.
 - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- F. Fill: Suitable soil materials used to raise existing grades as approved by Architect and Geotechnical Engineer.
- G. Field Stone, Dynamic stone base, Finish Stone or Top Stone: Refer to stone drainage base for synthetic turf. Refer to section 33 46 16 Field Sub drainage System, Stone.
- H. Mass Rock or Earth: An area of rock or unclassified earth material that is greater than 8' in both length and width.
- I. Rock: Material in beds, ledges, unstratified masses, conglomerate deposits and boulders of rock material that exceed 1 cubic yard in volume for mass excavation, or trench, footing or pit excavation that cannot be removed by excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:
 - 1. Mass Excavation: Late-model, track-mounted loader; Caterpillar 963C or equal; or Late-model, track-mounted hydraulic excavator; Caterpillar 325D or equal, equipped with a 42-inch wide, short-tip-radius rock bucket.
- J. Stone: An individual rock fragment, natural stone, or concrete with a volume less than 1 cubic yard, obtained from on-site excavation, on-site processing of rock or boulders, or an off-site source. All stone obtained from on-site excavation shall be considered as common fill, for pricing purposes.
- K. 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.
- L. Subbase Course: Layer placed between the subgrade and base course for pavement or other site improvements.
- M. Subsoil: shall be the existing on site soil material; typically 12"-24" depth located immediately under the existing topsoil.
- N. Subgrade: Surface or elevation remaining after completing excavation, or top surface elevation of a fill or backfill elevation immediately below subbase, drainage fill, or topsoil materials.

- O. Trench Rock or Earth: Excavated material from trench excavations that is less than 8' (eight feet) in either length or width.
- P. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.
- Q. Form 817: "Standard Specifications for Roads, Bridges, and Incidental Construction", State of Connecticut, Department of Transportation, Form 817, 2016 edition, as supplemented.
- R. Unsatisfactory Soils: Any material generated, excavated and/or collected by earth moving activities or other contract work that does not meet any of the product specifications contained in contract documents.

1.4 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specifications Sections.
- B. Product Data: For the following:
 - 1. Drainage fabric.
- C. Samples: For the following:
 - 1. 5-lb sample of each type of stone used to Architect's office for visual conformance confirmation.
 - 2. 12-by-12-inch sample of drainage fabric.
- D. Material Test Reports: From an approved qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
 - 1. Classification according to Form 817 and ASTM D 2487 for every 500 cubic yards of on-site or borrow soil material proposed for fill and backfill. Washed sieve shall be performed for 200 sieve on all materials.
 - 2. Laboratory compaction curve according to ASTM D 1557 for each on-site or borrow soil material proposed for fill and backfill.
 - 3. Report of actual unconfined compressive strength and/or results of bearing tests of each stratum tested.
 - 4. Where specified aggregate materials shall be tested for LA abrasion (ASTM C131-03).
 - 5. Test sampling shall conform to the requirements of ASTM D-75, and ASTM D-3665.
 - 6. Documentation for each borrow material proposed for use that demonstrates that the material meets applicable CT DEEP Remediation Standard Regulation criteria for soil, either through knowledge of the soil material or analytical testing of known or suspected contaminants.
 - 7. Submittals in paragraphs below are for record purposes only.
 - 8. If rock removal is required, the contractor shall provide the following:
 - a. A blasting plan approved by authorities having jurisdiction, for record purposes.
 - b. Seismic survey agency report, for record purposes.
- E. All installation of materials prior to testing and approval by Architect is at Contractor's risk.

1.5 QUALITY ASSURANCE

- A. Geotechnical Testing Agency Qualifications: At the Owner's expense, and option, an independent testing agency 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.
- B. Pre-excavation Conference: Conduct conference at Project site to comply with requirements in Division 1, Section "Project Coordination".
 - 1. Before commencing earthwork, meet with representatives of the governing authorities, Owner, Architect, Engineer, consultants, independent testing agency, and other concerned entities. Review earthwork procedures and responsibilities including testing and inspection procedures and requirements. Notify participants at least 3 working days prior to convening conference. Record discussions and agreements and furnish a copy to each participant.

Testing: Compaction tests will be required by the Owner and will be paid for by the Contractor. If tests indicate that density requirements have not been achieved, the Contractor shall continue compacting. All retesting in these areas shall be paid for by the Contractor. See Division 1, Section "Quality Control Services". Contractor is required to compensate testing laboratory, directly, for all material test reports.

- C. Density and Compaction Testing: The Contractor is responsible to schedule compaction tests and to allow adequate time for the proper execution of said tests. Materials placed without specified testing, or failing testing requirements shall be subject to removal and reinstallation meeting specification at no cost to the Owner.
- D. Protect all benchmarks, monuments, and property boundary pins. Replace if destroyed by Contractor's operations.

1.6 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated. Note that site operations must be maintained throughout construction.
 - 1. Notify Architect not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Architect's written permission.
 - 3. Contact utility locator service for area where Project is located before excavating.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active. Contact **Call Before You Dig (1-800-922-4455)** prior to any earthwork or demolition operations.
- C. Geotechnical Report: A geotechnical report is not available for this project. Base conditions are anticipated to be similar to that shown on plan. Existing, previous construction plans were used for this project, contractor shall assume that base and subsurface conditions will be similar to what is shown on plan.

- D. Rock, if encountered, shall be exposed, measured & documented by the engineer for pricing by the Contractor. Rock removal shall conform to the requirements outlined in this specification. Costs for rock removal shall be negotiated as an add service by the Contractor.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Suitable Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, reclaimed or recycled materials (i.e., asphalt, concrete, glass, etc.), and other deleterious matter. CL, SC, and GC can be used if approved by the Owner's Geotechnical Engineer. (use of recycled asphalt may be permitted for specific soil products as specified and shall be approved for use by Architect)
- C. Unsuitable Soils: ASTM D 2487 soil classification groups GC, SC, MH, CH, OL, OH, and PT, or a combination of these group symbols, and any materials that contain reclaimed or recycled materials (i.e., asphalt, concrete, glass, etc.) unless otherwise specified.
- D. Unsuitable soils also include suitable soils not maintained by the General Contractor within 2 percent of optimum moisture content at time of compaction.
- E. Backfill and Fill: Suitable soil that meets specification requirements.
- F. Common Fill: Suitable soil that can be placed and compacted. On site soils may be used as common fill to establish subgrade beneath walks, pavements and lawn areas provided they conform to soil requirements per project specifications as approved by the project geotechnical engineer.
- G. Granular Fill: Form 816 Article M.02.06, Type 'B' is to be used for filling under footings, pavements, and improvements, and subbase under pavements that is required to achieve the rough grades indicated. Granular Fill may be referred to as base or subbase course in project documents.
 - 1. Provide borrow material as required to meet project specifications.
- H. Crushed Stone: Suitable soil consisting of washed, clean, narrowly graded mixture of crushed stone, or crushed gravel, free of all reclaimed aggregate. Sound material free of debris, waste, recycled material, frozen materials and organic material conforming to Form 816, Article M.01.01, No. 6 or size as indicated on Drawings.
- I. Porous fill and Filter Media: 3/8" crushed stone, Clean, sound material free of debris, waste, frozen materials and organic material conforming to Form 816, Article M.01.01.
- J. Processed Aggregate: Artificially graded mixture of sound coarse and fine aggregates, containing no more than 15 percent by weight of recycled bituminous concrete. Mixture to be

free of debris, waste, frozen materials and organic materials and conform to Form 816, Article M.05.01. Maximum size of aggregate shall not exceed 2/3 of lift thickness. Broken stone is required; rounded gravel will not be permitted. Processed Aggregate may be referred to as base course in project documents.

- K. Bedding: Suitable soil consisting of 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.
- L. General Fill: Material used to establish subgrade elevations may be either:
1. Approved soil material available from excavation on site provided material meets specification for general fill as described below, or approved by Architect prior to placement. Maximum size 8”.
 2. Approved material, obtained from off-site, certified to conform to the following grain-size gradation:
- | 3. | SQUARE MESH SIEVES | PERCENT PASSING WEIGHT |
|----|---|------------------------|
| 4. | Pass 5” | 100 |
| 5. | Pass 3/4” | 75-100 |
| 6. | Pass #4 | 25-80 |
| 7. | Less than 15% of the material passing the #4 sieve shall pass a #200 sieve. | |
| 8. | All material used for general filling shall be clean, free of clay and organic material and capable of satisfactory compaction. | |
| 9. | If sufficient approved on-site material is not available to meet site elevations indicated, Contractor shall provide additional approved off-site material at no extra cost to Owner. | |
- M. Impervious Fill: Suitable soils consisting of a mixture of silt, clay and sand capable of being compacting to a relatively impermeable condition.
- N. Sand: Form 816, Section M.11.04, Grade “B”.
- O. Stone Screenings: Shall be per Connecticut DOT form 817, M01.01 ‘Screenings’.
- P. Stone Dust: Shall be per Connecticut DOT form 817, M01.01 ‘Dust’.

2.2 ACCESSORIES

- A. Detectable Warning Tape: 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.
 2. Yellow: Gas, oil, steam, and dangerous materials.
 3. Orange: Telephone and other communications.
 4. Blue: Water systems.
 5. Green: Sewer systems.

- B. Drainage Fabric: Non-woven geotextile, specifically manufactured as a drainage geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:
 - 1. Grab Tensile Strength: 110 lb/f; ASTM D 4632.
 - 2. Tear Strength: 40 lb/f; ASTM D 4533.
 - 3. Puncture Resistance: 50 lb/f; ASTM D 4833.
 - 4. Water Flow Rate: 150 gpm per sq. ft.; ASTM D 4491.
 - 5. Apparent Opening Size: No. 50; ASTM D 4751.
- C. Separation Fabric: Woven geotextile, specifically manufactured for use as a separation geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:
 - 1. Grab Tensile Strength: 200 lbf; ASTM D 4632.
 - 2. Tear Strength: 75 lbf; ASTM D 4533.
 - 3. Puncture Resistance: 90 lbf; ASTM D 4833.
 - 4. Water Flow Rate: 4 gpm per sq. ft.; ASTM D 4491.
 - 5. Apparent Opening Size: No. 30; ASTM D 4751.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary. The Contractor shall remove and replace or reconstruct subgrade soils and foundation soils that have frozen as necessary at no additional expense to the owner.
- C. 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. Refer to Division 31, Section "Sedimentation and Erosion Control".
- D. Provide protective safety barrier around all trees in the work area that are to remain.
- E. Soils at the site are sensitive to disturbance and can readily become muddy and unstable when disturbed by traffic from heavy construction equipment or other construction operations, particularly during or following periods of wet weather. The Contractor shall take all measures necessary to maintain stable site conditions.

3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area. Coordinate with project sediment and erosion control requirements.

- B. Protect subgrades 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 a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES *(if required & approved)*

- A. Explosives: Obtain written permission from authorities having jurisdiction before bringing explosives to Project site or using explosives on Project site. Secure and pay for all permits as required.
- B. Comply with procedures outlined in paragraph "Quality Assurance", sub-paragraph "Seismic Survey Agency", above and Form 816, Section 1.07.08. No overnight on-site storage of explosives is permitted.
 - 1. Do not damage adjacent structures, property, or site improvements or weaken the bearing capacity of rock subgrade when using explosives.
- C. Provide minimum 48-hours notice to Owner, Architect, abutting properties, and all affected utilities. No blasting is permitted prior to 8:00 a.m. or after 4:00 p.m. or on Holidays, Saturdays or Sundays without written permission of the Owner. Blasting is NOT permitted while school is in session unless otherwise noted.

3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of the surface and subsurface conditions encountered, including stone, soil materials, and obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory materials or rock, replace with satisfactory soil materials.
 - 2. Rock removal, as defined herein will be negotiated as a additional cost to the contract. Contractor shall assume rock removal is not required for his base cost.
- B. Rock Excavation Procedures *(if required)*:
 - 1. When, during the process of excavation, rock is encountered as specified herein, the Contractor shall strictly adhere to the following procedures.
 - a. Such material shall be uncovered and exposed.
 - b. The Architect and the Owner shall be notified by the Contractor before proceeding further.
 - 2. Rock excavation materials may be used for fill, only as specifically allowed and approved by the Architect, in accordance with the following paragraph "D".
 - 3. All areas where rock is removed must be marked on the as-built Drawings. Obtain approval of the Architect before starting any rock removal work.
 - 4. If the Contractor intends to utilize excavated rock for site earthwork operations, the Contractor must modify any such material to comply with the specification for the

designated specific material, at no cost to the Owner. Boulders may also be modified for use. No material may be used, unless approved by the Architect, prior to placement.

5. Rock and boulder disposal:
 - a. All excess rock and boulders shall become the property of the Contractor and must be removed from project site and disposed in a legal manner.

C. Boulder disposal (*if required*):

1. Limited on-site, below grade boulder disposal is permitted. If any boulders are encountered review acceptable below grade placement locations with Architect. Contractor shall not deviate from following procedure for on-site, below grade disposal.
 - a. Boulders to be buried in areas of fill under lawn and landscape areas only. Contractor to ensure that there are no conflicts with proposed or existing utilities.
 - b. Top of Boulders shall have a minimum 4'-0" cover to finish grade
 - c. There shall be a minimum distance of 4'-0" between boulders.
 - d. Approved fill materials shall be placed between boulders and installed and compacted in compliance with project specifications. Approved fill materials shall be placed above buried boulders in compliance with project specifications.

- D. Dispose of unsuitable soil, and rock, off site properly and replace with approved fill material as required to bring the site to final elevations. Contractor shall excavate all material deemed "unsuitable" by the Owner's geotechnical engineer. In the case of any question or inconsistencies, the Owner's geotechnical engineer's determination of unsuitable soils shall be final.

3.5 STABILITY OF EXCAVATIONS

- A. Comply with local codes, ordinances and requirements of authorities having jurisdiction to maintain stable excavations.

3.6 SUBGRADE PREPARATION FOR CURB

- A. Do not disturb bottom of excavation. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.7 APPROVAL OF SUBGRADE

- A. Notify Architect and Owner's Representative when excavations have reached required subgrade.
- B. If unsatisfactory soil is present at sub-grade elevation, The Contractor shall notify Architect & Geotechnical Engineer for review, upon further direction the Contractor shall continue excavation and replace with compacted backfill or fill material as directed.
 1. Additional excavation and replacement material for existing unsuitable subgrade soils will be paid for according to Contract provisions for changes in the work.
 2. Any subgrades that are damaged from construction activity shall be deemed unsuitable material and shall be the responsibility of the contractor. Damaged soils shall be replaced or repaired at no additional cost to the owner.

- C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades. Conform to Form 817, Section 2.09. Subgrade must be approved prior to application of any borrow or fill materials.
- D. If it is determined that unsatisfactory soil or excess moisture content is present, continue excavation and replace with compacted free draining backfill or fill material as directed.
- E. Soil subgrades are susceptible to disturbance and loss of strength due to construction equipment operating over the subgrade or other disturbance when the subgrade is wet or moist. All loose, saturated or disturbed materials that are unsuitable and shall be removed and replaced with compacted structural fill or suitable compacted fill approved by project geotechnical engineer.
- F. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect & Geotechnical Engineer.

3.8 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by Architect.
 - 1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.9 STORAGE OF SOIL MATERIALS

- A. Contractor shall Stockpile borrow materials and satisfactory excavated/manufactured soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover with tarps to prevent windblown dust and to protect from becoming excessively wet due to rainfall or infiltration from other sources. Temporarily seed soil stockpiles as required to prevent erosion. per Division 31 Section "Erosion and Sedimentation Controls".
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
 - 2. Contamination/intermixing of soil materials is just cause for rejection of material.

3.10 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation and drainage.
 - 2. Surveying locations of underground utilities for record documents.
 - 3. Inspecting, testing, and approving of underground utilities.
 - 4. Removing concrete formwork.
 - 5. Removing trash and debris from excavation.
 - 6. Removing temporary shoring and bracing, and sheeting.
 - 7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.11 PLACEMENT OF FILL OR BACKFILLS

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material. Provide Steps or benches in the subgrades of existing steep slopes to promote stabilization of fill material. Fills in sloping areas shall be placed and compacted to a minimum of 93 percent modified proctor dry density as determined by ASTM D1557.
- C. Place and compact fill material in layers to required elevations as follows:
 - 1. Under curbs and field use Common Fill, base, and subbase.

3.12 MOISTURE CONTROL (All Soils)

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
- B. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
- C. Remove and replace, or scarify and air-dry, all soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.
 - 1. Stockpile or spread and dry removed wet satisfactory soil material.
- D. The Contractor shall plan and conduct his excavation and filling operations considering the nature of the on-site materials. Refer to geotechnical report
- E. Compacted subgrades shall be protected from construction equipment or human traffic that may loosen or disturb the fill. All loose, saturated or disturbed materials shall be removed and replaced with suitable compacted fill

3.13 FILL AND COMPACTION OF MATERIALS

- A. Place materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment (minimum 10 tons static weight, 20 tons dynamic force) and not more than 4 inches in loose depth for material compacted by hand-operated tampers. Otherwise, conform to requirements of paragraph 3.16.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compaction of the Porous Fill or Crushed Stone which is not suited for field density testing shall be accomplished with two to three passes of a vibratory compactor.
- D. Compaction equipment shall not be of the nature as to cause unstable conditions in the underlying natural soil. Compacting equipment shall be approved for use by the inspector of the Owner's testing laboratory.

- E. 95% of maximum dry density as determined by AASHTO Method T 180.

3.14 GRADING

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated. Shape pavement base course with required cross sections and elevations.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
 - 3. In all cases, maintain positive drainage.
 - 4. Refer to related specifications for additional information.

3.15 SUBBASE AND BASE COURSES

- A. Under pavements and walks, place subbase course on prepared subgrade and as follows:
 - 1. Place base course material over subbase.
 - 2. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
 - 3. Shape subbase and base to required crown elevations and cross-slope grades.
 - 4. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.
 - 5. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.
- B. Pavement Shoulders: Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders, at least 60 inches wide, of common fill or approved suitable soil material and compact each layer of subbase, and base layer to not less than 93 percent of maximum dry unit weight according to ASTM D 1557.

3.16 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor shall coordinate directly with testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.
 - 1. Perform field in-place density tests according to ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), or ASTM D 2937 (drive cylinder method), as applicable.
 - a. Field in-place density tests may also be performed by the nuclear method according to ASTM D 2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM C 1556. With each density calibration check, check the calibration curves furnished with the moisture gages according to ASTM D 3017.

- b. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.
- B. When testing agency reports that subgrades, fills, or backfills are below specified density, scarify and moisten or aerate, or allow to dry, or remove and replace soil to the depth required, re-compact and retest until required density is obtained. All retesting costs are the responsibility of the Contractor.
- C. Testing Laboratory's presence does not include supervision or direction of the actual work by the Contractor, his employees, subcontractors or agents. Neither the presence of the Testing Laboratory, nor any observations and testing performed by him shall excuse the Contractor from defects discovered in his work.
- D. Testing equipment will be provided by and testing performed by the Testing Laboratory, except as otherwise provided by Contract. Upon request by Architect, the Contractor shall provide such auxiliary personnel and services as needed to accomplish testing work and to repair damage caused thereby to permanent work.
- E. Refer to related sections for additional testing requirements.

3.17 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by the Architect; reshape and re-compact at optimum moisture content to the required density.
- C. Settling: Where settling occurs during the Project correction period, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.
- D. Protect areas with slopes of 1 vertical : 2 horizontal with erosion-control fiber mesh and with erosion-control blankets installed and stapled according to manufacturer's written instructions, or as indicated on the civil drainage plans.
- E. Protect areas with slopes not exceeding 1 vertical : 2 horizontal by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
 - 1. Anchor straw mulch by crimping into topsoil with suitable mechanical equipment.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

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

END OF SECTION 31 20 00

SECTION 32 12 16 — ASPHALT PAVING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION

- A. Work Included: Bituminous concrete drives, parking, and patching, complete in place, as shown on the Drawings and as specified herein including:
 - 1. Saw cut existing pavement as required.
 - 2. Maintenance and protection of pedestrian traffic as required.
- B. Related Sections:
 - 1. Section 01 23 00 - Alternates
 - 2. Section 31 20 00 – Earth Moving;
 - 3. Section 32 31 13– Chain link Fences and Gates

1.3 QUALITY ASSURANCE

- A. Qualifications of Workmen
 - 1. Provide at least one person who shall be thoroughly trained and experienced in the skills required, who shall be completely familiar with the design and application of work described for this Section, and who shall be present at all times during progress of the work of this Section and shall direct all work performed under this Section.
 - 2. For actual finishing of bituminous concrete surfaces and operation of the required equipment, use only personnel who are thoroughly trained and experienced in the skills required.

1.4 REFERENCES

- A. Wherever reference is made to the DOT Specifications, it shall mean the Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 817 (2016) as modified by Supplemental Specifications issued by the Connecticut Department of Transportation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Base: Processed aggregate for the base shall conform to the requirements of Article M.05.01, DOT Specifications. Coarse Aggregate shall be broken stone conforming to the requirements of Article M.05.01-2 (b).
- B. Pavement Materials:
 - 1. Bituminous concrete mixtures conforming to the requirements of Section M.04 of the DOT Specifications.
 - 2. In Section M.04, reference is made to the Chief, Materials Testing Section, to the Materials Testing Section, and to the Laboratory; none will be involved in this work. Do the work of the Chief, the Section, and the Laboratory; or arrange for the producer of the bituminous concrete to do this work. Make the determinations, verifications, rejections, approvals, tests, and inspections as specified by Section M.04 and as necessary to produce satisfactory bituminous mixtures.
- C. Tack Coat: Section M.04 of the DOT Specifications.
- D. Joint Sealer: A rubber compound of the hot-poured type conforming to the requirements of Article M.04.02 of the DOT Specifications.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions under which work of this Section will be installed. Correct conditions detrimental to proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 FINAL PREPARATION OF SUBGRADE

- A. After preparation of subgrade as specified in Section 31 20 00 – Earth Moving of these Specifications, thoroughly scarify and sprinkle the entire area to be paved, and then compact by rolling to a smooth, hard, even surface of 95 percent of modified optimum density to receive subbase. Finish to the required grades, with due allowance for the thickness of bituminous concrete courses to be placed thereon.
- B. Equipment: Compact by rolling with a 15-Ton vibratory roller.

3.3 CONSTRUCTION OF SUBBASE AND BASE COURSE

- A. After subgrade has been completed and accepted by the Architect, construct the subbase and base over all areas to be paved.

- B. Construct subbase in accordance with the requirements of Article 2.12.03 of the DOT Specifications, however compact with four passes of a 15-Ton (static weight) roller.
- C. Construct base in accordance with the applicable requirements of Article 3.04.03 of the DOT Specifications. Compact to at least 98 percent of modified optimum density.

3.4 CONSTRUCTION OF BITUMINOUS CONCRETE PAVEMENT

- A. Construct pavement in courses as called for on the Drawings. Use a class of bituminous concrete for each course as indicated on the Drawings. Thickness of each course: As shown on the Drawings.
- B. Construct the bituminous concrete pavement in accordance with Article 4.06.03 of the DOT Specifications, except as modified below:
 - 1. Article 4.06.03-1 Samples: Samples will not be taken by Materials Testing Section. Arrange for the producing plant to take its own samples to ascertain that mixtures are proper. Provide certifications. The Contractor will have the ultimate responsibility.
 - 2. Article 4.06.03-2 Mixing Plant Inspection:
 - a. Inspections, verifications, determinations, and approvals at the mixing plants will not be made by the Chief, Materials Testing Section. The Contractor will be responsible for mixtures and shall take whatever steps are required to ensure production of satisfactory mixtures. He shall certify that mixtures do meet specifications.
 - b. Weights of completed mixtures will not be required.
 - 3. Article 4.06.03-3 Mixing Plant Inspection - Field Laboratory: Delete in its entirety.
 - 4. Article 4.06.03-4: Delete "Assistant Manager of Materials Testing" and substitute "Contractor."
 - 5. Article 4.06.03-5: Delete "Assistant Manager of Materials Testing" wherever it appears and substitute "Contractor."
- C. Certifications: Furnish certified test reports, material certificates, and certificates of compliance in accordance with the requirements of Article 1.06.07 of the DOT Specifications.

3.5 PROTECTION

- A. Protect from traffic during all operations.

3.6 FINISH TOLERANCES

A. Finish surfaces to the following tolerances.

1. Subbase and Base: Plus 0.00 feet to minus 0.10 feet from line and grade shown on the Drawings.
2. Bituminous Concrete Surface Course: Plus or minus 0.05 feet at any point from line and grade shown on the Drawings. No variations in surface more than 1/8 inch in a 10-foot plane.

END OF SECTION

SECTION 32 18 23.13 – INFIELDF SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Furnishing and installation of new infield surface material.
 - 2. Furnishing and installation of sand drainage layer.
- B. Related Sections include the following:
 - 1. Division 31 Section “Site Clearing”.
 - 2. Division 31 Section “Earth Moving”.
 - 3. Division 32 Section “Athletic Equipment”.
 - 4. Division 32 Section “Topsoil”.
 - 5. Division 32 Section “Lawns”.

1.3 DEFINITIONS

- A. Connecticut DOT Form 817: "Standard Specifications for Roads, Bridges, and Incidental Construction", State of Connecticut, Department of Transportation, Form 817, 2016 edition, as supplemented.

1.4 SUBMITTALS

- A. Material Certificates: Provide copies of the material certificates signed by the material producer and the contractor, certifying that each material item complies with the specified requirements.
- B. Samples: Submit samples of each component of surfacing material for approval.
- C. Testing: Submit complete mechanical analysis reports of existing and proposed surfacing material detailing specific blends of material.

PART 2 - PRODUCTS

2.1 INFIELD SURFACING MATERIAL

- A. General Infield mix for infield, bullpens and batting cages shall be “Dura-Edge Classic”/Recreational. color “Light brown” as available from Read Custom Soils, Westford MA. Or approved equal.

1. Infield Mix shall be comprised of the following:

Mechanical Analysis of Infield Mix

Total Sand	70-75%
Silt (.002 mm - .05 mm)	10-15%
Clay (less than .002 mm)	10-20%

Grain Size Distribution of Infield Mix

Sieve Percent Passing by Weight

1/4"	100
No. 4	98-100
No. 10	90-98
No. 18	70-85
No. 35	40-60
No. 60	10-20
No. 100	3-20
No. 140	0-15

Notes:

- 1) 0% greater than 1/4-inch sieve.
 - 2) Maximum of 30% greater than No. 4.
 - 3) Minimum of 50% between No. 4 and No. 60.
 - 4) Maximum of 20% smaller than No. 60.
2. Silt to Clay Ratio: 0.5-1
3. Infield – 6” depth
- B. INFIELD MIX AT PITCHERS CIRCLES AND BATTER BOXES
1. Infield Mix at pitchers circles and batters boxes shall be ‘Dura Pitch Mound Clay’ color “Light brown” as available from Read Custom Soils, Westford MA. Or approved equal.
 2. Pitchers circles – 6” depth.
 3. Batters Boxes – 6” depth.

2.2 INFIELD SOIL CONDITIONER

1. Soil conditioner:

- a. Must be in illite, montmorillinite and silica blend at 40% minimum to 60% minimum amorphous silica. Material must be processed in a rotary kiln operation at temperatures not less than 1200 degrees Fahrenheit. Product must be screened and de dusted.

Ph: 7.0±.5

<u>SIEVE ANALYSIS</u>	<u>PERCENT PASSING</u>
#6 mesh	15.0
#8 mesh	31.5
#12 mesh	18.9
#20 mesh	30.9
#30 mesh	3.1
#40 mesh	0.5

2. Material shall be similar to Turface MVP, by Profile Products, LLC, Buffalo Grove, IL., or approved equal.

- 2.3 SAND: ASTM C33-03.6 Fine Aggregate, “2-NS” sand OR Form 817, Article M.11.04, gradation ‘A’. Local bank sands may also be considered with written approval of architect.

PART 3 - EXECUTION

3.1 GENERAL: Install to the lines and grade shown on the Drawings.

- A. Insure that the subgrade has been properly prepared and compacted.
- B. Insure all bases anchoring/pitching plate, and subsurface improvements, have been properly installed, backfilled and compacted prior to placement of infield surfacing material.

3.2 PREPARATION

- A. Thoroughly bulk mix, at an approved location, all borrow and stockpiled surfacing material to produce a homogeneous product.

3.3 INSTALLATION

- A. Lightly loosen the subgrade. Install layer of sand to depth detailed. Roll and compact.
- B. Do not install or work infield materials in a wet or saturated condition.
- C. Install infield-surfacing products in all infield areas (base paths, batting and pitching areas, coach’s boxes, etc.) as per details and supplier recommendations.

1. Apply soil conditioner, as needed to adjust infield tilth and work-ability. Disking operation must create a homogeneous blend of infield surface material and soil conditioner.
 2. Rake to smooth grade and nail drag. Compact thoroughly.
- D. Dimensions indicated on drawings are after compaction.
- E. Insure that lawn grades are flush with infield surfacing elevations and that drainage patterns are not interrupted.
- 3.4 MAINTENANCE
- A. Maintain until final acceptance by raking and rolling, a smooth even surface with no weeds or other debris. Infield surfacing will not be accepted until all lawn areas in the specific field are established, maintained, and accepted.
- B. Immediately prior to final inspection install bases and plates and perform final dragging of field surfaces.
- C. Repair any settlements by installing additional material and rolling to a smooth surface.

END SECTION 32 18 23.13

SECTION 32 18 23.26 — NATURAL TURF ATHLETIC FIELD CONSTRUCTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Construction of natural turf athletic fields.
 - 2. Maintenance of natural turf athletic fields until acceptance
- B. Related Sections include the following:
 - 1. Division 1 Section “Alternates”.
 - 2. Division 31 Section “Earth Moving”.
 - 3. Division 32 Section “Topsoil”.
 - 4. Division 33 Section “Athletic Field Underdrainage”.
 - 5. Division 33 Section “Irrigation System”.
- C. The intent of this specification is to provide athletic fields that are high performance, competition grade.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for the following:
 - 1. Fertilizers.
 - 2. Limestone.
 - 3. Chemical preservatives and controls – also confirm that each of the materials proposed to be applied are permitted for use by the State of Connecticut.
- C. Certification of grass seed from seed vendor for each grass seed mixture and sod grown stating the botanical and common name and percentage by weight of each species and variety and percentage of purity, germination, and weed seed. Include the year of production and date of packaging. Submit topsoil test of sod source to determine compatibility of sod material with project topsoil (borrow & stockpiled).

- D. Submit list of machinery to be used during subgrade preparation and topsoiling operations. No rubber tired machinery will be permitted except for light-weight, farm tractor grade machinery with wide tires designed for turf use. All heavy machinery must be track driven.
- E. Qualification data for firms and persons specified in the “Quality Assurance” Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and address of Architects and Owners, and other information specified.
- F. Material test reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated.
 - 1. Analysis of existing surface soil.
 - 2. Analysis of imported topsoil.
 - 3. Sieve analysis of stockpiled subsoil.
- G. Planting schedule indicating anticipated dates and locations for each type of seeding or sodding.
- H. Field survey of athletic field finished grades, for approval, prior to lawn installation.
- I. Maintenance instructions recommending procedures to be established by Owner for maintenance of lawns during an entire year. Submit before expiration of required maintenance periods.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed lawn development work similar in material, design, and extent to that indicated for this Project and with a record of successful grass establishment. Bidders must provide verification of experience with proposal.
 - 1. Installer’s Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site during times that grass planting is in progress.
 - 2. Athletic field contractors must have successfully completed three (3) high performance athletic fields in the past five (5) years, similar to the design and materials specified herein. Athletic field construction shall have consisted of laser graded, underdrain system, clay athletic field surfacing, irrigation, and seeding.
- B. Examine work to receive athletic field development and notify the architect of any defects. Specifically review the subgrade preparation. Commencement of this work implies acceptance by Contractor of preparatory work by others.
- C. Pre-installation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section “Project Meetings”.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Seed, Fertilizer and Lime: Deliver in original sealed, labeled, and undamaged containers, showing weight, analysis, and name of manufacturer.

- B. Sod: Harvest, deliver, store and handle sod according to the requirements of the American Sod Producers Association's (ASPA) "Specifications for Turfgrass Sod Materials and Transplanting/Installing".
- C. Protect materials from deterioration during delivery and while stored at site.

1.6 GUARANTEE

- A. Duration of guarantee shall be until the completion of the specified maintenance period and until Owner's final acceptance of all athletic fields.

PART 2 - PRODUCTS

2.1 ATHLETIC FIELD SOD

- A. Sod: Certified turfgrass sod minimum two years' old, complying with ASPA specifications for machine cut thickness, size, strength, moisture, content, and mowed height, and free of weeds and undesirable native grasses. Provide viable sod of uniform density, color, and texture of the following turfgrass species, strongly rooted, and capable of vigorous growth and development when planted. Pad thickness 3/4" (+1/4"), excluding thatch and top growth. Minimum roll width 2'-0".
 - 1. Sod to be harvested from field, which is comprised of a "sandy loam" or "loamy sand" classification of soil unless otherwise approved.
 - 2. Provide strongly rooted sod, not less than two (2) years old and free of weeds and undesirable native grasses and machine cut to pad thickness of 3/4" (+1/4"), excluding top growth and thatch. Provide only sod capable of vigorous growth and development when planted (viable, not dormant).

American Kentucky Bluegrass	20%
Apollo Kentucky Bluegrass	20%
Limousine Kentucky Bluegrass	20%
Midnight Kentucky Bluegrass	20%
Devine Perennial Ryegrass	20%
(Endophyte enhanced)	

2.2 ATHLETIC FIELD SEED (ALTERNATE)

- A. Grass Seed: Fresh, clean, dry, new crop seed complying with the Association of Official Seed Analysts' "Rules for Testing Seeds" for purity and germination tolerances.
 - 1. Seed Quality:
 - a. Weed Seed: maximum of 0.50%, no noxious weed seed.
 - b. Purity: minimum of 97% pure.
 - c. Crop: maximum 0.50%.
 - d. Germination Rate: minimum 85%.
 - 2. Mixture for irrigated ATHLETIC FIELD Areas:

TYPE OF SEED	PERCENT BY WEIGHT
America Kentucky Bluegrass	30%
Limousine Kentucky Bluegrass	30%
Touchdown Kentucky Bluegrass	30%
Cutter Perennial Ryegrass (Endophyte enhanced)	10%

3. Hydroseeding is not allowed in ATHLETIC FIELD Areas.:

2.3 LIME

- A. ASTM C 602, class T, agricultural ground limestone containing a minimum 50 percent total oxides (calcium oxide plus magnesium oxide), with a minimum 50 percent passing a 100 mesh sieve, and 98 percent passing a 20-mesh sieve, for powder form of lime.

1. Provide lime in the form of dolomitic limestone.

2.4 FERTILIZER

- A. Phosphorus: Commercial, soluble; guaranteed analysis of 0-46-0.
- B. Starter Fertilizer: Commercial grade complete fertilizer of neutral character, consisting of fast release water soluble nitrogen, derived from natural organic sources of urea ammonium phosphate, or similar material.
 1. Composition: Nitrogen, phosphorus, and potassium in amounts recommended in soil reports from a qualified soil testing agency, 14.28.14 guaranteed analysis.
- C. Secondary Fertilizer: Granular fertilizer consisting of 50 percent water insoluble nitrogen, phosphorus, and potassium with guaranteed analysis of 15.15.15.
- D. Tertiary Fertilizer: guaranteed analysis of 46.0.0.

2.5 MULCHES

- A. Straw Mulch: Provide air dry, clean, mildew and seed free, salt hay or threshed straw of wheat, rye, oats or barley.
- B. Peat Mulch: Provide peat moss in natural, shredded, or granulated form, of fine texture, with a pH range of 4 to 6 and a water absorbing capacity of 1100 to 2000 percent.
- C. Fiber Mulch: Biodegradable dyed wood cellulose fiber mulch, nontoxic, free of plant growth or germination inhibitors, with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- D. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber mulch manufacturer for slurry application, nontoxic and free of plant growth or germination inhibitors.

2.6 SALT MARSH HAY

- A. Naturally harvested salt marsh hay, certified weed free.

2.7 CHEMICAL PREVENTATIVES AND CONTROLS

- A. Commercial materials labeled for turf maintenance, State of Connecticut and EPA registered and approved for turf application.

2.8 SAND

- A. State Specifications, Section M.11.04. Grade "B".

2.9 GEOTEXTILE FABRIC

- A. Refer to Division 31 Section "Earth Moving" of this specification for separation fabric, type of geotextile fabric.

2.10 WATER

- A. Potable
- B. The Contractor is solely responsible for furnishing all water necessary to complete the establishment, maintenance and acceptance of athletic fields, including temporary water, prior to installation/activation of any proposed irrigation system.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive natural turf athletic fields for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 COORDINATION AND SCHEDULING

- A. Planting Season: Sow lawn seed and install sod during normal planting seasons for type of lawn work required. Correlate planting with specified maintenance periods to provide required maintenance from date of Substantial Completion.
- B. Weather Limitations: Proceed with planting only when existing and forecast weather conditions are suitable for work.
- C. Sod or Seed athletic field areas between April 1 and June 1, and between August 15 and October 1, unless otherwise approved.

- D. Examine areas to receive seeding or sod and notify Architect of any problems prior to commencing work. Specifically review the topsoil placement (depths, grades and conditions). Commencement of this work implies acceptance by Contractor of preparatory work of others.

3.3 FIELD RESTORATION (GENERAL)

- A. Review topsoil testing results. Create a written plan for renovations and soil additives and submit to the Landscape Architect for review. Plan shall include schedule and details on lime, fertilizer, soil amendments, establishment schedule and follow-up establishment/maintenance.
- B. Treat grass areas for weeds as appropriate. Remove Existing thatch and sod with a sod cutter, or till sod into topsoil and remove sod and thatch by raking. Remove & dispose of off site in a legal manner.
- C. Perform all irrigation, drainage and perimeter paving work. Topsoil contaminated with subsoil or gravel shall be removed and replaced.
- D. Fine grade all field areas removing high spots and filling low spots. Provide or remove topsoil as required to maintain specified grade and slope.
- E. Apply Lime and basic soil nutrients per soil test recommendations. Mix lime & Fertilizer into top 4-6" of soil by raking or tilling.
- F. Apply other soil amendments, starter fertilizer, mineral additives and compost/organic matter to field areas and till or rake into top 2-4 inches of topsoil.
- G. Install sod and :LIGHTLY roll to establish root contact with soil.
- H. Seed (alternate): Apply seed with a drop type or billion type seeder in two directions., lightly rake to cover seed and LIGHTLY roll to establish contact with soils.
- I. Follow all establishment, maintenance, overseeding and fertilizer requirements until final acceptance of sodded or seed lawn areas.

3.4 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements and other facilities, trees, shrubs, and plantings from damage caused by athletic field development operations.
 - 1. Protect adjacent and adjoining areas from hydroseed overspraying.
- B. 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.
- C. Insure that athletic field underdrainage has been installed in accordance with appropriate section of this Specification.
- D. Install irrigation and drainage prior to raking or grading topsoil areas. Topsoil contaminated with Subsoil or gravel will be removed and replaced with acceptable topsoil

3.5 SAND

- A. Where shown install sand layer, over subgrade and/or underdrainage system as detailed on the drawings.
- B. Rake surface to a smooth, even plane and roll.

3.6 TOPSOIL

- A. Amend athletic field topsoil per the requirements of this specification and provided topsoil testing. Install topsoil in accordance with Section "Topsoil" of this Specification.

3.7 TOPSOIL PREPARATION – GENERAL

- A. Apply lime, and phosphorus at the rates recommended by the topsoil tests in all areas where topsoil has been installed. Cultivate topsoil to its full depth by scarifying or other disking methods to thoroughly incorporate amendments into the topsoil. Maintain a loose friable seed bed. At no time will rubber tired loaders or graders having greater compaction than a small farm tractor be allowed on topsoil. Keep all heavy equipment and trucks off prepared topsoil: Do not prepare while ground is wet or frozen.
- B. Provide additional topsoil where and as required to properly meet all proposed finish grades.
- C. Remove: any weeds, debris, foreign matter and stones having any dimension greater than 1/2". Remove from property.
- D. Fine grade to a smooth uniform surface. The entire area shall present an even grade with no depressions where water will stand. Any protective fencing around existing trees shall be removed and disposed of by the Contractor at this time. Topsoil shall be smoothly blended to existing finish grades around trees erosion control devices and adjacent existing conditions, maintain existing surface drainage patterns. Round off all top and toe of slopes. Reinstall erosion control devices and protective fencing as required.
- E. Approval of surface by architect shall be obtained before seeding or sodding operations begin. Where directed, perform bulk density and nuclear compaction readings to monitor degree of soil compaction/seed bed friability.

3.8 ATHLETIC FIELD GRADING

- A. Grade all athletic fields to a smooth, even surface with loose, uniformly fine texture using a grading tractor fitted with automatically controlled laser grading equipment (land plane or box plane). Laser guided system must be capable of generating a laser controlled, automatic system to within 1/4" tolerance the full length of the playing field.
- B. Conduct a field survey of all athletic areas at 25' o.c. grid. Grades shall be checked using a dual plane laser operation survey instrument and shall be within 1/2" of required elevation, non cumulative. Correct irregularities beyond this tolerance to eliminate all mounds and depressions, and produce a stable, firm seeding or sodding surface.

3.9 SODDING

- A. Lay sod within 24 hours of stripping. Do not lay sod if dormant or if ground is frozen. The prepared soil shall be watered within 12-24 hours prior to laying the sod. Sod should not be laid on soil that is dry and powdery.
- B. Lay sod in straight lines to form a solid mass with tightly fitted joints and no surface grade irregularities. But ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent coursed. Avoid damage to subgrade or sod during installation. Repair as necessary. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass. Provide full width strips on all perimeter edges.
- C. Saturate sod with fine water spray within 2 hours of planting. During first week, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below the sod.

3.10 ATHLETIC FIELD SEEDING (**alternate**)

- A. Install starter fertilizer on the finish grade.
- B. Hydro-seeding of athletic fields is NOT permitted.
- C. Sow specified seed at the specified rates using a culti packer, silt type seeder. Apply the seed in two directions with the second application made at approximately 75 degree angle to the first application.

3.11 WATERING LAWN AREAS

- A. Maintain a moist seed and sod bed at all times. Water seed bed daily with 1/4" water/day using three sets, keeping the surface moist. Apply complete coverage to insure proper germination/root growth conditions. Maintain soil moisture at or near field capacity during the period of germination and seeding development.
- B. Protect all athletic field turf areas with barricades, if necessary, to keep all traffic off the area. Repair all damage to lawn areas including topsoil replacement, at no additional cost to Owner.
- C. Adjust watering requirement as required at request of Owner and after a full ground cover has been achieved.

3.12 MAINTENANCE

- A. Begin maintenance of athletic field turf immediately after each area is planted and continue until acceptable athletic field is established, but for not less than the following periods:
 - 1. Sodded Areas: minimum 45 days after date of Substantial Completion and a minimum of 3 mowings.

2. Seeded Areas: minimum 60 days after date of Substantial Completion, and after a minimum of 5 mowings until acceptance by the landscape architect.
 3. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established at that time, continue maintenance during next planting season.
- B. Maintain and establish all athletic fields by watering, fertilizing, weeding, mowing, overseeding, trimming, replanting, and other operations. Roll, regrade and replant bare or eroded areas and remulch to produce a uniformly smooth lawn.
- C. Replant bare areas with same materials specified for athletic fields.
- D. Add new mulch in areas where mulch has been disturbed by wind or maintenance operations sufficiently to nullify its purpose. Anchor as required to prevent displacement.
- E. Crabgrass and broadleaf weed control.
1. General: Treat all athletic field turf areas with crabgrass or broadleaf weed control in conformance with manufacturer's recommendations as required (after diagnosis of weed/crabgrass presence).
 2. Time: Conform to the manufacturer's recommendations.
 3. Rate: Conform to the manufacturer's recommendations.
- F. Disease Control
1. General: Treat any diseased athletic field turf areas with disease control in conformance with the manufacturer's recommendations as required (after diagnosis of disease organisms).
 2. Time: Conform to the manufacturer's recommendations.
 3. Rate: Conform to the manufacturer's recommendations.
- G. Mow athletic field turf (seed or sod) as soon as there is enough top growth to cut with reel mower set at mowing height of 1-1/2" (bench height). Repeat mowing as required to maintain specified height without cutting more than 30 percent of the grass height on maximum 5 day interval. Remove no more than 30 percent of grass leaf growth in initial or subsequent mowings. Do not mow when grass is wet. Schedule mowing when grass attains a 2" height. Subsequent mowings to maintain following grass height.
1. Mow grass from 1-1/2 to 2 inches high.
 2. Maintain reel blade and bed knife in sharp condition and evenly matched to provide a clean cut.
- H. Secondary Fertilization: Apply secondary fertilization to entire athletic field areas two weeks after seeding, 4 weeks after sodding.
- I. Tertiary Fertilizations: Apply three (3) tertiary fertilizations at two week interval (4, 6, and 8 weeks after seeding) to entire seeded athletic field areas only.

3.13 SATISFACTORY LAWN

- A. Seeded athletic field turf will be satisfactory and eligible for Owner's acceptance provided all requirements, including maintenance, have been met and a health, uniform, dense stand of grass is established, free of weeds and bare spots and surface irregularities, with coverage exceeding 90 percent over any 5 foot square selected by the Architect. Architect shall be the sole judge of acceptance. Lawns must be free of weeds, crabgrass, and other undesirable plants, with no diseases present. Acceptance will not be made until all damaged areas have been restored to original conditions.
- B. Sodded athletic field turf will be satisfactory provided requirements, including maintenance, have been met and healthy, well rooted, even colored, viable lawn is established, free of weeds, open joints, bare areas and surface irregularities.
- C. Prior to acceptance of seeded athletic fields, the Contractor shall perform 4 inch deep by 3/8" inch hollow-core aeration. Allow the cores to dry, drag the cores, and topdress with a one-quarter inch depth of sand to all athletic field areas. Contractor must request a meeting with the Architect to establish specific timing of this operation.
- D. Areas will not be accepted in "pieces" unless specifically agreed to by the Owner.
- E. Replant athletic field turf that does not meet requirements and continue maintenance until lawns are satisfactory. Upon stabilization of lawn areas, remove erosion control devices and protective fencing. Reseed bare areas as required.

3.14 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by athletic field turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto surface of roads, walks, or other paved areas. Broom clean all walks and pavements.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic, vandalism, and unauthorized use. Maintain barricades throughout maintenance period until athletic field turf is established and accepted by the Owner.

3.15 LAWN MATERIALS INSTALLATION

- A. Lawns: Provide materials in not less than the following quantities:
 - 1. Weight of lime per 100 sq. ft.: as per topsoil test report.
 - 2. Weight of phosphorous per 1000 sq. ft.: as per topsoil test report.
 - 3. Weight of commercial fertilizer per 1000 sq. ft.: as per topsoil test report.
 - 4. Cellulose Pulp Fiber: 32#/1,000 SF.
 - 5. Grass Seed: 130 lbs/acre.
 - 6. Starter Fertilizer: 310 lbs/acre.
 - 7. Secondary Fertilizer: 300#/acre.
 - 8. Tertiary Fertilizer 50#/acre, providing 22# of nitrogen/acre.

3.16 SEED

- A. Provide: fresh, clean, new crop seed; blue tag certified complying with the tolerance for purity and germination established by the Office of Seed Analysis of North America. Provide seed of the grass species, proportions and maximum percentages of weed seed.
- B. Provide seed in cleaned, sealed, properly labeled containers. Seed that is wet, moldy, or otherwise damaged will not be accepted. Handle seed to manufacturer recommendations for exposure to extremes of heat, cold, or moisture.

END OF SECTION 32 18 23.26

SECTION 32 31 13 – CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes

1. Furnishing and installing woven wire fencing systems of the type and height specified and supported by metal posts erected where indicated on the Drawings and as specified herein, including fence and gates.

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. American Society for Testing and Materials (ASTM).

1. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. ASTM A90- Standard Test Method for Weight (Mass) of Coating on Iron or Steel Articles with Zinc or Zinc Alloy.
3. ASTM A123- Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
4. ASTM A153- Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.
5. ASTM A392- Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
6. ASTM A428- Standard Test Method for Weight (Mass) of Coating on Aluminum-Coated Iron or Steel Articles.
7. ASTM A491- Standard Specification for Aluminum Coated Steel Chain Link Fence Fabric.
8. ASTM A780 – Standard Specification for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
9. ASTM A817- Standard Specification for Metallic-Coated Steel Wire for Chain Link Fence Fabric and Marcellled Tension Wire.
10. ASTM A824 - Standard Specification Metallic-Coated Steel Marcellled Tension Wire for Use with Chain Link Fence.
11. ASTM B211- Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod and Wire.
12. ASTM C94 - Standard Specification for Ready-Mixed Concrete.

13. ASTM F552 - Standard Terminology Relating to Chain Link Fencing.
14. ASTM F567- Standard Practice for Installation of Chain Link Fence.
15. ASTM F626 - Standard Specification for Fence Fittings.
16. ASTM F668 - Specification for Polymer Coated Chain Link Fence Fabric.
17. ASTM F900 - Standard Specification for Industrial and Commercial Swing Gates.
18. ASTM F934 - Specification for Standard Colors for Polymer-Coated Chain Link.
19. ASTM F1043 - Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework.
20. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
21. ASTM F1183 - Standard Specification for Aluminum Alloy Chain Link Fence Fabric.

D. Chain Link Fence Manufacturer's Institute

1. Chain Link Fence Manufacturer's Institute Product Manual, latest revision.

1.3 SYSTEM DESCRIPTION

A. Temporary Construction Fence shall meet the following basic parameters:

1. Fence Height: 8 feet.
2. Mesh Size: 2 inches.
3. Mesh Gage: 12
4. Gates: Height of gates shall match that of fence. Width of gates shall be as shown on the Drawings.
5. Anchored post or driven posts where indicated. No top or bottom rails required.
6. Panelized/modular units where indicated. Two stabilizers per panel.

B. Permanent Fence shall meet the following basic parameters:

1. Fence Height: Varies, refer to the Drawings.
2. Mesh Size:
 - a. Field fencing: 2"
3. Mesh Gage:
 - a. Field Fencing: Wire with a diameter of 6 and/or 9 gauge galvanized core fused. Measured prior to application of coating.
 - b. Mesh shall be placed on field side of posts.
4. Gates: For fence 10' height and under, height of gates shall match that of fence . Type and size of gates shall be as shown on the Drawings.

5. Anchored post where indicated; top and bottom rails between posts unless otherwise indicated.

1.4 SUBMITTALS

- A. Shop drawings showing the plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates and a schedule of components.
- B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences and gates.
 1. Fence and gate posts, rails, and fittings.
 2. Chain-link fabric, reinforcements, and attachments.
 3. Accessories: Privacy slats.
 4. Gates, locking mechanisms and hardware.
- C. Samples for Initial Selection: For components with factory-applied color finishes.
- D. Samples for Verification: Prepared on Samples of size indicated below:
 1. Polymer-Coated Components: In 6-inch lengths for components and on full-sized units for accessories.
- E. Delegated-Design Submittal: For chain-link fences and gate framework indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified factory-authorized service representative.
- B. Product Certificates: For each type of chain-link fence, and gate, from manufacturer.
- C. Product Test Reports: For framing strength according to ASTM F 1043.
- D. Field quality-control reports.
- E. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For the following to include in emergency, operation, and maintenance manuals:
 1. Polymer finishes.
 2. Gate hardware.

1.7 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. Supply material in accordance with Chain Link Fence Manufacturer's Institute Product Manual and this Specification.
- C. Perform installation in accordance with ASTM F567.
- D. Maintain all facilities installed under this Section in proper and safe condition throughout the progress of the work.
- E. Testing Agency Qualifications: For testing fence grounding. Member company of NETA or an NRTL.
 - 1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.
- F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- G. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for gates with automatic gate operators serving as a required means of access.
- H. Mockups: Build mockups to set quality standards for fabrication and installation.
 - 1. Include 10-foot length of fence and gate.
- I. Preinstallation Conference: Conduct conference at Project site.
 - 1. Inspect and discuss electrical roughing-in, equipment bases, and other preparatory work specified elsewhere.
 - 2. Review sequence of operation for each type of gate operator.
 - 3. Review coordination of interlocked equipment specified in this Section and elsewhere.
 - 4. Review required testing, inspecting, and certifying procedures.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver fence fabric and accessories in packed cartons or firmly tied rolls.
- B. Packages shall be labeled with the manufacturer's name.
- C. Store fence fabric and accessories in a secure and dry place.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which Installer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:

- a. Faulty operation of gate operators and controls.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- B. Warranty Period: Five years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 GENERAL

- A. Material furnished shall be in good condition and shall not have been painted.
- B. Mesh, posts and accessories shall be black, PVC coated type 2b.
- C. All posts and rails shall be straight, true to section and of sufficient length for proper installation.
- D. Unless otherwise specified, hardware and accessories shall conform to the requirements of ASTM F626 and ASTM A123 or ASTM A153 as applicable for zinc-coating.
- E. Chain link mesh shall be placed on field side of posts.

2.2 LINE POSTS

- A. See Drawings for size depending on height of fence.
- B. Line posts shall be placed maximum 8' on center unless otherwise noted.

2.3 CORNER, END, AND PULL POSTS

- A. See Drawings for size depending on height of fence.

2.4 BRACE ASSEMBLY

- A. Rails
 - 1. 1.25-inch nominal (1.660 O.D.) steel pipe, steel pipe, galvanized.
 - a. Galvanized
- B. Truss rod shall be 3/8-inch vinyl coated steel with adjustable turnbuckles or truss tightener.

2.5 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:
 - 1. Fabric Height: As indicated on Drawings.
 - 2. Steel Wire Fabric:
 - a. Field Fencing: Wire with a diameter of 9 gage galvanized core fused. Measured prior to application of coating.
 - b. Mesh Size:

- 1) Field Fencing: 2 inches. Measured prior to application of coating.
 - c. Galvanized, Black PVC coated Fabric: ASTM A392. Class 2b - 0.148" nominal diameter with minimum 2.0oz/sf Zinc Coating
 - d. Coat selvage ends of fabric that is metallic coated before the weaving process with manufacturer's standard clear protective coating.
3. Selvage: Knuckled at both selvages.

2.6 FENCE FRAMING

- A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:
1. Fence Height: As indicated on Drawings.
 2. Light Industrial Strength: Material Group IC-L, round steel pipe, electric-resistance-welded pipe.
 - a. Line Post: Refer to Drawings for post sizes based on fence height.
 - b. End, Corner and Pull Post: Refer to Drawings for post sizes based on fence height.
 3. Horizontal Framework Members: Intermediate top and bottom rails complying with ASTM F 1043.
 - a. Top, Bottom and Mid Rail for all fencing systems and all heights: Refer to Drawings for post sizes based on fence height.
 - b. Brace Rails: Comply with ASTM F 1043.
- B. Exterior Coating: Black PVC coated type 2b with Galvanized 2.0 oz/sf minimum

2.7 STRETCHER BARS

- A. Bars shall be one piece lengths of zinc-coated steel, not less than 2-inches shorter than the full height of the fencing fabric with a minimum cross section of 3/16-inch by 3/4-inch, ASTM F626.
- B. Galvanized metallic coating. type II zinc coated
- C. Color: black.

2.8 TENSION WIRE

- A. Polymer-Coated Steel Wire: Marcellled (spiraled or crimped) No. 7 gage, (0.177-inches) diameter, ASTM A824, type II zinc coated class 5 steel wire.
- B. Black PVC coated with Galvanized metallic coating.

2.9 HARDWARE AND TIES

- A. Miscellaneous hardware, including but not limited to nuts, bolts, washers, clips, bands, rail ends, brackets, and straps shall be provided as required, hot-dip galvanized steel or aluminum alloy, ASTM F626.
- B. Tension bands shall be formed from flat or beveled steel and shall have a minimum thickness after galvanizing of 0.078-inches and a minimum width of 3/4-inch.
- C. Brace bands shall be formed from flat or beveled steel and shall have a minimum thickness after galvanizing of 0.108-inches and a minimum width of 3/4-inch.
- D. Wire ties shall be minimum 16-gage galvanized steel wire or minimum 9-gage aluminum alloy wire.
- E. All fasteners shall be hot-dip galvanized, ASTM F2329.
- F. Bolts: Steel, ASTM A307.
- G. Washers: Steel, round, ASTM F844.
- H. Bolts: Steel, ASTM A563 Grade A, hex head.

2.10 FITTINGS

- A. General: Comply with ASTM F 626.
- B. Post Caps: Provide for each post.
 - 1. Provide line post caps with loop to receive tension wire or top rail.
- C. Rail and Brace Ends: For each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails in the fence line-to-line posts.
- E. Tension and Brace Bands: Pressed steel.
- F. Tension Bars: Steel, length not less than 2 inches (50 mm) shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.
- H. Tie Wires, Clips, and Fasteners: ASTM F 626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:
 - a. Hot-Dip Galvanized Steel: 0.148-inch- (3.76-mm-) diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

I. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 2.0 oz. /sq. ft. zinc.
 - a. Polymer coating over metallic coating.

2.11 GATES

- A. Gate Construction: ASTM F900. Corners welded or assembled with special malleable or pressed-steel fittings and rivets or bolts to provide rigid connections.
- B. Pipe and Tubing:
 1. Zinc-Coated Steel: Comply with ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framing.
- C. Posts: Round tubular steel.
 1. Size: Refer to Drawings for proper sizes based on fence height.
- D. Gate Frames and Bracing: Round tubular steel.
 1. Framing:
 - a. Size: Refer to Drawings for proper sizes based on fence height.
 - b. Assemble gate frames by welded connections. When width of gate leaf exceeds 10 feet, install mid-distance vertical tubing of the same size and weight as frame members. When either horizontal or vertical bracing is not required, provide truss rods as cross bracing to prevent sag or twist.
 - c. Horizontal bracing shall be used on all gates.
- E. Wire Fencing Fabric: Fabric shall match that of fence, attached securely to frame at intervals not exceeding 15-inches.
- F. Hardware:
 1. Hinges: 180-degree outward swing only.
 - a. Hinge brackets shall be tack welded into place and coated to avoid sagging.
 2. Heavy duty Latches permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate. Provide receiver plate for double gates.
 3. All gates shall be equipped with hot-dipped galvanized steel hinges and latch with provisions for padlocking.
 4. Double gates and single gates with leaf width 4 feet and greater shall be equipped with a minimum ½" drop bar .
 5. Hinges shall be cast steel hinges capable of 180 degree opening. Set screw shall be installed drilled into the steel post to lock each hinge to the gate post and prevent rotation. No-lift-off type. Box type hinges are not acceptable.

6. Gate Leaves: Configured with intermediate members and diagonal truss rods or tubular members as necessary to provide rigid construction, free from sag or twist.
7. Latches, hinges, stops, keepers and other hardware items shall be furnished as required for proper operation.

2.12 CONCRETE

- A. Concrete shall conform to ASTM C94; or pre-packaged concrete mix, ASTM C387. Minimum 28-day compressive strength of 3,000 psi. No air entrainment.

2.13 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Erosion-Resistant Anchoring Cement: Factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

PART 3 EXECUTION

3.1 GENERAL

- A. Install fence with properly trained crew as shown on the drawings in accordance with ASTM F567.
- B. Install all nuts for tension bands and hardware bolts on the side of the fence opposite the fabric.
- C. The temporary chain link fence shall be removed at the conclusion of the work.

3.2 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.4 INSTALLATION, GENERAL

- A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

1. Install fencing on established boundary lines inside property line.

3.5 CHAIN-LINK FENCE INSTALLATION

- A. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- B. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 2. Concrete post footings shall be sized per plan and details. Post holes shall be clean and free of loose soil and debris. Concrete shall be placed continuously in one operation and tamped or vibrated for consolidation. Tops of the concrete footings shall be crowned to shed water.
 3. Gate post/footings shall be installed a minimum of 42-inches below grade.
 4. All corner, end posts, and gate posts shall be braced.
 - a. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.
 - b. Corner and terminal posts are to be braced horizontally and diagonally. The braces are to extend over one adjacent panel. Changes in line of 30 degrees or more shall be considered as corners.
 - c. Braces and truss rods shall be securely fastened to posts with appropriate hardware.
 - d. Pull posts with two braces shall be provided for all heights where changes in horizontal or vertical alignment of ten (10) degrees or more occur.
 5. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Concealed Concrete: Top 6 inches below grade as indicated on Drawings to allow covering with surface material.
 - b. Posts Set into Concrete in Sleeves: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with non-shrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, and finished sloped to drain water away from post.
 - c. Posts Set into Voids in Concrete: Form or core drill holes not less than 5 inches deep and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with non-shrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, and finished sloped to drain water away from post.
- C. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.

- D. Line Posts: Space line posts uniformly as indicated on the Drawings. Unless indicated otherwise, spacing shall be 8 feet on-center.
- E. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- F. Tension Wire: Install according to ASTM F567, maintaining plumb position and alignment of fencing. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches on-center. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
 - 1. Extended along top and bottom of fence fabric. Install top tension wire through post cap loops. Install bottom tension wire within 6 inches (152 mm) of bottom of fabric and tie to each post with not less than same diameter and type of wire.
- G. Top Rail: Install according to ASTM F567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- H. Intermediate and Bottom Rails: Install and secure to posts with fittings.
- I. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 inches on-center.
- K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F626. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts at 12 inches on-center and to braces at 24 inches on-center.
- L. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side.
- M. Fabric:
 - 1. Do not install fabric until concrete post footings have cured seven (7) days. Provide fabric of the height specified. Install fabric on the public side of the fence, with bottom no greater than 2-inches above the ground surface. Fabric shall be pulled taut to prevent sagging and

provide a uniform smooth appearance. Fasten fabric to line posts at intervals not exceeding 15-inches with ties as specified.

2. Install tension wire in one continuous length between pull posts, weaved through fence fabric at top. Tension wire shall be applied to provide a wire without visible sag between posts. Fasten fabric to tension wire at intervals not exceeding 24-inches with ties or hog rings as specified.
3. Where it is not practicable to conform the fence to general contour of the ground, as at ditches, channels, etc., the opening beneath the fence shall be enclosed with chain link fabric and sufficiently braced to preclude access, but not to restrict the flow of water.

3.6 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.
- B. Provide swing gates at the locations and dimensions shown on the Drawings. Do not install gates until concrete post footings have cured seven (7) days.
- C. Gates shall be installed plumb, level, and secure, with full opening without interference. Hardware shall be installed and adjusted for smooth operation and lubricated where necessary.
- D. Provide concrete center drop to footing depth and suitable drop rod sleeve at center of double gate openings.
- E. After proper adjustment: tak weld all gate hinge brackets to gate posts to prevent slipping

3.7 GROUNDING AND BONDING

- A. Fence Grounding: Install at maximum intervals of 1,500 feet except as follows:
- B. Fences within 100 feet of buildings, structures, walkways, and roadways: Ground at maximum intervals of 750 feet.
 1. Gates and Other Fence Openings: Ground fence on each side of opening.
 2. Bond metal gates to gate posts.
 3. Coordinate subparagraph below with Drawings in projects where intentional discontinuities are provided in metal fencing conductivity to localize lightning effects to the vicinity of strikes. See Evaluations.
 4. Bond across openings, with and without gates, except openings indicated as intentional fence discontinuities. Use No. 2 AWG wire and bury it at least 18 inches below finished grade.
- C. Protection at Crossings of Overhead Electrical Power Lines: Ground fence at location of crossing and at a maximum distance of 150 feet on each side of crossing.
- D. Plans and details on Electrical Drawings and requirements in Division 26 Sections may revise or illustrate application of requirement below or may require grounding that exceeds minimum

requirements in IEEE C2. Fences enclosing electrical substations are often bonded to a station grounding mat.

- E. Fences Enclosing Electrical Power Distribution Equipment: Ground as required by IEEE C2 unless otherwise indicated.
- F. Grounding Method: At each grounding location, drive a grounding rod vertically until the top is 6-inches below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at the grounding location, including the following:
 - 1. Make grounding connections to each barbed wire strand with wire-to-wire connectors designed for this purpose.
 - 2. Make grounding connections to each barbed tape coil with connectors designed for this purpose.
- G. Bonding Method for Gates: Connect bonding jumper between gate post and gate frame.
- H. Connections: Make connections to minimize possibility of galvanic action or electrolysis. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
 - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
 - 2. Make connections with clean, bare metal at points of contact.
 - 3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
 - 4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
 - 5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- I. Bonding to Lightning Protection System: If fence terminates at lightning-protected building or structure, ground the fence and bond the fence grounding conductor to lightning protection down conductor or lightning protection grounding conductor complying with NFPA 780.

3.8 FIELD QUALITY CONTROL

- A. Grounding-Resistance Testing: Engage a qualified testing agency to perform tests and inspections.
 - 1. Grounding-Resistance Tests: Subject completed grounding system to a megger test at each grounding location. Measure grounding resistance no fewer than two full days after last trace of precipitation, without soil having been moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural grounding resistance. Perform tests by two-point method according to IEEE 81.
 - 2. Excessive Grounding Resistance: If resistance to grounding exceeds specified value, notify Architect promptly. Include recommendations for reducing grounding resistance and a proposal to accomplish recommended work.

3. Report: Prepare test reports certified by a testing agency of grounding resistance at each test location. Include observations of weather and other phenomena that may affect test results.

3.9 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

3.10 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's personnel to adjust, operate, and maintain chain-link fences and gates.

END OF SECTION

SECTION 32 84 00 IRRIGATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Irrigation Control System.
 - 2. Irrigation Distribution System.
 - 3. Sprinkler Heads
- B. Work shall also include all associated items and operations necessary and required to complete the installation, including, but not limited to, surface preparation, plumbing, electrical, finishing, and cleanup.
- C. Contractor shall coordinate work between all Subcontractors, sections, and trades required for the proper completion of the work.
- D. 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. United States Code of Federal Regulations (CFR)
 - 1. 29 CFR 1926, Safety and Health Regulations for Construction.
- C. State of Connecticut Department of Transportation (ConnDOT)
 - 1. State of Connecticut Department of Transportation "Standard Specifications for Roads, Bridges and Incidental Construction", Form 816, 2004 and any supplements.
- D. American Society for Testing and Materials (ASTM)
 - 1. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
 - 2. ASTM D1248 - Standard Specification for Polyethylene Plastics Extrusion Materials For Wire and Cable.
 - 3. ASTM D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
 - 4. ASTM D2239 - Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter.
 - 5. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems.

6. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
7. ASTM F493 - Standard Specification for Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings.

E. American Water Works Association

1. AWWA C150 (ANSI A21.50) - Thickness Design of Ductile-Iron Pipe.
2. AWWA C151 (ANSI A21.51) - Ductile Iron Pipe, Centrifugally Cast, for Water.

F. State of Connecticut

1. State Building Code, including all Amendments, Supplements, and Errata.

G. Manufacturers Standardization Society (MSS) of the Valve and Fittings Industry.

1.3 DEFINITIONS

- A. Circuit Piping: Downstream from control valves to sprinklers, specialties, and drain valves. Piping is under pressure during flow.
- B. Drain Piping: Downstream from circuit-piping drain valves. Piping is not under pressure.
- C. Main Piping: Downstream from point of connection to water distribution piping to, and including, control valves. Piping is under water-distribution-system pressure.
- D. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control, signaling power-limited circuits.

1.4 SYSTEM DESCRIPTION

- A. Provide all labor, materials, equipment, services required to install a complete irrigation system as indicated on the Drawings and called-for in these Specifications. Install all system components as specified and/or as required to achieve a complete functioning system in accordance with the performance requirements indicated and all applicable codes.
- B. Unless otherwise specified, the plans and specifications are intended to include everything obviously requisite and necessary for the proper installation and completion of the work whether each necessary item is mentioned herein or not.
- C. Contractor's bid shall include labor, materials, equipment and services required to complete the irrigation work indicated on the Drawings and in the specifications. The complete electrical system, including control wiring for line and low voltage, from the controller to the field sprinklers shall be included.
- D. The plans and specifications are intended to be cooperative, and any item called for in one and not the other shall be as binding as if called for in both. If a discrepancy exists between an item called for in the plans and the specifications, or within the plans or specifications, the most stringent shall apply.

- E. All work herein specified or called for on the drawings will be executed in accordance with all governing ordinances, laws and regulations that meet all local conditions. Additionally, any changes and/or additions in the work necessary to meet these ordinances, laws, regulations and/or conditions will be made without additional cost to the Owner.
- F. Water Supply
 - 1. The point of connection for the irrigation water supply system shall be Irrigation main shown in the area of the left field foul line.
 - 2. Contractor shall coordinate with the Owner for all required building and connection point access, determination of available pressure and flow, configuration of system components, temporary shut-offs, and testing.
 - 3. For the purposes of bidding assume all flow at the supply for this field is adequate for proper function of a softball field irrigation system
- G. Electrical Connection
 - 1. The point of connection for electrical service to the irrigation system shall be existing supply located in the existing building, generally where indicated on the Drawings.
 - 2. Coordinate with the Owner for such connection, including, but not limited to, determination of available electrical circuitry, access, and details of the connection that may not be indicated on the Drawings.
 - 3. The electrical power supply to the irrigation system controller, and other required power connections, shall be completed by a licensed electrician.
- H. Performance Requirements:
 - 1. Irrigation Coverage: As indicated on the Drawings.
 - 2. Irrigation zone control shall be automatic operation with controller and automatic control valves.
 - 3. Location of Sprinklers and Specialties: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards and underground utilities. Maintain 100 percent irrigation coverage of area indicated. Lay out system components to avoid site improvements and plantings.

1.5 PERMITS, CERTIFICATIONS AND INSPECTIONS

- A. Obtain and pay for permits, tests and certifications required for the execution of Work under this Section.
- B. Coordinate all inspections with local authorities as required.
- C. Obtain and pay for permits, tests and certifications required for the execution of work under this section.
- D. Furnish copies of Permits, Certifications, and Approval Notices to Engineer.

1.6 QUALITY ASSURANCE

- A. Installer: A firm which has at least five (5) years experience in work of the size and type required by this section and which is acceptable to the Owner's Representative.
- B. Tests
 - 1. Operational Test: After completion of the system, test the operation of entire system and adjust sprinklers to the approval of Engineer. Demonstrate to Engineer that irrigated areas are being adequately covered.
 - 2. All costs for tests shall be included in Contractor's cost of the work.

1.7 SUBMITTALS

- A. Product Data: For each type of product furnished. Include rated capacities, operating characteristics, and furnished specialties and accessories.
- B. Shop drawings for all equipment and products furnished under this Section. Shop drawings shall indicate the configuration, dimensions, layout, and spacing of major and minor equipment components, and a schedule of such equipment components. Show in large-scale details any unique fabrication, assembly, and/or installation requirements.
- C. Delegated-Design Submittal: For irrigation systems indicated to comply with performance requirements and design criteria, including analysis data signed by qualified personnel responsible for their preparation.
- D. Coordination Drawings: Irrigation systems, drawn to scale, on which components are shown and coordinated with each other, using input from Installers of the items involved.
- E. Qualification Data: For qualified Installer.
- F. Zoning Chart: Show each irrigation zone and its control valve.
- G. Field quality-control reports.
- H. Operation and Maintenance Data: For sprinklers, controllers and automatic control valves to include in operation and maintenance manuals.
- I. Copies of all permits and inspection reports.
- J. Warranties as specified herein.
- K. Maintenance and operating instructions.
- L. Record Drawings ("As-Built") of the final system indicating pipe routing, valve locations, sprinkler type, pop up height and nozzle for each sprinkler installed. Valve box locations shall be referenced by distance in a triangular fashion from a minimum of two permanent locations.

1.8 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are trained, experienced, and licensed 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. Installer: A firm which has at least five (5) years' experience in work of the size and type required by this Section and which is acceptable to Owner.
- C. Licensed Plumber: All work performed within the building and within 5-feet of the building shall be performed by a licensed plumber.
- D. Licensed Electrician: All work performed within the building and within 5-feet of the building shall be performed by a licensed electrician.
- E. Codes and Standards: Perform all work under this section in accordance with applicable codes and standards.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle all materials in compliance with manufacturer's instructions and recommendations. Protect from all possible damage. Minimize on-site storage.
- B. Coordinate a storage/staging area location with Engineer or Owner.

1.10 PROJECT CONDITIONS

- A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:
- B. Notify Engineer, Owner, and building occupants no fewer than two days in advance of proposed interruption of water service.
- C. Do not proceed with interruption of water service without written permission from Owner and building occupants authorized representative.

1.11 WARRANTY

- A. Provide manufacturer's standard warranty, as applicable, for all products furnished under this Section. Warranty shall be registered in Owner's name.
- B. Warranty the entire irrigation system, including equipment, parts, and labor for a period of one (1) year from date of acceptance by Owner.
- 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-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 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.

1.12 SYSTEM START-UP

- A. Maintenance Period: Ninety (90) calendar days after Substantial Completion.
- B. Testing: Test all system components for operation to meet the performance requirements specified herein.
- C. Adjust irrigation schedule at Owner's direction or for field conditions.
- D. Adjust all sprinkler heads to achieve full coverage of designated irrigation areas and minimize spray on walks, parking areas, and other non-irrigation areas.

1.13 OWNER'S INSTRUCTIONS

- A. Provide at least four (4) hours of instruction to designated Owner's representative or Owner's staff upon completion of system start-up.
- B. Upon completion of work and prior to application for acceptance and final payment, prepare a minimum of two (2) three ring binders titled "MAINTENANCE AND OPERATING INSTRUCTIONS".
- C. Included in each Maintenance and Instructions binder:
 - 1. One (1) copy of the original irrigation plan.
 - 2. One (1) minimum 24-inch by 32-inch copy of the Record Drawing.
 - 3. A complete set of "Approved" submittals of all irrigation equipment.
 - 4. One (1) copy of the suggested "System Operating Schedule".
 - 5. One (1) copy of the manufacturer's controller operation manual.

1.14 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
- B. Sprinklers: 2 extra of each.
- C. Automatic Control Valves: 1 extra of each.

PART 2 PRODUCTS

2.1 GENERAL

- A. Use only new materials conforming to the standard(s) applicable to each type, as specified and approved by Engineer. Provide listed manufacturers products specified, unless approved equals are specified. Any approved equals must be by complete system only, not components of a system.
- B. For warranty purposes, irrigation products shall be supplied from authorized distributors of the various products.

2.2 POLY-VINYL CHLORIDE (PVC) IRRIGATION PIPE

- A. PVC, ASTM D2241, Pressure Class 200 (SDR 21), pressure rating 200 psi min.
- B. Fittings: Solvent-weld joints to match pipe.
 - 1. Solvent cement: NSF approved for Type I and Type II PVC pipe and schedule 40 fittings, ASTM D2564 and F493 for potable water, pressure, gas conduit and drain pipes. Application temperature shall be 35 to 110 degrees Fahrenheit.
 - 2. Saddles and male adapters shall not be approved for any type of connection on the irrigation system.

2.3 POLYETHYLENE PIPE

- A. High density polyethylene made from 100 percent virgin material, ASTM D2239. Minimum working pressure is 150 psi.
- B. Fittings: PVC Type 1, Cell Classification 12454, ASTM D1784, manufactured in accordance with ASTM D2609 for use with polyethylene pipe produced to ASTM D2104 and D2239. Fittings shall be certified by NSF for use in potable water service.
 - 1. Clamps for use on insert-type fittings shall be pincer type, 1-ear design made from 300 series stainless steel and specifically designed for underground irrigation systems. A crimping tool shall be used to tighten the clamp.
 - 2. Plastic saddles for use on poly pipe shall be used as a means of attaching the sprinklers from pipe to swing joint. The saddles shall be a clamp-on style with a threaded female hole. A punch tool shall be used to create a hole for water access.

2.4 COPPER PIPE AND FITTINGS

- A. Copper Tube, Irrigation: Soft, Type L, ASTM B 88, (Type B, ASTM B 88M) water tube, annealed temper.
- B. Copper, Water Supply: Soft, Type "K" Copper, ASTM B88.
- C. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper solder-joint fittings. Furnish wrought-copper fittings if indicated.
- D. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end.

- E. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.

2.5 SLEEVES

- A. Provide pipe sleeves for irrigation pipe under non-soil areas such as sidewalks, and where indicated on the Drawings.
 - 1. Depth of cover 30-inches or greater: PVC sleeve, ASTM D3034, SDR-35, solvent weld joints.
 - 2. Depth of cover less than 30-inches: Centrifugally-cast ductile iron pipe, AWWA C151/A21.51, thickness Class 52, AWWA C150/A21.50.

2.6 SPRINKLERS

- A. General Requirements: Designed for uniform coverage over entire spray area indicated at available water pressure.
- B. Medium Rotary Sprinklers:
 - 1. Subject to compliance with Performance Requirements, provide one of the following or Engineer-approved equal:
 - a. Hunter Industries Incorporated – PGP-Ultra.
 - 2. Description:
 - a. Body Material: ABS.
 - b. Nozzle: Plastic.
 - c. Retraction Spring: Stainless steel.
 - d. Internal Parts: Corrosion resistant.
 - 3. Capacities and Characteristics:
 - a. Flow: 1.12 to 9.8 GPM
 - b. Pop-up Height: 4" aboveground to nozzle.
 - c. Arc: 0 to 360 degrees.
 - d. Radius: 29' to 46'
 - e. Inlet: 3/4" IPS

2.7 SPRAY HEADS:

- A. Subject to compliance with Performance Requirements, provide one of the following or Engineer-approved equal:
 - 1. Hunter Industries Incorporated – Pros-04-MPR40.

2. Rain Bird Corporation – 1800-SAM.
3. Toro Company (The); Irrigation Division – 570Z PRX.

B. Description:

1. Body Material: ABS.
2. Nozzle: Plastic
3. Retraction Spring: Stainless steel.
4. Internal Parts: Corrosion resistant.

C. Capacities and Characteristics:

1. Flow: .16 to 4.2 GPM
2. Pop-up Height: 4” and 12” aboveground to nozzle.
3. Arc: 0 to 360 degrees.
4. Radius: 0’ to 30’
5. Inlet: 1/2” IPS

2.8 SMALL GEAR DRIVEN ROTARY SPRINKLER

- A. The small gear driven rotary sprinkler shall be Toro Mini 8. The flow range shall be from .8 - 3 gpm at a recommended operating pressure of 30 - 50 psi Maximum pressure is 60 psi. There are 5 interchangeable nozzles that come with each sprinkler.
- B. All adjustments can be made from the top of the sprinkler. The top arc indication for adjustments from 45 to 360 degree. The full and part circle arcs come in one sprinkler. Continuous, uni-directional rotation provide uniform coverage when set at 360 degrees. Radius reduction shall be adjustable up to 25% by means of a radius reduction set screw on the top of the nozzle.
- C. Nozzle height is 3 3/4 inches when in operation. Retraction shall be achieved by a stainless steel spring. The nozzle shall be smooth, plastic with an over-molded riser wiper seal shall prevent the sprinkler from having foreign materials enter the body. Pressure activated seal and robust trip mechanism allows for enhanced reliability. Ratcheting riser allows for easy adjustment. Body inlet shall be 1/2 inch IPS. Sprinkler trajectory is 25 degrees.
- D. The gear drive shall be planetary design. The head shall have a “Smart Arc” memory that returns the sprinkler to previously set arc if the head is vandalized. A slip clutch assures no damage to the gears if vandalized.
- E. The sprinkler shall be a Mini 8 series as manufactured by The Toro Company, Riverside, CA.

2.9 FIXED SPRAY HEAD

- A. Spray head shall be a 570 PRX series as manufactured by The Toro Company, Riverside, CA or approved equal.

- B. Capable of covering up to a 17 foot radius. Depending on the exact type of nozzle, the sprinkler shall use .05 to 4.58 gallons per minute up to 50 psi. Nozzle shall be comprised of one or more orifices at two radius ranges and shall be adjustable from full-on to operation. Retraction shall be achieved by a heavy duty stainless steel riser in a resilient guide with riser wiper shall be included for continuous operation under the presence of foreign material. The body of the spray head shall be constructed on noncorrosive heavy duty Cycolac plastic. A filter screen shall be included in the nozzle piston. Patented in riser pressure regulated. Patented "X-Flow" high flow shut off device. Zero flush seal prevents flushing on pop up. Also has retraction flushing for clearing debris. Available body style: 2", 3", 4" 6", 6" side inlet, 12" side inlet. Available with check valve and pressure compensating devices or MPR nozzles.
- C. Coverage shall be either full or part circle. The part circle coverage shall be available in arcs of 90, 120, 180, 240, 270, and 360 degrees or adjustable part circle. Also included shall be special patterns including an end strip and center strip nozzle configuration. - Nozzle delivery shall be such as to allow part circle patterns to match full circle patterns in precipitation rates. Also available with effluent cap.
- D. Five-year warranty with replacement at the option of the Manufacturer.

2.10 BRASS MASTER VALVE

- A. Automatic brass control valves, (1, 1-1/2, or 2 inches in size) brass body, solenoid actuated, diaphragm valve. The valve body shall be manufactured from brass, with a wall thickness capable of withstanding normal operating pressures of 220 psi. The control valve shall have a fabric-reinforced rubber diaphragm for strength and durability. The range of motion of the diaphragm shall be within a diaphragm stem guide, to ensure proper seat alignment.
- B. Electric solenoid of the valve shall be a 24 VAC type, with an inrush current of .365 Amps, 8.8 V.A., and a holding current of .300 Amps, 7.2 V.A. The solenoid shall also have 22 inch lead wires for the simplification of installation.
- C. Control shall have a flow control to adjust flow volume or to manually close the valve. The valve shall also have a manual bleed screw, for manual opening of the valve in the event of a loss of automatic operation. A self-flushing filter screen shall be provided in the valve to filter the water supply to the 3-way actuator in the valve. The control valve shall be operated automatically by way of a three-way triac feature. This feature creates a non-continuous bleed actuation within the valve, allowing only the water on top of the valve to be ported into the discharge cavity of the valve. The non-continuous bleed operation is essential in the reliable operation of the valve in dirty water conditions. All parts shall be serviceable without removing the valve from line. The valve may be installed at any angle without affecting operation. Check manufacturer's data for friction loss.
- D. Automatic control valve shall be a 220 series, as manufactured by The Toro Company, Riverside, CA.

2.11 PLASTIC CONTROL VALVE

- A. The plastic valve shall be an EZ Flow, as manufactured by The Toro Company, Riverside, CA or approved equal.

- B. The valve shall have a working pressure range from 10 psi minimum to 150 psi maximum and a recommended flow range from 0.25 to 30 gpm.
- C. The valve shall be a normally closed configuration with 18" solenoid lead wires that attach to a removable 24 VAC encapsulated solenoid with a waterproof coil. The valve shall have a self-cleaning, stainless-steel metering pin to protect bleed ports and to purge contaminants without the use of a filter screen. The valve shall have a forward-flow design and an external manual downstream bleed/flush. The valve shall have an internal manual downstream bleed to prevent flooding of the valve box. The valve shall have a manual flow control with a hand-operated, rising-type flow-control stem with a control wheel/handle. The valve shall have a floating bleed tube that allows thermal expansion without affecting performance.

2.12 MANUAL IRRIGATION VALVES

- A. Bronze Gate Valves
 - 1. Standard: MSS SP-80, Type 2.
 - 2. Class: 125.
 - 3. CWP Rating: 200 psig.
 - 4. Body Material: ASTM B 62 bronze with integral seat and screw-in bonnet.
 - 5. Ends: Threaded or solder joint.
 - 6. Stem: Bronze, nonrising.
 - 7. Disc: Solid wedge; bronze.
 - 8. Packing: Asbestos free.
 - 9. Handwheel: Malleable iron, bronze, or aluminum.

2.13 AUTOMATIC CONTROL VALVES

- A. Plastic, Automatic Control Valves: Molded-plastic body, normally closed, diaphragm type with manual-flow adjustment, and operated by 24-V ac solenoid.
 - 1. Subject to compliance with Performance Requirements, provide one of the following or Engineer-approved equal:
 - a. Hunter Industries Incorporated - PGV.
 - b. Rain Bird Corporation – PGA.
 - c. Toro Company (The); Irrigation Division – EZ Flo.

2.14 VALVE BOX

- A. High Density Polyethylene/polyolefin components especially compounded for underground enclosures with integral UV inhibitor. Boxes located in paved areas shall be traffic-rated.

B. Valve boxes shall be available in the following configurations:

1. Round: 10 inch round polyolefin box, tapered body, rib reinforcement, flange bottom. Top outer diameter: 9-5/8 inches; Base outer diameter: 12-7/8 inches; Depth: 11-5/8 inches. Overlapping cover, bolt-down (stainless steel).
2. Rectangular: 14 inch x 19 inch polyolefin box tapered body, rib reinforcement, flange bottom.. Outside base: 21 inches x 16 inches; depth: 12 inches. Overlapping cover, bolt-down (stainless steel).

C. Each box shall be firmly bedded in pea gravel.

2.15 CONTROLLERS

- A. All new materials shall be compatible with the existing controller. New irrigation shall be wired to existing controller zones for the same field.:

2.16 WIRE AND SPLICING KIT

- A. Valve power wire shall be minimum #14, common wire minimum #12, single strand, solid copper, 600v, UL Listed, polyethylene jacketed, direct burial and shall meet all state and local codes for this service. Individual wires must be used for each zone valve. Common wire shall be white in color. White color shall be used for common wire only. Power wires shall be red in color. Extra power wires for future use shall be blue in color. Increase wire size as necessary to limit voltage drop to 3%.
- B. Wire splicing kits for single U.F. wire connections shall be direct burial kits consisting of sealant which shall not set-up hard allowing splices to be reworked without cutting wires. Direct burial kits shall have an application temperature range of 32 to 120 degrees Fahrenheit and service 600 VAC maximum.
- C. D.B.Y. kits shall allow connections of two to five #18 AWG or two #12 AWG solid or stranded copper wires. D.B.R. kits shall allow connections to two to five #16 AWG or three #10 AWG solid or stranded copper wires.

2.17 GATE VALVE

- A. The bronze isolation gate valves shall be constructed with non-rising stem, solid wedge disc and screwed ends. The Class 125 valve shall have screw-in bonnet with integral seat and renewable seat and disc. The valve shall be rated for 200 PSI non-shock cold water, oil or gas. The valve shall have a wheeled handle.
- B. Available in the following configurations: flanged, mechanical joint ends, PVC ends, threaded, push-on, push-on x flanged.
- C. The gate valve shall be a model T-113 as manufactured by NIBCO, Inc, Ekhart, IN, or approved equal.

2.18 SWING JOINT

- A. The flexible swing joints for 1/2 inch and/or 3/4 inch inlet sprinklers shall consist of two 90-degree F.P.T. els and a piece of 3/8 inch thick walled polyethylene pipe known as "Funny Pipe" not to be more than 36" in length.
- B. The 1 inch assemblies for quick coupling valves shall be made of Schedule 80 PVC swing joint, as manufactured by Lasco or approved equal.

2.19 QUICK COUPLING VALVE

- A. The quick coupler valve shall be Toro model 470 series, one piece single lug type.
- B. The valve shall be constructed of brass with a wall thickness guaranteed to withstand a normal working pressure of 150 psi without leakage. The quick coupler valve shall accept a Toro model 460 series quick coupler key with a top connection of female pipe thread and male pipe thread.
- C. The quick coupler valve shall be manufactured by The Toro Company, Riverside, California.

2.20 SPARES

- A. In addition to all materials needed for installation, provide for the following spare parts:
- B. Sets of tools for repair and maintenance of sprinklers supplied.
- C. One (1) each of sprinkler and (1) 1 inch valve.
- D. One (1) each of sprinkler and (1) 1 inch valve.

PART 3 EXECUTION

3.1 GENERAL

- A. Make field measurements necessary for the work noting the relationship of the irrigation work to other utility systems and site improvements, above grade and below grade.
- B. At all times, protect existing irrigation, landscaping, paving, structures, walls, footings, etc. from damage. Inadvertent damage to the work of another trade shall be reported at once.

3.2 INSTALLATION OF PIPE AND FITTINGS

- A. Excavate and backfill in accordance with Section 31 2310 – Earthwork.
- B. Make all solvent-weld joints in strict accordance with manufacturer's recommendations, making certain not to apply an excess of primer or solvent, and wiping off excess solvent from each connection. Allow connections to set minimum 24 hours before pulling or pressure is applied to the system.
- C. Provide for expansion and contraction as recommended. Wire shall be laid in same trench as mainline and at pipe invert.
- D. Mainline pipe shall have minimum 12 inches of cover (excavate to invert as required by pipe size).
- E. Lateral pipe shall have minimum 8 inches of cover (excavate to invert as required by pipe size).

- F. Cut plastic pipe with hand saw or pipe-cutting tool, removing all burrs at cut ends. All pipe cuts are to be square and true. Bevel cut end as required conforming to manufacturer's specifications.
- G. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the trench. At times, when installation of the piping is not in progress, the open end(s) of the pipe shall be closed by a watertight plug or other means. All piping which cannot temporarily be joined shall be sealed to make as watertight as possible. Pipe not to be installed that day shall not be laid out. Should water enter the trench during or after installation of the piping, no additional piping may be installed or backfilled until all water is removed from the trench. Pipe shall not be installed when water is in the trench, when precipitation is occurring, or when the ambient temperature is at 35F or below.
- H. PVC pipe shall be snaked in the trench to accommodate for expansion and contraction due to changes in temperature.
- I. Route the pipe as necessary to prevent damage to tree roots. Maintain a minimum distance of 18 inches, if possible with all mainline and lateral line piping from trees. Where trenching must occur near trees or within drip lines, discuss the routing with Engineer, and if directed, provide proper root pruning and sealing methods to all roots 1 inch and larger in size.
- J. Pulling of pipe sizes 2 inches and smaller will be allowed provided soil is suitable and specified depth of bury can be maintained.

3.3 SLEEVE INSTALLATION

- A. Sleeves shall be used wherever wire or piping is going under a non-soil area or hardscape. Refer to the Drawings.
- B. Sleeve installations shall be fully coordinated with other construction operations before any installation takes place.
- C. Sleeves to have a minimum depth of 30 inches of cover.

3.4 VALVE INSTALLATION

- A. Valves shall be installed on a level crushed stone base. Grade of bases shall be consistent throughout the project so that finish grades fall within the limits of work. Valves shall be set plumb with adjusting handle and all bolts, screws and wiring accessible through the valve box opening.
- B. Use a DBY splice kit for the wire attachment.
- C. Install a line sized gate valve in 10" round valve boxes.
- D. Install boiler drain for winterization point. Install 1" quick coupler valve on Lasco locking swing joint in 10" round valve box.

3.5 WIRING INSTALLATION

- A. Wiring shall be installed as required. Expansion curls shall be provided within 3 feet of each wire connection to a solenoid and at least every 300 feet in length. Expansion curls are easily

formed by wrapping at least 5 turns of wire around a rod or pipe 1 inch or more in diameter, then withdrawing rod.

- B. Wire shall be laid in trenches and shall be carefully back-filled to avoid any damage to the wire insulation or wire conductors themselves. In areas of unsuitable material, the trench shall have a 2 inches layer of sand or stone dust on the bottom before the wires are laid into the trench and back-filled. The wires shall have a minimum of 12 inches of cover. Wire not to be installed that day shall not be laid out.
- C. Control circuitry, whether electrical or hydraulic, passing through the wall of the building or beneath a sidewalk, road or drive shall be installed in a suitable sleeve; whereas in all other locations they shall be installed in the pipe trench and protected by the pipe whenever possible.
- D. The joining of all underground wires shall be by the use DBY splice kits for the decoders and DBR-6 (for up to 600 volts) for the decoder cable and splices. Place all splices, surge arrestors in valve boxes.

3.6 CONTROLLER INSTALLATION

- A. Use existing controller. Wire field zones to existing zones for the same field.
- B. Confirm compatibility of existing controls to new irrigation components prior to any construction.

3.7 SPRINKLER INSTALLATION

- A. Install heads on Funny pipe, 2 el swing joints with up to 36" of 3/8" high density polyethylene pipe also known as "Funny Pipe".
- B. Backfill the head in clean, native material. Install flush with grade. Any turf that is damaged during installation shall be repaired with seed or sod.
- C. Install sprinklers as per details. Adjust the radius and arc to avoid spraying buildings or into the road.
- D. Attach to the pipe with fpt tees.

3.8 CHECK/TEST/START-UP/ADJUST

- A. Flushing: After all piping, valves and sprinkler bodies are in place and connected, but prior to installation of sprinkler internals, flush piping under a full head of water.
- B. Testing: Leakage test: test all lines for leaks under operating pressure. Repair all leaks and re-test. Coverage test: perform a coverage test in the presence of the Owner's Representative (notify Irrigation Consultant at least seven (7) days in advance of scheduled coverage test). Representative will determine if the water coverage is complete and adequate. Readjust heads and/or head locations as necessary or directed to achieve proper coverage.

3.9 FIELD ADJUSTMENT

- A. Adjust sprinkler heads, valve boxes, and quick coupling valves to grade as required, so that they will not be damaged by mowing operations.

- B. Continue sprinkler coverage adjustment as required by settlement, etc., throughout the guarantee period.
- C. Each control zone shall be operated for a minimum of 5 minutes and all sprinklers checked for consistency of delivering water. Adjustments shall be made to sprinklers which are not consistent to the point that they match the manufacturer's standards. Sprinklers, valves, timing devices or other mechanical or electrical components, which fail to meet these standards, shall be rejected, replaced and tested until they meet the manufacturer's standards.

3.10 ACCEPTANCE AND OPERATION BY OWNER

- A. Upon completion of the work and acceptance by the Owner, train the Owner's Representative(s) in the operation of the system. Furnish, in addition to the Record Drawings and operational manuals, copies of all available, specification sheets and catalog sheets to the Owner's personnel responsible for the operation of the irrigation system. Guarantee all parts and labor for a minimum period of one (1) years from date of acceptance.

3.11 CLEAN UP

- A. Upon completion of all installation work, Contractor shall remove all leftover materials and equipment from the site in a safe and legal manner.
- B. Contractor shall leave the site clean and free of soil, stones and other debris generated from installation of the irrigation system.

3.12 RESTORATION

- A. Any turf, landscape, or hardscape that is disturbed during the installation of this irrigation system shall be brought back to either the original condition, or to engineer's satisfaction. This will include, but not be limited to soil, turf seed, sod, and/or related items.

3.13 AS-BUILT DRAWINGS

- A. Contractor shall be solely responsible for complying with the requirements of local permitting authorities for preparation and submittal of As-Built drawings. The requirements for the preparation of As-Built drawings as defined herein shall be considered the minimum requirements of Engineer, but shall in no way relive Contractor from satisfying the requirements of local permitting authorities.
- B. As work progresses, record the following on two (2) sets of plans:
- C. All changes and deviations from the design in location, grade, size, material, or other feature as appropriate.
- D. Any uncharted locations of utilities or other subsurface feature encountered during installation, including the characteristics of such uncharted utility or subsurface feature such as utility type, size, depth, material of construction, etc.
- E. The as-built location of all system components, including but not necessarily limited to, piping, control valves, junction boxes, and sprinkler heads.

- F. Recording of changes shall be clearly and neatly marked in red pen or pencil. All changes shall be noted on the appropriate drawings.
- G. Make measurements from fixed, permanent points on the Project Site to accurately locate the work completed. Such measurements shall consist of at least three (3) ties showing the distance of each item relative to each of the fixed, permanent points.
- H. As-Built Drawings shall be complete and shall indicate the true measurement and location, horizontal and vertical, of all new construction. As-Built drawings shall also contain any additional information required by Engineer.

END OF SECTION

SECTION 32 86 00 – ATHLETIC FIELD EQUIPMENT

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Purchase and installation of all fixed play field equipment and components.
 - 2. Purchase and delivery of all non-fixed play field equipment and components.
- B. The work of this Section is affected by Alternates contained in Section 01 2300 – Alternates.

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. Code of Federal Regulations (CFR).
 - 1. 29 CFR 1926, Safety and Health Regulations for Construction.
- C. American Society of Testing and Material (ASTM).
- D. Massachusetts Interscholastic Athletic Association (MIAA).
- E. National Federation of State High Schools (NFHS)

1.4 SUBMITTALS

- A. Manufacturers Product Data
 - 1. Provide manufacturers product data prior to actual field installation work, for Engineer's and Owner's representatives review.
 - 2. Product Data: drawings including standard printed specifications and diagrams.
 - 3. Colors: Provide manufacturer's standard colors for selection by the Architect and Owner.
- B. Shop Drawings
 - 1. Provide drawings of the manufacturers recommended installation and foundation requirements prior to actual field installation work, for Landscape Architect's review.
 - 2. Shop drawings including drawings depicting installation directions and dimensions for all sports equipment.
 - 3. Material safety data sheets on all products, as necessary.

1.5 QUALITY ASSURANCE

- A. The Contractor shall only accept bids from those Vendors that have been pre-approved or identified as approved equal.
- B. Manufacturers warranties shall pass to the Owner and certification made that the product materials meet all applicable grade trademarks or conform to industry standards and inspection requirements.

1.6 PRODUCT DELIVERY AND STORAGE

- A. Materials delivered to the site shall be examined for damage or defects in shipping. Any defects shall be noted and reported to the Owners representative. Replacements, if necessary, shall be immediately re-ordered, so as to minimize any conflict with the construction schedule. Sound materials shall be stored above ground under protective cover or indoors so as to provide proper protection.

PART 2 PRODUCTS

2.1 SPORTS FIELD EQUIPMENT

- A. Furnish all sports field components as specified by these specifications and shown on the project drawings.
- B. Sports field equipment shall be provided with all necessary components and attachments to fully install systems. Attachment systems shall be in a color approved by the Owner and Engineer. The products must meet the NFHS AND CIAC regulations.

2.2 FENCE TOPPER/SAFETY CAP

- A. Provide fence topper/safety cap on all proposed 4' ht. chain link fence.
- B. Contractor shall provide complete chain link post & top rail system including, but not limited to, cap, ties, and hardware.
 - 1. Chain link top rail cap shall be maintenance free, UV resistant pre-drilled polyethylene safety guard catalog Number STC-8xx as manufactured by Jaypro Sports, Waterford, CT or approved equal.
 - a. Fasten to top of fence 24" maximum on center with included wire ties. Fastener to be placed within 6" of the end of each section/piece.
 - b. 5' minimum installed length.
 - c. Color shall be Red. Color from manufacturer's standard palette

2.3 SOFTBALL BASES AND PLATES

- 1. Provide 1 set of three bases. Bases shall be BB200 Flex style bases with stanchion anchor as manufactured by Jaypro Sports Waterford, CT or approved equal.
 - a. Provide three sets (9 total) of base mounting sleeves and plugs for multiple base footing locations (see plan)

2. Pitchers plate (field) Provide one, permanently installed for at 43' pitching location. Pitching rubber shall be 24" long by 6" 4 sided pitching rubber catalog number PR-624 as manufactured by Jaypro Sports, Waterford CT or approved equal.
3. Pitchers plate (field) Provide one complete removable pitching rubber with four (total) steel ground anchors and plugs, Semi-permanent anchors to be installed at 35', 40' 46' and 50 foot pitching locations. Pitching rubber shall be 24" long by 6" stanchion mounted pitching rubber catalog number PR-424 as manufactured by Jaypro Sports, Waterford CT or approved equal.
4. Provide a pitching rubber for each bullpen (2 total). Pitchers rubber (bullpens) shall be 24" long by 6" 4 sided pitching rubber catalog number PR-624 as manufactured by Jaypro Sports, Waterford CT or approved equal.
5. Provide 1 home plate for field, and 1 for each bullpen (3 total). Home Plate shall be molded rubber slab catalog number HP-100 as manufactured by Jaypro Sports, Waterford CT or approved equal.

2.4 SOFTBALL FOUL POLES

- A. The top of pole should be at least 20 feet from the ground and shall be located in line or immediately outside of the home-run fence centered precisely on the foul line. Screening shall be attached to the fair side of the pole perpendicular to the foul line. Screening shall be 7' minimum in height. Foul poles shall be Sportsfield Specialties FPW420 or approved equal.
- B. Poles shall be permanently installed in manufacturer provided sleeves in concrete bases. Install per manufacturer's instructions.
- C. Color: Yellow.
- D. Contractor shall provide signed and stamped shop drawing by Structural Engineer licensed by the State of Connecticut for the foul pole foundation.

2.5 WIND & PRIVACY SCREEN

- A. Contractor shall provide complete wind & privacy system including, but not limited to, screen, ties, and hardware for backstop (65 lf).
 1. 6' high x 3 sections (65' total) wide wind & privacy screen. Sportsfield Specialties VCP6 or approved equal.
 - a. Color: Black
 - b. logo: Berlin three (3) color logo - White, black, and red
 - c. windscreen to be placed on outside of backstop, mounted with bottom of screen 12" above grade.

PART 3 EXECUTION

3.1 INSTALLATION OF SPORTS FIELD COMPONENTS

- A. Provide all materials and necessary labor for the complete installation of the equipment and padding.

- B. Install foul poles level, plumb and in proper alignment with the sports field marking.
- C. Install all bases, plates and rubbers as per manufacturer's instructions.
- D. All athletic equipment shall be installed as recommended with manufacturer's written directions, and as indicated on the drawings.
- E. Hold top of concrete footings 6" below finished grade. Slope all tops of footings to drain.

END OF SECTION 32 86 00

SECTION 32 91 01 – TOPSOIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Testing, amending, screening, placing and finish grading all stockpiled and borrow topsoil.
 - 2. Provide all borrow topsoil necessary to properly complete all lawn and planting operations.
- B. Related Sections include the following:
 - 1. Division 1 Section “Alternates”.
 - 2. Division 31 Section “Site Clearing”.
 - 3. Division 31 Section “Earth Moving”.
 - 4. Division 32 Section “Turf and Grasses”.

1.3 QUALITY ASSURANCE

- A. All work shall comply with all codes, rules, regulations, laws and ordinances for the municipality the state of Connecticut and all other authorities having jurisdiction.
- B. Topsoil:
 - 1. Testing: Representative samples of all stockpiled and borrow topsoil shall be completely analyzed/tested to determine:
 - a. Nutrient analysis using the Modified Morgan extractant for soil available P, K, Ca, and Mg.
 - b. Soil pH.
 - c. Organic content-determined by loss of weight on ignition.
 - d. Particle size analysis-sand, silt, and clay-analysis shall be determined using the hydrometer method of particle size analysis with size fractions based upon sized limits established by USDA.
 - e. Laboratory recommendations required for topsoil to achieve optimum nutrient levels for the establishment of lawn, trees and shrubs or special plantings (i.e. wetlands replication).

2. Testing shall conform to "Recommended Soil Testing Procedures for the Northeastern United States", Bulletin #493
 3. Before delivery of any borrow topsoil, furnish the Architect with a 5-gallon sample of material.
 4. Topsoil testing costs shall be borne by the Contractor.
 5. Testing laboratory shall be:
Soil Nutrient Analysis Laboratory
Department of Plant Science
University of Connecticut
2019 Hillside Road, U-102
Storrs, Ct 06269-1102
 6. Contractor may submit a written request to utilize an alternate testing laboratory, to the Owner and Architect for approval. This request must include the qualifications of the proposed alternate laboratory. This laboratory may not be retained by the Contractor until written permission is received from the owner and Architect.
- C. Submit list of machinery to be used during subgrade preparation and topsoil operations. NO rubber-tired machinery will be permitted except for light-weight, farm-tractor grade machinery with wide tires designed for turf use. All heavy machinery must be track-drive.

1.4 SUBMITTALS

- A. Submit topsoil test results to the Architect for review. The Architect will be the sole judge of acceptability.
- B. 5-lb sample to the Architect for visual conformance confirmation.

1.5 PRODUCT HANDLING

- A. Coordinate delivery of borrow topsoil such that it is placed as delivered and no stockpiling is required.

PART 2 - PRODUCTS

2.1 BORROW TOPSOIL

- A. Shall be a sandy loam, or fine loamy sand (per USDA Soil Classification index), with a minimum 70% sand content by weight not to contain materials harmful to plant life, to be clean, fertile, friable, and well draining. All topsoil to be free of any subsoil earth clods, sod, stones over 3/4" in any dimension, (topsoil for athletic field construction shall be free of stones over 1/2" diameter), sticks, roots, weeds, litter and other deleterious material. Topsoil shall be uniform in quality and texture and contain organic matter and mineral elements necessary for sustaining healthy plant growth.
- B. Topsoil shall have the following optimum ranges unless otherwise approved by the Architect.
 1. Organic Matter Content: 3 – 7%
 2. Acidity range: pH 5.5 to pH 7.4

- C. Nutrient levels shall be achieved by the Contractor's addition of amendments to the topsoil to meet the optimum nutrient levels specified in the testing laboratory report.

2.2 STOCKPILED TOPSOIL

- A. Stockpiled topsoil shall conform to all requirements of paragraph 2.1. Stockpiled topsoil material to be re-used on site must be screened. General lawn area topsoil must be screened to remove all sod and debris over $\frac{3}{4}$ " in any dimension. Athletic Field topsoil must be screened to remove all sod and debris over $\frac{1}{2}$ " in any dimension.
- B. Provide amendments to stockpiled topsoil (organic material, sand, etc.) to produce topsoil in conformance with project requirements.
- C. Waste products from screening operations are the property of the Contractor and shall be removed from the site at the Contractor's expense.

PART 3 - EXECUTION

3.1 SHAPING AT ALL NEW LAWN AREAS

- A. After rough grading has been completed, shape and grade lawn subgrade areas to lines and levels as noted on the drawings and as required based on total amounts of approved topsoil to allow placement of uniform depth of topsoil. Adjustments may be necessary due to field conditions. Provide all shaping adjustments at no additional cost to the Owner.
- B. Cultivate and loosen the subgrade soil to 18" depth with a subsoiler or other approved machinery to correct over-compaction.
- C. After shaping of lawn subgrades remove all sticks, stones, or foreign material two (2) inches or greater in dimension. Remove debris and stone off-site.
- D. For athletic field areas refer to section 32 18 23.26 – Natural Turf Athletic Field Construction

3.2 TOPSOIL SPREADING

- A. Do not apply topsoil to the prepared subgrade without approval by the Architect. Once approved, no vehicular traffic will be allowed on finish subgrade. Topsoil will not be permitted to be spread until topsoil test reports have been submitted and approved. Topsoil shall not be delivered or worked in a frozen or muddy condition.
- B. Uniformly distribute and spread topsoil over all graded lawn areas to conform smoothly to the lines, grades, and elevations shown or otherwise required. If directed conduct field density tests to demonstrate friable subgrade conditions. All general lawn areas to have a minimum of 6" of topsoil after compaction. All athletic fields shall have a minimum of 8 inches of topsoil, after compaction. All approved stockpiled topsoil is to be spread unless otherwise directed by the Owner. Maintain consistent depths of material throughout the project area. Install topsoil in athletic fields by dumping topsoil at the sideline/edges, and pushing towards the center of each

field, utilizing equipment no larger than a small farm tractor. Keep all heavy equipment and trucks off the topsoil. Take care not to disturb approved subgrade.

1. Manually supply topsoil around all trees to remain. Avoid damage to root systems.
- C. Topsoil shall be spread in (2) equal lifts. Bottom lift shall be thoroughly mixed with the loosened subgrade by disking, harrowing, or other approved means, to a depth of 4 inches into the subgrade, to create a transition layer.
- D. Place topsoil only when it can be immediately followed by lawn development operations.
- E. Supply and replace topsoil to eroded, settled or damaged areas until all lawn areas are stabilized. Care shall be taken not to damage grass or pavement areas in the replacement to topsoil.

3.3 PROTECTION

- A. Remove weeds prior to lawn development operations. No weeds shall be allowed to go to seed.
- B. Keep heavy equipment, trucks, etc. off areas that have received topsoil, at all times.
- C. If compaction occurs, scarify to the full depth of the topsoil and regrade topsoil.

3.4 EXCESS TOPSOIL

- A. Material approved for reuse but not required to be installed shall become property of the Contractor. Contractor shall not be reimbursed for additional topsoil needing to be brought onto site to meet final topsoil requirements.

END OF SECTION 32 91 01

SECTION 32 92 00 – TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. The work of this Section includes the following:
 - 1. Fine grading and preparing lawn areas.
 - 2. Furnishing and applying soil amendments.
 - 3. Seeding new lawns and athletic fields.
 - 4. Furnishing and applying slope seed mixtures.
 - 5. Maintenance of all lawns and athletic fields until acceptance.
- B. Related Sections include the following:
 - 1. Division 1 Section “Alternates”.
 - 2. Division 31 Section “Earth Moving”.
 - 3. Division 32 Section “Irrigation”.
 - 4. Division 32 Section “Natural Turf Athletic Field Construction”
 - 5. Division 32 Section “Topsoil”.
- C. The intent of this specification is to provide athletic fields that are high-performance, competition grade.

1.3 DEFINITIONS

- A. Form 816: “Standard Specifications for Roads, Bridges and Incidental Construction”, State of Connecticut, Department of Transportation, Form 816, 2004 edition, with 2005 supplement.

1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for the following:
 - 1. Fertilizers.
 - 2. Limestone.
 - 3. Chemical preservatives and controls – also confirm that each of the materials proposed to be applied are permitted for use by the State of Connecticut.

- C. Certification of grass seed from seed vendor for each grass-seed mixture and sod grown stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging. Submit topsoil test of sod source to determine compatibility of sod material with project topsoil (borrow & stockpiled).
- D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and address of Architects and Owner, and other information specified.
- E. Material test reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated.
 - 1. Analysis of existing surface soil.
 - 2. Analysis of imported topsoil.
- F. Planting schedule indicating anticipated dates and locations for each type of seeding or sodding.
- G. Field survey of athletic field finished grades, for approval, prior to lawn installation.
- H. Maintenance instructions recommending procedures to be established by Owner for maintenance of lawns during an entire year. Submit before expiration of required maintenance periods.
- I. The Contractor must include, in the Schedule of Values, a separate line item for "Maintenance of Lawns". This item will include all costs assigned by the Contractor, for the expenditure of labor and materials anticipated from the time of lawn establishment, until acceptance.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed lawn development work similar in material, design, and extent to that indicated for this Project and with a record of successful grass establishment.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site during times that grass planting is in progress.
 - 2. Athletic field contractors must have completed 5 athletic fields in the past three (3) years, similar to the design and materials specified herein.
- B. Examine work to receive lawn development and notify the Architect of any defects. Specifically review the topsoil placement (depths, grades, and condition). Commencement of this work implies acceptance by Contractor of preparatory work by others.
- C. Pre-installation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings".

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed, Fertilizer and Lime: Deliver in original sealed, labeled, and undamaged containers, showing weight, analysis, and name of manufacturer.
- B. Sod: Harvest, deliver, store, and handle sod according to the requirements of the American Sod Producers Association's (ASPA) "Specifications for Turfgrass Sod Materials and Transplanting/Installing."
- C. Protect materials from deterioration during delivery and while stored at site.

1.7 GUARANTEE

- A. Duration of guarantee shall be until the completion of the specified maintenance period and until Owner's final acceptance of all lawn areas.

1.8 CHEMICAL CONFORMANCE

- A. All chemical applications shall conform to the State of Connecticut statutes and Town Integrated Pest Management (IPM) plans.
- B. Contractor shall provide all necessary data and information to the Owner for amending or filing an IPM plan, including, but not limited to proposed chemicals and EPA number, applicator name and license number, and proposed application dates.
- C. All fertilizer, pesticide and herbicide applications must conform to the Town IPM, or in the absence thereof, must conform to the regulations of the State of Connecticut, in addition to any and all conditions listed in Division 1, Section "Project Environmental Permits" of this Specification.

1.9 PROJECT CONDITIONS

- A. Planting Restrictions: Plant during one of the following periods.
 - 1. Spring Planting: April 1 - June 15.
 - 2. Fall Planting: August 15 - October 1.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions. Changes to planting dates shall only be made with prior written approval by the Architect.

1.10 MAINTENANCE SERVICE

- A. Turf Maintenance during construction: Contractor shall provide full maintenance of all areas within the limits of work by skilled employees of turf installer or a professional maintenance crew. Contractor is responsible for turf maintenance until lawns are established as defined in Part 3 of this specification and accepted by the Engineer. The Contractor shall begin maintenance at the start of construction (for undisturbed areas) and immediately after each area is planted. Maintenance shall continue until an acceptable stand of turf is established and accepted by the Architect and Owner but for not less than the following periods:

- B. Existing Lawn areas: The Contractor is responsible for maintenance of all lawn and landscape areas within the limits of construction until the acceptance of new lawn areas by the architect. Existing lawns shall not be allowed to go to seed or exceed 4" in total height. The contractor is responsible for restoring any lawn area damaged by lack of maintenance to a 'new' condition.
- C. New Lawns: The Contractor is responsible for the first three regular mowings, after which time the Owner is responsible for mowing (only). The Contractor shall remain responsible for follow up fertilization and maintenance as noted in the specification. The contractor shall also be responsible for coordinating the transition of mowing and maintenance responsibilities with the Owner to prevent gaps in maintenance.
- D. Seeded Turf Maintenance Period: 90 days (minimum) from date of planting completion.
- E. When the maintenance period has not elapsed before the end of a planting season, or if turf is not fully established, continue maintenance during next planting season (s).
- F. This is a minimum. Refer to requirements for acceptable lawns in part 3 of this specification.
- G. Continuing Maintenance Proposal: From Installer to Owner, for mowing subsequent to the first three mowings, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with the Association of Official Seed Analysts' "Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species: Seed of grass species as follows, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed.
- C. Provide seed in cleaned, sealed, properly labeled containers. Seed that is wet, moldy, or otherwise damaged will not be accepted. Handle seed to manufacturer recommendations for exposure to extremes of heat, cold, or moisture.
- D. Seed Quality:
 - 1. Weed Seed: maximum of 0.50%, no noxious weed seed.
 - 2. Purity: minimum of 97% pure.
 - 3. Crop: maximum 0.50%
 - 4. Germination Rate: minimum 85%.
- E. Mixture for General Lawn Areas:

TYPE OF SEED	PERCENT BY WEIGHT
Perennial Ryegrass	30%

50% Manhattan
50% Saturn

Fine leaf or Creeping Fescue 25%
50% Pennlawn
50% Jamestown II

Kentucky Bluegrass 45%
50% Glade
50% Cobart

- F. Mixture for Irrigated Athletic Field Areas
Refer to section 32 18 23.26 Natural turf field Construction

2.2 SOIL ADDITIVES

- A. Refer to Section 32 18 23.26 Natural turf field Construction for Athletic Field Construction
- B. Refer to Topsoil testing sections for recommended (bid) amounts of additives required to for this project.

2.3 LIME

- A. ASTM C 602, class T, agricultural ground limestone containing a minimum 50 percent total oxides (calcium oxide plus magnesium oxide), with a minimum 50 percent passing a 100 mesh sieve, and 98% passing a 20-mesh sieve, for powder form of lime.
1. Provide lime in the form of dolomitic limestone.

2.4 FERTILIZER

- A. Phosphorus: Commercial, soluble; guaranteed analysis of 0-46-0.
- B. Starter Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast release water soluble nitrogen, derived from natural organic sources of urea ammonium phosphate, or similar material.
1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency, 14.28.14 guaranteed analysis.
- C. Secondary-Fertilizer: Granular fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium with guaranteed analysis of 15.15.15.
- D. Tertiary Fertilizer: guaranteed analysis of 46-0-0.

2.5 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew-and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Peat Mulch: Provide peat moss in natural, shredded, or granulated form, of fine texture, with a pH range of 4 to 6 and a water-absorbing capacity of 1100 to 2000 percent.
- C. Fiber Mulch: Biodegradeable dyed-wood cellulose-fiber mulch, nontoxic, free of plant growth or germination inhibitors, with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- D. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application, nontoxic and free of plant growth or germination inhibitors.

2.6 EROSION CONTROL MATERIALS

- A. Material shall be a lightweight, nonwoven erosion control/revegetation blanket comprised primarily of virgin wood fiber. The blanket shall be manufactured by blending thermal mechanically – defibrated wood fiber with a small percentage of recycled synthetic fibers and forming them into a drapeable blanket. An accelerated photodegradable polypropylene netting shall be laminated to the surfaces of the blanket.
- B. Material shall be similar to “Futerra”, as manufactured by Conwed Fibers of Statesville, North Carolina, or approved equal.

2.7 SALT MARSH HAY

- A. Naturally harvested salt marsh hay, certified weed free.

2.8 CHEMICAL PREVENTATIVE AND CONTROLS

- A. Commercial materials labeled for turf maintenance, State of Connecticut and EPA registered and approved for turf application.

2.9 WATER

- A. Potable: The Contractor is responsible for furnishing all water necessary to complete the establishment and maintenance of lawns until acceptance by Owner. This requirement includes providing all water for irrigated lawn areas, if any, until the irrigation system is activated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive lawns and grass for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 COORDINATION AND SCHEDULING

- A. Planting Season: Sow lawn seed and install sod during normal planting seasons for type of lawn work required. Correlate planting with specified maintenance periods to provide required maintenance from date of Substantial Completion.
- B. Examine areas to receive seeding or sod and notify Architect of any problems prior to commencing work. Specifically review the topsoil placement (depths, grades and conditions). Commencement of this work implies acceptance by Contractor of preparatory work of others.

3.3 PREPARATION

- A. Protect structures, utilities, sidewalks, pavement, and other facilities, trees, shrubs, and plantings from damage caused by lawn and athletic field development operations.
 - 1. Protect adjacent and adjoining areas from hydroseed overspraying.
- B. 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.

3.4 TOPSOIL PREPARATION - GENERAL

- A. Apply lime, and phosphorus at the rates recommended by the topsoil tests in all areas where topsoil has been installed. Cultivate topsoil to its full depth by scarifying or other disking methods to thoroughly incorporate amendments into the topsoil. Maintain a loose friable seed bed. At no time will rubber tired loaders or graders having greater compaction than a small farm tractor be allowed on topsoil. Keep all heavy equipment and trucks off prepared topsoil. Do not prepare while ground is wet or frozen.
- B. Provide additional topsoil where and as required to properly meet all proposed finish grades.
- C. Remove any weeds, debris, foreign matter and stones having any dimension greater than 3/4 inch. (1/2" at Athletic Fields). Remove from property.
- D. Fine grade to a smooth uniform surface. The entire area shall present an even grade with no depressions where water will stand. Any protective fencing around existing trees shall be removed and disposed of by the Contractor at this time. Topsoil shall be smoothly blended to existing finish grades around erosion control devices and adjacent existing conditions, maintain existing surface drainage patterns. Round-off all top and toe of slopes. Reinstall erosion control devices and protective fencing as required.
- E. Approval of surface by Architect shall be obtained before seeding or sodding operations begin. Where directed, perform bulk density and nuclear compaction readings to monitor degree of soil compaction/seed bed friability.

3.5 ATHLETIC FIELD GRADING

- A. Grade all athletic fields to a smooth, even surface with loose, uniformly fine texture using a grading tractor fitted with automatically controlled laser grading equipment (land plane or box

plane). Laser guided system must be capable of generating a laser controlled, automatic system to within 1/4" tolerance the full length of the playing field.

- B. The entire area shall present and even grade with no depressions where water will stand. Topsoil shall be smoothly blended to existing finish grades at adjacent existing conditions. The planarity of the field shall conform to EN 13036 Surface Planarity as performed by an independent Certified Testing Agency. Surface irregularities are to be correct prior to installation of seed to eliminate all mound and depressions, and produce a stable, firm surface. Contractor is responsible for maintaining surface planarity during seeding and maintenance activities.
- C. Contractor shall also conduct a field survey of all renovated athletic areas at 25 feet o.c. grid. Grades shall be checked using a dual plane laser operation survey instrument and shall be within 1/2 inch of required elevation. Correct irregularities in elevation beyond this tolerance.

3.6 LAWN DEVELOPMENT

- A. General: All disturbed areas not developed otherwise shall be developed as lawn as indicated on the Drawings and as specified.

3.7 SEEDING GENERAL LAWN AREAS

- A. Ensure that the soil has been prepared in accordance with Topsoil Paragraph of this Section. All disturbed areas not developed otherwise shall be developed as lawn.
- B. Seeding shall be done when wind does not interfere with uniform distribution of hydroseeding mixture.
- C. Sow seed at following rates:
 - 1. Seeding Rate: 5 lb per 1000 sq. ft.
- D. Hydroseeding of general lawn areas, only, is permitted. Mix specified seed, fertilizer, and maximum 10% of fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogenous slurry suitable for hydraulic application.
 - 1. Mix slurry with non-asphaltic tackifier.
 - 2. Apply slurry uniformly to all areas to be seeded in a 2-step process. Apply first slurry application at the minimum rate required to obtain specified seed-sowing rate.
 - 3. Apply second slurry cover coat of fiber mulch at a rate of 1000 pounds per acre.

3.8 EROSION PREVENTATIVES

- A. Install erosion control material on all seeded slopes one foot (1') vertical to three (3) feet horizontal or steeper, or any seeded areas which receive concentrated run-off water, and areas as required by the Architect or Owner. Joints in these materials shall overlap no less than one foot (1') and the material shall be secured as recommended by the manufacturer.

3.9 WATERING LAWN AREAS

- A. Maintain a moist seed and sod bed at all times. Water seedbed daily with 1/4" water/day using three sets, keeping the surface moist. Apply complete coverage to insure proper germination/root growth conditions. Maintain soil moisture at or near field capacity during the period of germination and seeding development.
- B. Protect all lawn areas with barricades, if necessary, to keep all traffic off the area. Repair all damage to lawn areas including topsoil replacement, at no additional cost to Owner.
- C. Adjust watering requirement as required at request of Owner and after a full ground cover has been achieved.

3.10 MAINTENANCE

- A. Begin maintenance of lawns immediately after each area is planted and continue until lawn is accepted, but for not less than the following periods.
 - 1. Seeded Lawns: 60 days after date of first mowing, and after a minimum of 5 mowings;
 - 2. Sodded Lawns: 45 days after date of first mowing, and a minimum of 3 mowings;
 - 3. When full maintenance period has not elapsed before end of growing season, or if lawn is not fully established at that time, continue maintenance during the next growing season.
- B. Maintain and establish all lawns and athletic fields by watering, fertilizing, weeding, mowing, trimming, replanting bare or eroded areas and mulch to produce a uniformly smooth lawn.
- C. Replant bare areas with same materials specified for lawns.
- D. Add new mulch in areas where mulch has been disturbed sufficiently to nullify its purpose. Anchor as required to prevent displacement.
- E. Crabgrass and broadleaf weed control.
 - 1. General: Treat all lawn areas with crabgrass or broadleaf weed control in conformance with manufacturer's recommendations as required (after diagnosis of weed/crabgrass presence).
 - 2. Time: Conform to the manufacturer's recommendations.
 - 3. Rate: Conform to the manufacturer's recommendations.
- F. Disease Control
 - 1. General: Treat any diseased lawn areas with disease control in conformance with the manufacturer's recommendations as required (after diagnosis of disease organisms).
 - 2. Time: Conform to the manufacturer's recommendations.
 - 3. Rate: Conform to the manufacturer's recommendations.
- G. Mow lawns as soon as there is enough top growth to cut with reel mower set at mowing height of 1-1/2" (bench height). Repeat mowing as required to maintain specified height without cutting more than 30 percent of the grass height on maximum 5-day interval. Remove no more

than 30 percent of grass-leaf growth in initial or subsequent mowings. Do not mow when grass is wet. Schedule mowing when grass attains a 2" height. Subsequent mowing to maintain following grass height. Subsequent mowings to maintain following grass height.

1. Mow grass from 1-1/2 to 2 inches high.
 2. Maintain reel blade and bed knife in sharp condition and evenly matched to provide a clean cut.
- H. Secondary Fertilization: Apply secondary fertilization to entire lawn and athletic field areas two (2) weeks after seeding.
- I. Tertiary Fertilizations: Apply three (3) tertiary fertilizations at two week intervals (4, 6, and 8 weeks after seeding) to entire lawn and athletic field areas.

3.11 EXISTING LAWN RENOVATION

- A. Renovate existing lawn damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
1. Reestablish lawn where settlement or washouts occur or where minor regarding is required.
- B. Remove sod and vegetation from diseased or unsatisfactory lawn areas; do not bury in soil.
- C. Remove topsoil containing foreign materials resulting from Contractor's operations, including oil drippings, fuel spills, stone, gravel, and other construction materials, and replace with new topsoil.
- D. Mow, dethatch, core aerate, and rake existing lawn.
- E. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required, Do not use pre-emergence herbicides.
- F. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.
- G. Till stripped, bare and compacted areas thoroughly to a soil depth of 6 inches.
- H. Apply soil amendments and initial fertilizers required for establishing new lawns and mix thoroughly into top 4 inches of existing soil. Provide new planting soil to fill low spots and meet finish grades.
- I. Apply seed and protect with straw mulch as required for new lawns.
- J. Water newly planted areas and keep moist until new lawn is established.

3.12 ACCEPTABLE LAWNS

- A. The Architect shall inspect all work for acceptance of lawns upon written request of the Contractor. The request shall be received at least 10 days before the anticipated date of inspection.
 - 1. Lawn areas will not be accepted in “pieces”, unless specifically agreed to by the Owner.
 - 2. If the lawn is in acceptable condition, the Contractor’s maintenance responsibility will end. If, in the opinion of the Architect, the grass stand is unacceptable, the Contractor’s complete maintenance responsibilities shall continue until an acceptable stand of grass is achieved.
- B. All lawns will be considered eligible for inspection and acceptance provided all requirements, including maintenance, have been met and a healthy, uniform, dense stand of grass is established, free of weeds, bare spots and surface irregularities, with coverage exceeding 95 percent over any 5 square feet selected by the Architect. The Architect will be the sole judge of acceptability. Lawns must be free of weeds, crabgrass, stones, debris, other undesirable plants, surface irregularities, and with no disease present. Sodded lawns shall be free of open joints and uneven surfaces. Acceptance will not be made until all damaged areas, including areas outside the property limits, have been restored to original conditions.
- C. Prior to acceptance of athletic fields, the Contractor shall perform a 6 inch deep core aeration. Allow the cores to dry, drag the cores, and topdress with a one-quarter inch depth of sand to all athletic field areas. Contractor must request a meeting with the Architect to establish specific timing of this operation.
- D. In no case will any lawns be accepted prior to Substantial Completion of the overall project.
- E. Replant lawns that do not meet requirements and continue maintenance until lawns are satisfactory. Upon stabilization of lawn areas, remove erosion control devices and protective fencing. Reseed bare areas as required.

3.13 WINTERIZATION

- A. At the end of the growing season, prior to the on-set of Winter, all newly-seeded areas, open earthen areas, or stockpiled earth materials, must be protected from erosion. This protection must form a continuous blanket over these areas. Protection may be:
 - 1. a hydro-seed mulch with a non-asphaltic tackifier, or;
 - 2. straw mulch spread uniformly at a rate of 2 tons per acre to form a continuous blanket 1-1/2 inches in loose depth over the areas with a slope not exceeding 1:6.

3.14 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto surface of roads, walks, or other paved areas. Broom clean all walks and pavements.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic, vandalism, and unauthorized use. Maintain barricades throughout maintenance period until lawn is established and accepted by the Owner.

3.15 LAWN MATERIAL INSTALLATION

A. Lawns: Provide materials in not less than the following quantities:

1. Weight of lime per 1000 sq. ft: as per topsoil test report.
2. Weight of phosphorous per 1000 sq. ft.: as per topsoil test report.
3. Weight of commercial fertilizer per 1000 sq. ft.: as per topsoil test report.
4. Cellulose Pulp 'Fiber: 32# /1,000 SF.
5. Grass Seed: 130 lbs/acre.
6. Starter Fertilizer: 310 lbs./acre.
7. Secondary Fertilizer: 300#/acre.
8. Tertiary Fertilizer 50#/acre, providing 22# of nitrogen/acre.

END OF SECTION 32 92 00

SECTION 33 46 16.01 FIELD SUBDRAINAGE

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Installation of coil drains and collector pipe and stone
- 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.
- D. Form 817: "Standard Specifications for Roads, Bridges and Incidental Construction", State of Connecticut, Department of Transportation, Form 817, 2016 edition, as amended
- E. American Association of State High and Transportation Officials (AASHTO).
 - 1. AASHTO M252 - Standard Specification for Corrugated Polyethylene Drainage Pipe
- F. American Society for Testing and Materials (ASTM)
 - 1. ASTM C88 - Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
 - 2. ASTM C131 - Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
 - 3. ASTM D422 - Standard Test Method for Particle Analysis of Soils.
 - 4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³(2,700 kN-m/m³)).
 - 5. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head).
 - 6. ASTM D2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 7. ASTM D3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.

8. ASTM D4355 - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
9. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
10. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
11. ASTM D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
12. ASTM D4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
13. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.

1.3 SUBMITTALS

- A. Sampling and Testing Laboratory: Submit name and qualifications of commercial sampling and testing laboratory for Engineer's approval.
- B. Surveyor: Submit name and qualifications of Professional Land Surveyor who will be responsible for layout and verification of the work of this Section.
- C. Material Testing Data: Submit for approval test results for all material testing performed under the Article "Testing, Pre-Construction" herein. Failure to submit testing results shall in no way relieve Contractor from his obligation to meet the performance requirements of the field subdrainage system in all regards.
 1. Material testing data shall be no older than three (3) months from proposed material placement date. Testing data older than three (3) months will be rejected.
- D. Samples
 1. Submit for approval samples of proposed materials. Failure to submit samples shall in no way relieve Contractor from his obligation to meet the performance requirements of the field subdrainage system in all regards. Submit the following:
 - a. Collector Pipe Stone, Bottom Stone (if used): Deliver to the Project Site one 5 gallon bucket of material in an air-tight container. Provide sample within 10 days of contract award. Sample shall be accompanied by adequate labelling indicating project name, source of supply, and identified as "Collector Pipe Stone, Bottom Stone".
 - b. Trench Sand
- E. Material Certificates: Submit certificates for Collector Pipe Stone and sand materials signed by material producer and Contractor, certifying that each material delivered to the project complies with, or exceeds the requirements specified herein.
- F. Quality Control Testing Results

1. Submit results of all test results performed under Article 1.6 “Testing, Quality Control During Construction” herein. Provide copies of all Testing Agency reports.
 2. Failure to submit quality control testing results shall in no way relive Contractor from his obligation to meet the performance requirements of the field subdrainage system in all regards.
- G. Progress Survey: Submit Progress Survey prepared by Professional Land Surveyor for review by Engineer and turf installer.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Drainage materials:
1. Schedule delivery to minimize on-site storage. Segregate differing stone materials and prevent from contamination with other materials.
 2. Coordinate procurement of stone with the sampling and in-field testing required herein.
 3. Storage: Store materials on site in enclosures or under protective coverings. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.

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.
- B. All grading of the renovated topsoil areas shall be done with a self actuated laser grader. Contractors failing to use laser graders shall be deemed non responsive and shall be qualified for removal from the project.
- C. 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 in the work, and to reject any material not meeting these specifications.
- D. Sampling and Testing Laboratory: The Sampling and Testing Laboratory shall be a qualified commercial entity with a documented track-record of conducting sampling and laboratory testing in support of construction projects. Once approved, the Sampling and Testing Laboratory shall not be changed without Engineer’s approval.
- E. Testing Agency: The Testing Agency shall be a qualified commercial entity with a documented track-record of performing in-field testing and inspection services. The Sampling and Testing Laboratory may provide the services of the Testing Agency provided it meets the qualifications to do so. Once approved, the Testing Agency shall not be changed without Engineer’s approval.
- F. Material Certificates: Materials Certificates certify that the materials furnished conform to all applicable requirements of the Contract Documents. Materials Certificates shall be signed by a duly authorized and responsible agent for the organization supplying the material. Contractor shall be responsible for any testing, Materials Certificates, and inspections required. Materials Certificates shall also include the following information:
1. Project for which the material has been consigned.

2. Name of Contractor to which material is supplied.
3. Item number and description of material.
4. Quantity of material represented by the certificate.
5. Means of identifying the consignment, such as label, marking, lot numbers, etc.
6. Date and method of shipment

1.6 TESTING, PRE-CONSTRUCTION

- A. All pre-construction sampling/testing shall be the responsibility of Contractor. Contractor shall retain and pay for the services of a third-party Sampling and Testing Laboratory and/or Testing Agency to perform all sampling/testing services in accordance with applicable standards and these specifications.
- B. Material Testing
 1. Provide testing data for the following:
 - a. All field and drainage aggregate mixes used on site.
 2. Testing parameters:
 - a. Moisture-Dry Density Curve (Proctor Test-Modified): ASTM D1557
 - b. Gradation: ASTM D422
 - c. Chemical Testing: 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. For each type/classification and source of earth material proposed, submit a letter signed by an authorized representative of the material supplier stating that such proposed earth material is free of oils, hazardous materials, or other organic and non-organic constituents which may be considered contaminants.
 3. Testing Frequency: One test for each type of material per source of supply.
 4. All required testing (sample and analysis) shall be submitted as part of one submittal or it will be rejected. Failure to include any of the above requirements will result in rejection.

1.7 TESTING, QUALITY CONTROL DURING CONSTRUCTION

- A. All quality control sampling/testing during construction shall be the responsibility of Contractor. Contractor shall retain and pay for the services of a third-party Sampling and Testing Laboratory and/or Testing Agency to perform all sampling/testing/inspection services in accordance with applicable standards and these specifications.

PART 2 PRODUCTS

2.1 RENOVATION PRODUCTS

- A. Products listed below, may or maynot be proposed for use on this project. Their listing is for reference, should their need be determined during construction. Contractor shall carry in his bid only those items that are clearly outlined on plan and in this specification.

2.2 COIL DRAIN (FLAT PANEL)

- A. Composite, pre-fabricated high density polyethylene (HDPE), 3-dimensional high-flow, drainage core with internal support pillars, wrapped with a filtration geotextile filter fabric, 1.5-inches by 6-inches. HDPE minimum cell classification: 424420C, ASTM D3350.
- B. Couplers, tees, caps, and other fittings: As required to complete the system. Material of construction and configuration shall be in accordance with the drain manufacture's requirements or recommendations, whichever is more stringent. HDPE minimum cell classification: 424420C, ASTM D3350.
- C. Geotextile Filter Fabric
 - 1. Grab Tensile Strength (weakest principle direction), ASTM D4632: 120 pounds
 - 2. Grab Elongation (weakest principle direction), ASTM D4633: 60%
 - 3. Trapezoidal Tear (weakest principle direction) ASTM D4533: 40 pounds
 - 4. Puncture, ASTM D3786: 30 pounds
 - 5. Permittivity, ASTM D4491: 0.7
 - 6. AOS (U.S. Sieve Size), ASTM D4751: 60
 - 7. U.V. Resistance, ASTM D4355: 70

2.3 COLLECTOR PIPE (IF PROPOSED)

- A. Perforated Corrugated Polyethylene Pipe: AASHTO M252 Type SP (Double Wall) as indicated on the Drawings.
 - 1. Perforations: Class 2 slotted perforations per AASHTO M252. Perforations shall be uniformly spaced along the length and circumference of the pipe.
 - 2. Joints: Joint: Silt-tight, ASTM D3212.

2.4 GEOTEXTILE FILTER FABRIC

- A. Composition: Nonwoven, polypropylene fibers.
 - 1. Grab Tensile Strength (weakest principle direction), ASTM D4632: 120 pounds
 - 2. Grab Elongation (weakest principle direction), ASTM D4633: 60%
 - 3. Trapezoidal Tear (weakest principle direction) ASTM D4533: 40 pounds
 - 4. Puncture, ASTM D3786: 30 pounds
 - 5. Permittivity, ASTM D4491: 0.7
 - 6. AOS (U.S. Sieve Size), ASTM D4751: 60

7. U.V. Resistance, ASTM D4355: 70

2.5 COLLECTOR DRAIN STONE

- A. Product resulting from the artificial crushing of rocks, boulders or large cobblestones, substantially all faces of which have resulted from the crushing operation. Material shall consist of sound, tough, durable, angular stones, free from soft, thin, elongated, laminated, friable, micaceous or disintegrated pieces, limestone, marble, mud, dirt, organic matter, or other deleterious material.
 - 1. Testing and evaluation of material by the testing laboratory shall evaluate material composition for the presents of feldspar or micaceous materials and note same on testing report. Material maybe rejected due to the presence of feldspar or micaceous materials.
- B. Test for Resistance to Abrasion, ASTM C131. Materials shall show a loss on abrasion of not more than 30%.
- C. Soundness, ASTM C88. Coarse aggregate shall not have a loss of more than 15% at the end of five cycles.
- D. Size: 3/4-inch, clean, washed stone, CT. DOT M02.06 grading C.

PART 3 EXECUTION

3.1 GENERAL

- 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.
 - 1. Especially distance and location of goal posts and uprights in relation to the proposed field layout and line striping.
- C. Take precautions for preventing injuries to persons or damage to property in or about the work. Protect structures, utilities, adjacent athletic facilities, walks, pavements and other improvements from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
- D. Protect sub-grades 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.

3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrade and from flooding Project site and surrounding area.

- B. Protect subgrade from softening, undermining, washout and damage by rain or water accumulation.

3.3 COIL DRAIN

- A. Install Coil Drain panel in sand trench as indicated on the Drawings.
- B. Intent is to install coil drain trenching and sand in a single pass with specialized equipment, and then install and connect associated collector drain trenching.
- C. Coil drains to be outletted within stone of collector drains. No mechanical connection required.
- D. Install all drain components in accordance with the manufacturer's instructions.

3.4 COLLECTOR DRAIN

- A. Install drain pipe and bedding system as indicated on the Drawings.
- B. Installed drains shall be kept clean and uncontaminated. Soil materials shall not be permitted to become mixed with drainage stone. Contaminated stone shall be subject to rejection and replacement at no additional cost to the owner.

3.5 TOPSOIL FINE GRADING

- A. Final Grading
 - 1. Utilize a laser-guided grader to complete fine grading of the finish surface of the field base. Laser control system shall control each side of the blade independently. Single post control systems are not acceptable.
 - 2. Surface Regularity: The planarity of the finished grade of the field base shall conform to EN 13036 Surface Planarity as performed by an independent Certified Testing Agency.
 - a. Deviations shall be measures below a straightedge using a graduated wedge (slip gauge). No deviation shall exceed 10mm.
 - 3. Protection
 - a. Where the activities of Contractor have been determined by the Engineer to have caused damage or contamination of the field base material the Contractor shall remove and replace all affected areas to the satisfaction of Engineer.
 - b. Where weather conditions have created erosion or contamination of topping stone material or migration of fine material such that it concentrates in areas on the drainage stone surface (such as runoff causing migration of fines), these areas of contaminated material shall be removed completely and replaced with new material.

3.6 GEOTEXTILE

- A. Install geotextile as shown on the Drawings or as called-for in the Specifications, or for repair where damaged. Installation methods shall comply with manufacturer's written instructions.
- B. Ensure that geotextile is protected during installation from clogging, tears, and other damage.

1. Pipe or Drainage System

- 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.
- f. Do not allow the fabric to be exposed for more than 2 weeks without covering with backfill.

3.7 DRAINAGE TESTING

- A. Testing: Perform all testing, and obtain all approvals of finished base system as indicated in section 1 of this specification prior to installing any turf.
- B. Complete post-installation drainage testing of the installed field base in accordance with Article 1.7.

3.8 CLEAN UP

- A. Contractor shall remove all debris, residuals, and materials at the conclusion of the work.

END OF SECTION