PROJECT MANUAL
(Including Technical Specifications)

EESEX COURT SEPTIC SYSTEM REPAIRS

16 MAIN STREET, CENTERBROOK, CONNECTICUT

TOWN OF ESSEX
Norman Needleman, First Selectman

IMPROVEMENTS PROVIDED IN COOPERATION WITH THE STATE OF CONNECTICUT

DANNEL P. MALLOY – GOVERNOR

Connecticut Department of Housing
Evonne Klein, Commissioner

FEBRUARY 2016

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INVITATION TO BID

Sealed bids for furnishing all labor, materials, tools, services and equipment necessary to complete the **"Septic System Repairs at Essex Court"** will be received by Town of Essex First Selectman's Office, 29 West Ave, Essex, CT 06426, until 2:00 PM on Friday, March 11, 2016, at which time they will be publicly opened and read aloud. Bids received after the Bid Opening will be returned unopened.

The successful bidder will be required to furnish and pay for 100% Performance and Payment Bonds. The successful bidder must have the minimum insurance coverage required by the CT Department of Housing.

Proposed forms of Contract Documents, including Plans and Specifications dated February 2016 as prepared by Harry E. Cole and Son, Engineer, will be on file and available to contractors at the Town of Essex First Selectman's Office, 29 West Ave, Essex, CT 06426, as of 11:00 AM on Thursday, February 11, 2016, and available after that date and time Monday – Friday 9:00 AM to 4:00 PM.

Contractors may each obtain sets of plans and specifications from the Town of Essex First Selectman's Office, 29 West Ave, Essex, CT 06426 for a non-refundable purchase price of $75.00 for each set purchased, in the form of a check or money order made payable to Essex Housing Authority.

A mandatory pre-bid walk through will be held at 11:00 AM on Thursday, February 18, 2016. All interested parties are to meet at the project site, Essex Court, 16 Main Street, Centerbrook, CT 06409.

A satisfactory Bid Bond or Certified Check, in an amount equal to five percent (5%) of the base bid, shall be submitted with each bid. The Bid Bond shall be made payable to Essex Housing Authority and shall be properly executed by the Bidder and acceptable sureties. All bonds must be from sureties registered in the State of Connecticut.

This project is funded by the CT Department of Housing and requires compliance with the Equal Employment Opportunity provisions of Executive Order 11246; Non Discrimination Provisions of Title VI of the Civil Rights Act of 1964; labor Standards Provision of the Davis- Bacon Act and related acts and Contract Work Hours Standards Act; Section 3 Contractor Requirements; DOH Program Requirements; Prevailing Wage determinations as issued by the Connecticut Department of Labor; and Prevailing Wage determinations as issued by the United States Department of Labor, and other provisions outlined in the bid documents.

Bids, to receive consideration, must be in the hands of the authorized representative no later than the day and hour mentioned above. No bids shall be withdrawn for a period of sixty (60) days after the opening of bids, without the consent of the above Authority.

The Town of Essex and the Essex Housing Authority reserves the right to accept or reject any or all options, bids or proposals; to waive any technicality in any bid or part thereof, and to accept any bid deemed to be in the best interest of the Town of Essex and the Essex Housing Authority.

This contract is subject to state set-aside and contract compliance requirements. The Town of Essex and the Essex Housing Authority is an Affirmative Action/Equal Opportunity Employer, and encourages bid submissions from Section 3 firms, MBE's, WBE's and SBE's.

Dated this 11th day of February, 2016
Norman Needleman, First Selectman

LIST OF BID REQUIREMENTS

EACH BID PACKAGE SHALL INCLUDE ONE SET OF THE FOLLOWING FORMS AND DOCUMENTS:

- Bid Form
- Bid Bond (Refer to Bonding and Insurance Requirements for details)
- Non-collusion Affidavit of Prime Bidder
- Certificate as to Corporate Principal
- Statement of Contractor's Qualifications
- Contractor's Certification Concerning Labor Standards and Prevailing Wage Rates
- State of CT Forms A, B, C, D, E (contract compliance and set-aside requirements)
- Bidder Contract Compliance Reports:
  Part I – Bidder Information
  Part II – Bidder Nondiscrimination Policies and Procedures
  Part III – Bidder Subcontracting Practices
  PART IV – Workforce Analysis
  PART V – Bidder Hiring and Recruitment Practices
- Contractor's Certification Regarding Equal Employment Opportunity
- General Contractor's Section 3 Plan Certification
- CT Dept. of Labor Contractor's Wage Certification Form
- Contractor's License
- Contractor's Insurance Certificate (Refer to Bonding and Insurance Requirements for details)

LIST OF REQUIRED DOCUMENTS AT CONTRACT SIGNING

- Performance, Labor, and Materials Bonds
- Contractors must submit an appropriate set-aside plan or affirmative action plan within 30days of the execution of contract.

CERTIFIED PAYROLL REQUIRMENTS

- Original Weekly Certified Payrolls
- The OSHA 10-hour Construction Safety and Health Course. Proof of completion required for all workers on the job site (owner(s), employees and subcontractors).
- State and Federal Statements of Compliance forms from General Contractor and all Subcontractors
- Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Rates
- Current License(s), Apprentice Certificate(s), Current Insurance Certificate(s)
- All Social Security Numbers and Partial Lien Waivers must accompany each applicable weekly Certified Payroll

LIST OF REQUIRED DOCUMENTS PRIOR TO JOB COMPLETION

- Final Lien Waivers from General Contractor, All Subcontractors and Major Suppliers
- Certificate of Substantial Completion
- Contractor must comply with filing all CHRO reporting forms and submit copies of said forms to the Municipality to confirm such filing.
- A copy of a letter of transmittal to the Municipality confirming an affirmative action plan or set-aside plan was filed with CHRO.

THE STANDARD 5% RETAINAGE FOR PUBLIC WORKS PROJECTS WILL NOT BE RELEASED UNTIL ALL REQUIRED DOCUMENTS ARE SUBMITTED

BONDING AND INSURANCE REQUIREMENTS

A state or local unit of government receiving a grant from the Federal Government which requires contracting for construction of facility improvement shall follow its own requirements relating to bid guarantees, performance bonds, and payment bonds, except for contracts or subcontracts exceeding $100,000.00. For contracts or subcontracts exceeding $100,000.00 the Federal agency may accept the bonding policy and requirements of the grantee provided the Federal agency has made a determination that the Government's interest is adequately protected. If such a determination has not been made, the minimum requirements shall be as follows:

a. A bid guarantee from each bidder equivalent to five percent (5%) of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his/her bid, execute such contractual documents as may be required within the time specified.

b. A performance bond on the part of the contractor for one hundred percent (100%) of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

c. A payment bond on the part of the contractor for one hundred percent (100%) of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

d. Comprehensive General Liability. The contractor shall be covered under Comprehensive General Liability insurance with a minimum coverage amount of $1,000,000.

e. Commercial Auto Liability. The contractor shall be covered under Commercial Auto Liability insurance with a minimum coverage amount of $1,000,000.

f. Contractor's Protective Liability. The contractor shall be covered under Contractor's Protective Liability insurance with a minimum coverage amount of $1,000,000.

g. Worker's Compensation & Employer's Liability. (Note: when lead based and/or asbestos abatement work is undertaken, direct & indirect damages arising from these activities must be covered.) The contractor shall be covered under Worker's Compensation & Employer's Liability insurance with the following minimum coverage amounts: Bodily injury by accident, $1,000,000/accident; Bodily injury by disease, $1,000,000/employee; Bodily injury by disease, $1,000,000 policy limit or $100,000/$500,000/$100,000 when not involving hazardous material abatement.

h. Certificates of Insurance for all subcontractors' Workers Compensation & Employer's Liability. (Note: when lead based and/or asbestos abatement work is undertaken, direct & indirect damages arising from these activities must be covered.) The contractor shall provide certificates of insurance for Worker's Compensation & Employer's Liability insurance with the following minimum coverage amounts: Bodily injury by accident, $1,000,000/accident; Bodily injury by disease, $1,000,000/employee; Bodily injury by disease, $1,000,000 policy limit or $100,000/$500,000/$100,000 when not involving hazardous material abatement.

BID FORM

DATE: _____

TO:
Norman Needleman
First Selectman
Town of Essex
29 West Avenue
Essex, CT 06426

FROM:
_____
_____
_____
_____
_____

To Whom It May Concern:

The undersigned bidder, having examined the Contract Documents, the site, and being familiar with all of the conditions, hereby proposes to furnish and install, complete and in place, Essex Court Septic System Repairs, including all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, bonds, permits, overhead, profit, and other accessories and services, in accordance with these Contract Documents, including all addenda, no exceptions taken, for the bid prices below. The final project price will be adjusted to reflect actual work performed and will be paid for at the unit prices identified in the bid and any approved change orders.

Were hereby certify and affirm that the attached list includes any and all defects, errors, inconsistencies and omissions in the bidding and proposed Contract Documents, of which we are aware, either directly or indirectly or by notification from any sub-bidder or material supplier. (If none, enter "NONE" below)
_____

We hereby certify that we have received all Addenda (Addendum) inclusive, as follows

#_____ Date _____

#_____ Date _____

#_____ Date _____

#_____ Date _____

BASE BID (Total of all ten unit prices):

_____ DOLLARS
(Base Bid Price in Words)

$ _____ DOLLARS
(Base Bid Price in Figures)

UNIT PRICING:

Unit No. 1: System 1

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Unit No. 2: System 2

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Unit No. 3: System 3

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Unit No. 4: System 4

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Unit No. 5: System 5

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Unit No. 6: System 6

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Unit No. 7: System 7

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Unit No. 8: System 8

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Unit No. 9: System 9

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Unit No. 10: System 10

_____ DOLLARS
(Price in Words)

$ _____ DOLLARS
(Price in Figures)

Respectfully Proposed by:

On: _____
Date

_____
Company Name

_____
Signature

_____
Company Address

_____
Typed Name

_____

_____
Title

If a Corporation:

(Corporate Seal)

Incorporated in the State of: _____Or Commonwealth of: _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned

_____

as Principal, and _____

as Surety are held and firmly bound unto_____

"Owner", in the penal sum of _____Dollars,

($_____), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the Accompanying Bid, dated _____ 20_____, for _____

_____

NOW THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or within any extended time period agreed to by the Principal, Surety and Owner, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10} days after the prescribed forms are presented to him for signature, enter into a written Contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract; then the above obligation shall be null and void and of no effect, otherwise to remain in full force or virtue.

Failure to comply with the aforementioned condition shall result in the forfeiture of this Bid Bond as liquidated damages.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this _____ day of _____, 20___, the name and corporate seal of each corporate party being hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

No extension of time or other modification of this Bid Bond shall be valid unless agreed to in writing by the parties of this Bond.

In presence of:

_____ (SEAL)
(Individual Principal)

_____
(Business Address)

_____ _____ (SEAL)

_____
(Business Address)

Attest: By:_____

_____ _____
(Corporate Principal)

By: _____ (Affix Corporate Seal)

_____ _____
Attest:

_____ _____
(Corporate Surety)

_____
(Business Address)

By: _____ (Affix Corporate Seal)

Countersigned By: _____

*Attorney-in-Fact, State of _____

*Power-of-Attorney for person signing for Surety Company must be attached to Bond.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
)
County of _____)

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

1. He is _____ of _____, the bidder who 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 affiant has in any way colluded, conspired, connived or agreed, directly or indirectly with any other bidder, firm or person to submit a collusive or sham bid in connection with the contract for which the attached bid has been submitted or refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached bid or of any other bidder, or to fix any overhead, profit, or cost element of the bid price or the bid price of any bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ (Owner), or any other person interested in the contract; and
5. The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

_____
(Signature)

_____
(Title)

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

_____
Notary Public Signature

My Commission Expires: _____

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____ Secretary of the Corporation named as Principal in the within bond; that _____, _____ _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and on behalf of said corporation by authority of this governing body.

_____
Signature

(Corporate Seal)

_____
Title

STATEMENT OF CONTRACTOR'S QUALIFICATIONS

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

1. Name of Contractor.
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 the work awarded to you? If so, where and why?
8. Have you ever defaulted on a contract? If so, where and why?
9. List at least the last three projects recently completed by your company, stating the Name, address and telephone number of the client.
10. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by Town of Essex**?**

_____
Firm's Name

_____
Authorized Signature

State of _____

County of: _____ Date: _____

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

_____
Notary Public Signature

My Commission Expires: _____

COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM

CONTRACTOR'S CERTIFICATION

CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS

To (Department, Agency, or Bureau)	Date
C/O	Project Number
Project Name	

1. The undersigned, having executed a contract with _____

   for the construction of the above identified project acknowledges that:

   a. The Labor Standards Provisions of the Contract For Construction are included in the aforesaid contract.
   b. Correction of any infractions of the aforesaid conditions, including infractions by any of his subcontractors and any lower tier subcontractors, is his responsibility;

2. He Certifies that:

   a. Neither he nor any firm, corporation, partnership, or association in which he has a substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to section 5.6 (b) of the regulations of the Secretary of Labor, Part 5 (29CFR, Part 5), or pursuant to section 3 (a) of the Davis-Bacon Act, as amended (40 USC 276e-2 (a)).
   b. No part of any aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership, or association in which any subcontractor has a substantial interest is designated as an ineligible contractor pursuant to the aforesaid regulatory or statutory provisions.

3. He agrees to obtain and forward to the contractor, for transmittal to the recipient, within ten days after the execution of any lower subcontract, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements, executed by the lower tier subcontractor, in duplicate.

4. He certifies that:

   a. The legal name and the business address of the undersigned are:

   b. The Undersigned is:

   1. _____ A Single Proprietorship
   2. _____ A Partnership
   3. _____ A Corporation Organized in the State of _____
   4. _____ Other Organization (describe) _____

c. The name, title, and address of the owner, partners, or officers of the undersigned are:

NAME	TITLE	ADDRESS

d. The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interests (if none, so state):

NAME	TITLE	ADDRESS

e. the names, addresses, and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are (if none, so state):

NAME	TITLE	ADDRESS

Social Security No. Or
Federal Employer I.D. No._____ _____
(Contractor)

Date:_____ BY:_____

WARNING

U.S. Criminal Code, Section 1010, Title 18, U.S.C., provides in part: "Whoever…makes, passes, utters, publishes any statement, knowing the same to be false…shall be fined not more than $5,000.00 or imprisoned not more than two years, or both"

COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM
SUBCONTRACTOR'S CERTIFICATION
CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS

To (Department, Agency, or Bureau)	Date
C/O	Project Number
Project Name	

1. The undersigned, having executed a contract with _____

for _____

in the amount of $_____in the construction of the above identified project

a. The Labor Standards Provisions of the Contract For Construction are included in the aforesaid contract.
b. Neither he nor any firm, corporation, partnership, or association in which he has a substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to section 5.6 (b) of the regulations of the Secretary of Labor, Part 5 (29CFR, Part 5), or pursuant to section 3 (a) of the Davis-Bacon Act, as amended (40 USC 276e-2 (a)).
c. No part of any aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership, or association in which any subcontractor has a substantial interest is designated as an ineligible contractor pursuant to the aforesaid regulatory or statutory provisions.

2. He agrees to obtain and forward to the contractor, for transmittal to the recipient, within ten days after the execution of any lower subcontract, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements, executed by the lower tier subcontractor, in duplicate.

The workmen will report for duty on or about: _____

3. He certifies that:

a. The legal name and the business address of the undersigned are:

b. The Undersigned is:

5. _____ A Single Proprietorship
6. _____ A Partnership
7. _____ A Corporation Organized in the State of _____
8. _____ Other Organization (describe) _____

c. The name, title, and address of the owner, partners, or officers of the undersigned are:

NAME	TITLE	ADDRESS

d. The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interests (if none, so state):

NAME	TITLE	ADDRESS

e. the names, addresses, and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are (if none, so state):

NAME	TITLE	ADDRESS

Social Security No. Or
Federal Employer I.D. No._____ _____
(Contractor)

Date:_____ BY:_____

WARNING

U.S. Criminal Code, Section 1010, Title 18, U.S.C., provides in part: "Whoever…makes, passes, utters, publishes any statement, knowing the same to be false…shall be fined not more than $5,000.00 or imprisoned not more than two years, or both"

CONTRACT COMPLIANCE AND SET-ASIDE REQUIREMENTS

1. The contractor who is selected to perform this State project must comply with CONN. GEN. STAT. 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5. An Affirmative Action Plan must be filed and approved by the Commission on Human Rights and Opportunities prior to the commencement of construction.

   State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of CONN. GEN. STAT. 4a-60g, as amended. (25% of the work with DAS certified Small and Minority owned businesses and 25% of that work with DAS certified Minority, Women and/or Disabled owned businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals.

   For municipal public works contracts and quasi-public agency projects, the contractor must file a written or electronic non-discrimination certification with the Commission on Human Rights and Opportunities. Forms are attached hereto and can also be viewed and printed at http://www.ct.gov/opm/cwp/view.asp?a=2982&q=390928&opmNAV_GID=1806

2. It is the General Contractor's responsibility for meeting the set-aside goals and vetting the SBE/MBE subcontractors. Any small or minority owned business that is currently doing business with a municipality should be encouraged to apply to DAS for SBE/MBE certification. There is no charge for Certification.

3. Good faith effort is mandatory and cannot be waived; however, there are no quotas. Factors such as non-availability can be considered in evaluating good faith effort. Contractors awarded a contract under the new law must file an Affirmative Action Plan or a Set-Aside Plan with CHRO. CHRO staff reviews these plans to ensure contractors are in compliance with contract compliance requirements.

   A contractor's good faith efforts shall be determined using the following factors: The contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects. [See C.G.S. 4a-60 and 4a-60g, as amended and Regulations of Connecticut State Agencies 46a-68j-28(2)]

   Examples include, but are not limited to (this is not an exhaustive list):

   - Contractors are expected to draw from MBE/WBE/DisBE by consulting with various (at least 3) sources, including the State of Connecticut Department of Administrative Services (DAS) Supplier Diversity Program (http://www/biznet.ct.gov/SDSearch/SDSearch.aspx)

- Contractors are expected to allow minority and small businesses to competitively bid against each other by soliciting at least three (3) per trade/material/service, or provide an explanation as to why the trade/material/service was not solicited to at least three (3) SBE/MBE/WBE/DisBEs
- Use concise responses for bid results (avoid vague responses such as “did not bid” or “no response”; use responses to show follow-up)
- Contractors are expected to solicit bids only from those subcontractors and/or vendors who can provide the trade/material service
- Contractors are expected to include all trade/material/service within the company’s bidding process or provide an explanation with reference as to why the trade/material/service was not solicited to at least three (3) SBE/MBE/WBE/DisBEs

4. Affirmative Action Plan Required Sections:
   a. Policy Statement *
   b. Internal Communications *
   c. External Communications *
   d. Assignment of Responsibility
   e. Organizational Analysis
   f. Workforce Analysis
   g. Availability and Utilization Analysis
   h. Project Description, Timeline and Trades Involved *
   i. Employment Analysis
   j. Apprenticeship Training
   k. Subcontractor Availability Analysis *
   l. Minority Business Enterprise Project Goals and Timetable *
   m. Minority Business Enterprise Assistance and Innovative Programs
   n. Project Reporting and Monitoring Procedures *
   o. Concluding Statement *

   * Set-Aside Plan Sections: Sec. 46a-68j-25 – Sec. 46a-68j-28

STATE OF CONNECTICUT

NONDISCRIMINATION CERTIFICATION — Representation by Individual

For All Contract Types Regardless of Value

Written representation that complies with the nondiscrimination agreements and warranties under Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended.

INSTRUCTIONS:

For use by an individual who is not an entity (corporation, limited liability company, or partnership) when entering into any contract type with the State of Connecticut, regardless of contract value. Submit to the awarding State agency prior to contract execution.

REPRESENTATION OF AN INDIVIDUAL:

I, _____ of _____
(Signatory) (Business Address)

represent that I will comply with the nondiscrimination agreements and warranties of the

Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended.

_____ _____
(Signatory) (Date)

_____
(Printed Name)

STATE OF CONNECTICUT

NONDISCRIMINATION CERTIFICATION — Representation by Entity

For Contracts Valued at Less than $50,000

Written representation that complies with the nondiscrimination agreements and warranties under Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended.

INSTRUCTIONS:

For use by an entity (corporation, limited liability company, or partnership) when entering into any contract type with the State of Connecticut, valued at less than $50,000 for each year of contract. Complete all sections of the form. Submit to the awarding State agency prior to contract execution.

REPRESENTATION OF ENTITY:

I, _____ , _____ , of _____
(Authorized Signatory) (Title) (Name of Entity)

an entity duly formed and existing under the laws of _____
(Name of State or Commonwealth)

represent that I am authorized to execute and deliver this representation on behalf of

_____ and that _____
(Name of Entity) (Name of Entity)

agrees to comply with the nondiscrimination agreements and warranties of Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended.

_____ _____
(Authorized Signatory) (Date)

_____
(Printed Name)

STATE OF CONNECTICUT

NONDISCRIMINATION CERTIFICATION — Affidavit By Entity For Contracts Valued at $50,000 or More

Documentation in the form of an affidavit signed under penalty of false statement by a chief executive officer, president, chairperson, member, or other corporate officer duly authorized to adopt corporate, company, or partnership policy that certifies the contractor complies with the nondiscrimination agreements and warranties under Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended

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INSTRUCTIONS:

For use by an entity (corporation, limited liability company, or partnership) when entering into any contract type with the State of Connecticut valued at $50,000 or more for any year of the contract. Complete all sections of the form. Sign form in the presence of a Commissioner of Superior Court or Notary Public. Submit to the awarding State agency prior to contract execution.

AFFIDAVIT:

I, the undersigned, am over the age of eighteen (18) and understand and appreciate the obligations of

an oath. I am _____ of _____ , an entity
Signatory's Title Name of Entity

duly formed and existing under the laws of _____ .
Name of State or Commonwealth

I certify that I am authorized to execute and deliver this affidavit on behalf of

_____ and that _____
Name of Entity Name of Entity

has a policy in place that complies with the nondiscrimination agreements and warranties of Connecticut

General Statutes §§ 4a-60 and 4a-60a, as amended.

_____
Authorized Signatory

_____
Printed Name

Sworn and subscribed to before me on this _____ day of _____, _____ 20 _____.

_____ _____
Commissioner of the Superior Court/ Notary Public Commission Expiration Date

STATE OF CONNECTICUT

NONDISCRIMINATION CERTIFICATION — New Resolution By Entity For Contracts Valued at $50,000 or More

Documentation in the form of a corporate, company, or partnership policy adopted by resolution of the board of directors, shareholders, managers, members or other governing body of a contractor that certifies the contractor complies with the nondiscrimination agreements and warranties under Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended.

INSTRUCTIONS:

For use by an entity (corporation, limited liability company, or partnership) when entering into any contract type with the State of Connecticut valued at $50,000 or more for any year of the contract. Complete all sections of the form. Submit to the awarding State agency prior to contract execution.

CERTIFICATION OF RESOLUTION:

I, _____ , _____ , of _____ ,
Authorized Signatory Title Name of Entity

an entity duly formed and existing under the laws of _____ ,
Name of State or Commonwealth

certify that the following is a true and correct copy of a resolution adopted on the _____ day of

_____ , 20 _____ , by the governing body of _____
Name of Entity

in accordance with all of its documents of governance and management and the laws of

_____ , and further certify that such resolution has not been modified
Name of State or Commonwealth

or revoked, and is in full force and effect.

RESOLVED: That the policies of _____ comply with
Name of Entity

nondiscrimination agreements and warranties of Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended.

The undersigned has executed this certificate this _____ day of _____ ,20 _____.

_____ _____
Authorized Signatory Date

_____
Printed Name

STATE OF CONNECTICUT

NONDISCRIMINATION CERTIFICATION — Prior Resolution By Entity

For Contracts Valued at $50,000 or More

Documentation in the form of a corporate, company, or partnership policy adopted by a prior resolution of the board of directors, shareholders, managers, members or other governing body of a contractor that certifies the contractor complies with the nondiscrimination agreements and warranties under Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended

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INSTRUCTIONS:

For use by an entity (corporation, limited liability company, or partnership) when entering into any contract type with the State of Connecticut valued at $50,000 or more for any year of the contract. Complete all sections of the form. Attach copy of previously adopted resolution (*State of CT, Nondiscrimination Certification, Form D: New Resolution*). Submit all documentation to the awarding State agency prior to contract execution.

CERTIFICATION OF PRIOR RESOLUTION:

I, the undersigned, am a duly authorized corporate officer or member of _____.
Name of Entity

I have reviewed the attached prior resolution. I certify that:

(1) the attached prior resolution complies with the nondiscrimination agreements and warranties of Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended; and

(2) the prior resolution remains in full force and effect on the date this documentation is submitted to the awarding State agency.

_____ _____
Authorized Signatory Title

_____ _____
Printed Name Date

RESERVED FOR STATE USE

I, the undersigned head of the awarding State agency, or designee, certify that the attached prior resolution complies with the nondiscrimination agreements and warranties of Connecticut General Statutes §§ 4a-60 and 4a-60a, as amended.

_____ _____
Signature of Agency Head (or designee) Date

_____
Awarding State Agency

Instructions for Filing CHRO Reporting Forms

Please note, all reports filed with CHRO must have the original signature (blue ink preferred) and official title of the company's authorized agent. A copy must be sent to the Awarding Agency/CMR and a copy should be kept for your records.

Form 257	Monthly Employment Utilization Report • To be completed every month from the date that the project started. • For the months employee(s) did not work on the project site, fill out one form for each month & check the box located at the bottom of the form marked, "Did not perform work on this project for this month." • The last month the employee(s) worked on the job (i.e. the month the company walked off the project site) please fill out a Form 257 & write at the bottom of the form in BIG BOLD letters "**FINAL**".
Form 257a	Monthly Employment Utilization Report for non-trade workers on site (i.e. Bookkeeper, Project Manager, Receptionist) • To be completed every month from the date that the project started **only if** "On Site Personnel (Other than Trade Workers)" worked on the job. • Follow instructions above for Form 257 when a non-trade worker employee is on the site. If there are no non-trade worker employee(s) on the site, do not submit Form 257a.
Form 257b	Cumulative Employment Utilization Report • The last month the employee(s) worked at the project site, please fill out a Form 257b (as well as the FINAL Form 257 mentioned above) & write at the bottom of the form in BIG BOLD letters **"FINAL".** • Form 257b is a total of all the work hours the employees have worked on the project. Therefore, if you add up all of the hours from each of the Form 257's that have been filed for this project, that number should correspond with the number of total work hours reported on the Form 257b.
Revised Forms 257 & 257b	Punch List Items or Other Events • If a sub returns to the job to do punch list items or other events after filling out FINAL filings, a Revised Final Form 257 for the months that they worked on the punch list items, as well as a Revised Form 257b must be filed. • These revised reports should be marked in BIG BOLD letters "**REVISED MM/DD/YYYY**."
Form 258	Quarterly Payment Status Report (project > 12 months) • If the project's anticipated duration is <u>in excess of 12 months</u>, please fill out a Form 258 every project quarter month (every three (3) months) from the date the project started until all subcontractors and/or vendors are paid in full. • The Form 258 filed for the last quarter of the project's duration must indicate "**FINAL**."
Form 258a	Monthly Payment Status Report (project < 12 months) • If the project's anticipated duration is <u>12 months or less</u>, fill out Form 258a every month from the date that the project started **except** for the project's quarter months, then a Form 258 is submitted (i.e. month 258a, month 258a, quarter 258) • If you are filling out a Form 258a for the last month of the project, write at the bottom of the form in BIG BOLD letters "**FINAL**".
Form 259	Monthly Materials Consumption Report • Material/Service Supplier submits every month from the date that the project started until the final delivery of material/service. • The officer of the company signs in the box that corresponds as to whether they "Did Supply Materials" that month or they "Did Not Supply Materials" that month. • At the end of the last month in which the material/service provider provided material or service for this project, write at the bottom of the form in BIG BOLD letters "**FINAL**".

Copies of CHRO reports can be obtained by logging onto www.ct.gov/chro and go to "*Forms*" and select the required form under the second heading "*Forms and Reports for Construction Workers*."

Commission on Human Rights and Opportunities Contract Compliance Unit 25 Sigourney Street Hartford, CT 06106	1. MONTHLY EMPLOYMENT UTILIZATION REPORT ***(FORM chro cc–257)***	PROJECT AREA (MSA): _____ 2. EMPLOYERS FEIN NO.	3. PROJECT AAP GOALS MINORITY: _____ FEMALE:_____	4. REPORTING PERIOD FROM:_____ TO:_____

GENERAL CONTRACTOR: PROJECT NAME: CONTRACT NUMBER:	NAME AND LOCATION OF CONTRACTOR (submitting report):	STATE AWARDING AGENCY:

5. CONSTRUCTION TRADE (please identify)	CLASSIFICATION	6. **WORK HOURS OF TRADE WORKERS EMPLOYED ON PROJECT**												9. TOTAL NUMBER OF EMPLOYEES		10. TOTAL NUMBER OF MINORITY EMPLOYEES	
		6a. TOTAL HOURS BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE		7. MINORITY PERCENT	8. FEMALE PERCENT				
		M	F	M	F	M	F	M	F	M	F			M	F	M	F
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
TOTAL JOURNEY WORKERS TOTAL APPRENTICES TOTAL TRAINEES GRAND TOTAL																	

11. COMPANY OFFICIALS SIGNATURE , PRINTED NAME, AND PRINTED TITLE	12. TELEPHONE NUMBER (Including area code)	13. DATE SIGNED	PAGE _____OF_____

☐ **Did not perform work on this project for this month (Please place an "X" in the box if your company did not perform work on this project for this month only.)**

Commission on Human Rights and Opportunities Contract Compliance Unit 25 Sigourney Street Hartford, CT 06106	1. MONTHLY EMPLOYMENT UTILIZATION REPORT ***(FORM chro cc–257A)***	PROJECT AREA (MSA): 2. EMPLOYER FEIN NO.	3. PROJECT AAP GOALS MINORITY: _____ FEMALE:_____	4. REPORTING PERIOD FROM:_____ TO:_____

GENERAL CONTRACTOR: PROJECT NAME: CONTRACT NUMBER:	NAME AND LOCATION OF CONTRACTOR (submitting report):	STATE AWARDING AGENCY:

5. ON SITE PERSONNEL (OTHER THAN TRADE WORKERS) ***(please identify specific job title)***		6. **WORK HOURS OF WORKERS *(OTHER THAN TRADE WORKERS)* EMPLOYED ON PROJECT**												9. TOTAL NUMBER OF EMPLOYEES		10. TOTAL NUMBER OF MINORITY EMPLOYEES	
		6a. TOTAL HOURS BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE		7. MINORITY PERCENT	8. FEMALE PERCENT				
		M	F	M	F	M	F	M	F	M	F			M	F	M	F
GRAND TOTAL WORKERS																	

11. COMPANY OFFICIALS SIGNATURE, PRINTED NAME, AND PRINTED TITLE	12. TELEPHONE NUMBER (Including area code)	13. DATE SIGNED	PAGE _____OF_____

☐ **Did not perform work on this project for this month (Please place an "X" in the box if your company did not perform work on this project for this month only.)**

Commission on Human Rights and Opportunities Contract Compliance Unit 2 25 Sigourney Street Hartford, CT 06106	1. **CUMULATIVE EMPLOYMENT UTILIZATION REPORT** (FORM chro cc–257b)	PROJECT AREA (MSA): _____ 2. EMPLOYERS FEIN NO.	3. PROJECT PLAN GOALS MINORITY: _____ FEMALE:_____	4. PROJECT DURATION START DATE:_____ END DATE :_____

GENERAL CONTRACTOR: PROJECT NAME: CONTRACT NUMBER:	NAME AND LOCATION OF CONTRACTOR (submitting report):	STATE AWARDING AGENCY:

5. CONSTRUCTION TRADE (please identify)	CLASSIFICATION	6. **CUMULATIVE WORK HOURS OF TRADE WORKERS EMPLOYED ON PROJECT**												9. CUMULATIVE NUMBER OF EMPLOYEES		10. CUMULATIVE NUMBER OF MINORITY EMPLOYEES	
		6a. CUMULATIVE HOURS BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE		7. CUMULATIVE MINORITY PERCENT	8. CUMULATIVE FEMALE PERCENT				
		M	F	M	F	M	F	M	F	M	F			M	F	M	F
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
CUMULATIVE TOTAL JOURNEY WORKERS CUMULATIVE TOTAL APPRENTICES CUMULATIVE TOTAL TRAINEES CUMULATIVE GRAND TOTAL																	

11. COMPANY OFFICIALS SIGNATURE, PRINTED NAME AND PRINTED TITLE	12. TELEPHONE NUMBER (Including area code)	13. DATE SIGNED	PAGE _____OF_____

FORM CHRO 257b

**** NOTE: The purpose of this report is to be a CUMULATIVE Employment Utilization Report (257b); cumulative meaning the total sum of all the 257s filed by your company throughout the duration of this project. Please submit this *Cumulative Employment Utilization Report* (257b) with your *FINAL 257* filing. If punch list items or other events require your company to return to the project after such filings, than please submit a *Revised 257b* with your *Revised FINAL 257*.**

MONTHLY SMALL CONTRACTOR AND MINORITY BUSINESS ENTERPRISE PAYMENT STATUS REPORT

Month Ending _____

1) General Contractor Name

2) State Contract Number

3) State Contract Award Agency

4) Project Name 5) Estimated Completion Date ____

6) Project Value (Indicate & attach all Change Orders) 7) Percent Completed to Date ____

8) Listing of all small contractors and minority business enterprise contractors on the project to comply with contractual small business set aside provisions:

Company Name	Total Contract Amount (Indicate & attach all Change Orders)	Total Payment this Month	Total Payment to Date

_____ _____

Signature of Company Official Date of Report

_____

Printed Name & Title of Person Signing

Original to: 1) CHRO, 25 Sigourney Street, Hartford, CT 06106
Copies to: 2) Awarding Agency
3) Contractor's Company File

Form CHRO 258a (for projects less than 12 months or as directed by CHRO).

QUARTERLY SMALL CONTRACTOR AND MINORITY BUSINESS ENTERPRISE PAYMENT STATUS REPORT

Quarter Ending _____

1) General Contractor Name

2) State Contract Number

3) State Contract Award Agency

4) Project Name 5) Estimated Completion Date ____

6) Project Value 7) Percent Completed to Date ____
(Indicate & attach all Change Orders)

8) Listing of all small contractors and minority business enterprise contractors on the project to comply with contractual small business set aside provisions:

Company Name	Total Contract Amount (Indicate & attach all Change Orders)	Total Payment this Quarter	Total Payment to Date

_____ _____
Signature of Company Official Date of Report

_____
Printed Name & Title of Person Signing

Original to: 1) CHRO, 25 Sigourney Street, Hartford, CT 06106
Copies to: 2) Awarding Agency
3) Contractor's Company File

Form CHRO 258

MONTHLY MATERIALS CONSUMPTION REPORT

(CHRO FORM–259)

The State of Connecticut Commission on Human Rights and Opportunities Affirmative Action/Contract Compliance Unit Central Office 25 Sigourney Street Hartford, CT 06106	**MONTHLY MATERIALS CONSUMPTION REPORT** **(CHRO FORM–259)*** * TO BE FILLED OUT BY SBE/MBE/WBE/DIS CONTRACTORS/VENDORS WHOSE SOLE ROLE IN THE CONTRACT DESCRIBED BELOW IS THAT OF A "SUPPLIER OF MATERIALS."
NAME AND ADDRESS OF SBE/MBE/WBE/DIS CONTRACTOR/VENDOR (submitting report): _____ _____ _____ _____	STATE CONTRACT NUMBER:_____ PROJECT NAME:_____ STATE AWARDING AGENCY_____ REPORTING PERIOD FROM:_____ TO:_____
The SBE/MBE/WBE/DIS Contractor / Vendor, submitting this report, ***DID SUPPLY MATERIALS*** to the General Contractor, or its Subcontractors, for the monthly reporting period listed above and for use in the aforesaid contract. I Agree:_____ Signature of President/C.E.O. of Company Date: _____ Printed Name: _____ Printed Title: _____	The SBE/MBE/WBE/DIS Contractor / Vendor, submitting this report, ***DID NOT SUPPLY MATERIALS*** to the General Contractor or its Subcontractors, for the monthly reporting period listed above and for use in the aforesaid contract. I Agree:_____ Signature of President/C.E.O. of Company Date: _____ Printed Name: _____ Printed Title: _____

SAMPLE

CHECKLIST FOR CONTRACTORS

____ Attend pre-bid meeting (if applicable)

____ Discuss any parts of the contract that require special materials, equipment, or installation that cannot be subcontracted

____ Complete non-discrimination affidavit form (found on the OPM website)

____ Submit non-discrimination affidavit to CHRO

____ Submit bid documents (be sure to read CHRO language and set-aside requirements)

SELECTED CONTRACTOR

For projects greater than $50,000 but less than $500,000

____ Review award notice from municipality and follow instructions

____ If contractor has less than 50 employees submit a set-aside plan to CHRO within 30 days of execution of contract

____ Contractors with 50 or more employees shall file an affirmative action plan within 30 days of the execution of the contract

Other Filing Requirements

____ Send a cop of a letter of transmittal to the Municipality to confirm an affirmative action plan or set-aside plan was filed with CHRO

COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES
CONTRACT COMPLIANCE REGULATIONS
NOTIFICATION TO BIDDERS
(Revised 09/17/07)

The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes; and, when the awarding agency is the State, Sections 46a-71(d) and 46a-81i(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies, which establish a procedure for awarding all contracts covered by Sections 4a-60 and 46a-71(d) of the Connecticut General Statutes.

According to Section 46a-68j-30(9) of the Contract Compliance Regulations, every agency awarding a contract subject to the contract compliance requirements has an obligation to "aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials". "Minority business enterprise" is defined in Section 4a-60 of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: "(1) Who are active in daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (1) of Section 32-9n." "Minority" groups are defined in Section 32-9n of the Connecticut General Statutes as "(1) Black Americans…(2) Hispanic Americans…(3) persons who have origins in the Iberian Peninsula…(4) Women…(5) Asian Pacific Americans and Pacific Islanders; (6) American Indians…" An individual with disability is also a minority business enterprise as provided by Section 4a-60g of the Connecticut General Statutes. The above definitions apply to the contract compliance requirements by virtue of Section 46a-68j-21(11) of the Contract Compliance Regulations.

The awarding agency will consider the following factors when reviewing the bidder's qualifications under the contract compliance requirements:

(a) the bidder's success in implementing an affirmative action plan;
(b) the bidder's success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the Administrative Regulations of Connecticut State Agencies, inclusive;
(c) the bidder's promise to develop and implement a successful affirmative action plan;
(d) the bidder's submission of employment statistics contained in the "Employment Information Form", indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and
(e) the bidder's promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 46a-68j-30(10)(E) of the Connecticut Compliance Regulations.

INSTRUCTIONS AND OTHER INFORMATION

The following BIDDER CONTRACT COMPLIANCE MONITORING REPORT must be completed in full, signed, and submitted with the bid for this contract. The contract awarding agency and the Commission on Human Rights and Opportunities will use the information contained thereon to determine the bidders compliance to Sections 4a-60 and 4a-60a CONN. GEN. STAT., and Sections 46a-68j-23 of the Regulations of Connecticut State Agencies regarding equal employment opportunity, and the bidder's good faith efforts to include minority business enterprises as subcontractors and suppliers for the work of the contract.

1) Definition of Small Contractor

Section 4a-60g CONN. GEN. STAT. Defines a small contractor as a company that has been doing business under the same management and control and has maintained its principal place of business in Connecticut for a one year period immediately prior to its application for certification under this section, had a gross revenues not exceeding ten million dollars in the most recently completed fiscal year, and at least fifty-one percent of ownership of which is held by a person or persons who are active in the daily affairs of the company, and have the power to direct the management and policies of the company, except that a nonprofit corporation shall be construed to be a small contractor if such nonprofit corporation meets the requirements of subparagraphs (A) and (B) of subdivision 4a-60g CONN. GEN. STAT.

2) Description of Job Categories (as used in Part IV Bidder Employment Information)

MANAGEMENT: Mangers plan, organize, direct, and control the major functions of an organization through subordinates who are at the managerial or supervisory level. They make policy decisions and set objectives for the company or departments. They are not usually directly involved in production or providing services. Examples include top executives, public relations managers, managers of operations specialties (such as financial, human resources, or purchasing managers), and construction and engineering managers.

BUSINESS AND FINANCIAL OPERATIONS: These occupations include managers and professionals who work with the financial aspects of the business. These occupations include accountants and auditors, purchasing agents, management analysts, labor relations specialists, and budget, credit, and financial analysts.

MARKETING AND SALES: Occupations related to the act or process of buying and selling products and/or services such as sales engineer, retail sales workers and sales representatives including wholesale.

LEGAL OCCUPATIONS: In-House Counsel who is charged with providing legal advice and services in regards to legal issues that may arise during the course of standard business practices. This category also includes assistive legal occupations such as paralegals, legal assistants.

COMPUTER SPECIALISTS: Professionals responsible for the computer operations within a company are grouped in this category. Examples of job titles in this category include computer

programmers, software engineers, database administrators, computer scientists, systems analysts, and computer support specialists.

ARCHITECTURE AND ENGINEERING: Occupations related to architecture, surveying, engineering, and drafting are included in this category. Some of the job titles in this category include electrical and electronic engineers, surveyors, architects, drafters, mechanical engineers, materials engineers, mapping technicians, and civil engineers.

OFFICE AND ADMINISTRATIVE SUPPORT: All clerical-type work is included in this category. These jobs involve the preparing, transcribing, and preserving of written communications and records; collecting accounts; gathering and distributing information; operating office machines and electronic data processing equipment; and distributing mail. Job titles listed in this category include telephone operators, bill and account collectors, customer service representatives, dispatchers, secretaries and administrative assistants, computer operators and clerks (such as payroll, shipping, stock, mail and file).

BUILDING AND GROUNDS CLEANING AND MAINTENANCE: This category includes occupations involving landscaping, housekeeping, and janitorial services. Job titles found in this category include supervisors of landscaping or housekeeping, janitors, maids, grounds maintenance workers, and pest control workers.

CONSTRUCTION AND EXTRACTION: This category includes construction trades and related occupations. Job titles found in this category include boilermakers, masons (all types), carpenters, construction laborers, electricians, plumbers (and related trades), roofers, sheet metal workers, elevator installers, hazardous materials removal workers, paperhangers, and painters. Paving, surfacing, and tamping equipment operators; drywall and ceiling tile installers; and carpet, floor and tile installers and finishers are also included in this category. First line supervisors, foremen, and helpers in these trades are also grouped in this category.

INSTALLATION, MAINTENANCE AND REPAIR: Occupations involving the installation, maintenance, and repair of equipment are included in this group. Examples of job titles found here are heating, ac, and refrigeration mechanics and installers; telecommunication line installers and repairers; heavy vehicle and mobile equipment service technicians and mechanics; small engine mechanics; security and fire alarm systems installers; electric/electronic repair, industrial, utility and transportation equipment; millwrights; riggers; and manufactured building and mobile home installers. First line supervisors, foremen, and helpers for these jobs are also included in the category.

MATERIAL MOVING WORKERS: The job titles included in this group are Crane and tower operators; dredge, excavating, and lading machine operators; hoist and winch operators; industrial truck and tractor operators; cleaners of vehicles and equipment; laborers and freight, stock, and material movers, hand; machine feeders and off bearers; packers and packagers, hand; pumping station operators; refuse and recyclable material collectors; and miscellaneous material moving workers.

PRODUCTION WORKERS: The job titles included in this category are chemical production machine setters, operators and tenders; crushing/grinding workers; cutting workers; inspectors, testers sorters, samplers, weighers; precious stone/metal workers; painting workers; cementing/gluing machine operators and tenders; etchers/engravers; molders, shapers and casters except for metal and plastic; and production workers.

Definition of Racial and Ethnic Terms (as used in Part IV Bidder Employment Information)

White (not of Hispanic Origin) – All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East. Black (not of Hispanic Origin) – All persons having origins in any of the Black racial groups of Africa. Hispanic – All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture of origin, regardless of race. Asian or Pacific Islander – All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippine Islands, and Samoa. American Indian or Alaskan Native – All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.

BIDDER CONTRACT COMPLIANCE MONITORING REPORT

PART 1 – Bidder Information

Company Name _____

Street Address _____

City & State _____

Chief Executive _____

Bidder Federal Employer Identification Number _____

Or Social Security Number _____

Major Business Activity (Brief Description) _____

_____

_____

_____

Bidder Identification:
Bidder is a small contractor ____ Yes ____ No
Bidder is a minority business enterprise ____Yes ____ No
Bidder is a women owned company ____Yes ____ No
Bidder is a Section 3 owned entity ____Yes ____ No
(If yes, check ownership category)
____ Black ____ Hispanic ____ Asian American ____ American Indian/Alaskan Native
____ Iberian Peninsula ____ Individual(s) with a Physical Disability ____ Female

Bidder Parent Company (If any) _____

Bidder is certified as above by State of CT ____ Yes ____ No

Other Locations in CT (If any) _____

DAS Certification Number (If any) _____

PART II – Bidder Nondiscrimination Policies and Procedures

1. Does your company have a written Affirmative Action / Equal Employment Opportunity statement posted on company bulletin boards? ____ Yes ____ No

2. Does your company have the state-mandated sexual harassment prevention in the workplace policy posted on company bulletin boards? ____ Yes ____ No

3. Do you notify all recruitment sources in writing of your company's Affirmative Action / Equal Employment Opportunity employment policy? ____ Yes ____ No

4. Do your company advertisements contain a written statement that you are an Affirmative Action / Equal Opportunity Employer? ____ Yes ____ No

5. Do you notify the CT State Employment Service of all employment openings with your company? ____ Yes ____ No

6. Does your company have a collective bargaining agreement with workers? ____Yes ____No

6a. If yes, do the collective bargaining agreements contain non-discrimination clauses covering all workers? ____ Yes ____ No

6b. Have you notified each union in writing of your commitments under the nondiscrimination requirements of contracts with the State of CT? ____ Yes ____ No

7. Do all of your company contracts and purchase orders contain non-discrimination statements as required by Sections 4a-60 & 4a-60a Conn. Gen. Stat.? ____ Yes ____ No

8. Do you, upon request, provide reasonable accommodation to employees, or applicants for employment, who have a physical or mental disability? ____ Yes ____ No

9. Does your company have a mandatory retirement age for all employees? ____Yes ____No

10. If your company has 50 or more employees, have you provided at least two (2) hours of sexual harassment training to all of your supervisors? ____ Yes ____ No ____ N/A

11. If your company has apprenticeship programs, do they meet the Affirmative Action / Equal Employment Opportunity requirements of the apprenticeship standards of the CT Dept. of Labor? ____ Yes ____ No ____ N/A

12. Does your company have a written Affirmative Action Plan? ____ Yes ____ No

13. Is there a person in your company who is responsible for equal employment opportunity?

    ____ Yes ____ No If yes, give name and phone number _____

    _____

PART III – Bidder Subcontracting Practices

1. Will the work of this contract include subcontractors or suppliers? ____ Yes ____ No

1a. If yes, please list all subcontractors and suppliers and report if they are a small contractor and/or a minority business enterprise. (Attach additional sheet if necessary)

Subcontractor / Supplier	Small Business	Minority Owned	Woman Owned	Section 3 Owned
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

1b. Will the work of this contract require additional subcontractors or suppliers other than those identified in 1a. above? ____ Yes ____ No

PART IV - WORKFORCE ANALYSIS

Contractor:	**Number of Connecticut employees:** Full-time: **[ ]** Part-time: **[ ]**
Address:	**Employment figures obtained from:** Visual Check ☐**;** Employment Records ☐**;** Other ☐ Explain:

JOB CATEGORIES	TOTALS	WHITE (Not of Hispanic Origin)		BLACK (Not of Hispanic Origin)		HISPANIC		ASIAN OR PACIFIC ISLANDER		AMER. INDIAN OR ALASKAN NATIVE		PERSON WITH DISABILITIES	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Officials & Managers													
Service Workers													
Office & Clerical													
Craft Workers (Skilled)													
Operators (Semi-Skilled)													
Laborers (Unskilled)													
TOTALS													
Totals One Year Ago													

FORMAL ON-THE-JOB-TRAINEES

Apprentices													
Trainees													

1. Have you successfully implemented an Affirmative Action Plan?
Yes ☐ **No** ☐ **If yes, date of implementation ; If No, explain:**

a) Do you promise to develop and implement a successful Affirmative Action Plan?
Yes ☐ **No** ☐ **N/A** ☐ **Explain:**

2. Have you successfully developed an apprenticeship program complying with Sec. 46a-68-1 to 46a-68-17 of the Connecticut Department of Labor Regulations, inclusive:
Yes ☐ **No** ☐ **N/A** ☐ **Explain:**

3. According to EEO-1 data, is the composition of your work force at or near parity when compared with the racial and sexual composition of the work force in the relevant labor market area?
Yes ☐ **No** ☐ **Explain:**

4. If you plan to subcontract, will you set aside a portion of the contract for legitimate minority business enterprises?
Yes ☐ **No** ☐ **Explain:**

Authorized Signature Date

PART V – Bidder Hiring and Recruitment Practices

1. Which of the following recruitment sources are used by you?
   (Check yes or no and report percent used)

SOURCE	YES	NO	% OF APPLICANTS PROVIDED BY SOURCE
State Employment Service	_____	_____	_____%
Private Employment Agencies	_____	_____	_____%
Schools and Colleges	_____	_____	_____%
Newspaper Advertisement	_____	_____	_____%
Walk Ins	_____	_____	_____%
Present Employees	_____	_____	_____%
Labor Organizations	_____	_____	_____%
Minority/Community Organizations	_____	_____	_____%
Others (please identify)_____	_____	_____	_____%

2. Check (X) any of the below listed requirements that you use as a hiring qualification

____ Work Experience
____ Ability to Speak or Write English
____ Written Tests
____ High School Diploma
____ College Degree
____ Union Membership
____ Personal Recommendation
____ Height or Weight
____ Car Ownership
____ Arrest Record
____ Wage Garnishments

Certifications (Read this form and check your statements on it CAREFULLY before signing.)
I certify that the statements made by me on this BIDDER CONTRACT COMPLIANCE MONITORING REPORT are complete and true to the best of my knowledge and belief, and are made in good faith. I understand that if I knowingly make any misstatements of facts, I am subject to be declared in non-compliance with Section 4a-60, 4a-60a, and related sections of the CONN. GEN. STAT.

_____ _____
(Signature) (Date Signed)

_____ _____
(Title) (Telephone)

Non-discrimination Laws/Executive Orders

All contractors are required to adhere to the Civil Rights Laws and the Executive Order listed below.

Title VI of the Civil Rights Act of 1964, 42 USC 2000D and Section 109 of the Title I of the Housing and Community Development Act of 1974, as Amended

No person in the United States shall on the grounds of race, color or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part under this title.

Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C.

No otherwise qualified handicapped individual in the United States, shall solely by reason of his/her handicap be excluded from the participation in, be denied the benefits of, or be discriminated against under any program or activity receiving Federal financial assistance.

Age Discrimination Act of 1975, as amended, 42 U.S.C. 6101

No persons shall on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

Executive Order 11246

The contractor will not discriminate against any employee or applicant for employment because or racer religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not limited to the following: Employment, upgrading, demotion, or transfer; recruitment, or recruitment advertising; layoff or termination, rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this non-discrimination clause.

EQUAL EMPLOYMENT OPPORTUNITY

(Executive Order 11246, as amended)

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to" the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this non-discrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

(3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the said labor union or workers representative of the Contractors' commitments under Section 202 of Executive Order No.11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Contractor will comply with all provisions of Executive Order No.11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.

(5) The Contractor will furnish all information and reports required by Executive Order No.11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Contractor's non-compliance with the non-discrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts (or federally assisted construction contracts) in accordance with procedures authorized in Executive order No.11246 of September 24, 1965, or by rules, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Contractor will include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive order No.11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, That in the event the Contractor becomes involved in., or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

GENERAL

In accordance with Executive Order 11246 (30 F.R. 12319-25), the implementing rules and regulations thereof, and orders of the Secretary of Labor, a Certification regarding Equal Opportunity is required of bidders or prospective contractors and their proposed subcontractors prior to the award of contracts or subcontracts.

CERTIFICATION OF BIDDER

Bidder's Name: _____

Address: _____

Internal Revenue Service Employer Identification Number: _____

1. Participation in a previous contract or subcontract:
   A. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause
      ____ Yes ____ No
   B. Compliance reports were required to be filed in connection with such contract or subcontract
      ____ Yes ____ No
   C. Bidder has filed all compliance reports required by Executive Orders 10925, 11114, 11246, or by regulations of the Equal Employment Opportunity Commission issued pursuant to Title VII of the Civil Rights Act of 1964
      ____ Yes ____ No
   D. If the answer to item C is "No", please explain in detail on the reverse side of this certification.

2. Dollar Amount of Bid: $_____

3. Anticipated performance period: _____ days.

4. Expected total number of employees who will perform the proposed construction: _____.

5. Non-segregated facilities
   A. Notice to Prospective Federally-Assisted Construction Contractors
      1. A certification of Non-segregated Facilities, as required by the May 9, 1967 order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted to the recipient prior to the award of a federally assisted construction contract exceeding $10,000, which is not exempt form the provisions of the Equal Opportunity Clause.
      2. Contractors receiving Federally assisted construction contract awards exceeding $10,000, which are not exempt from the provisions of the Equal Opportunity clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.
   B. Notice to Prospective Subcontractors of Requirement of Certification of Non-segregated Facilities
      1. A Certification of Non-segregated Facilities, as required by the May 9, 1967 order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000, which is not exempt form the provisions of the Equal Opportunity Clause.
      2. Contractors receiving subcontractor awards exceeding $10,000, which are not exempt from the provisions of the Equal Opportunity clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.

C. Certification of Non-Segregated Facilities

The federally-assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies further that he will not maintain or provide for any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities," means any waiting rooms, work areas, restrooms, and washrooms, restaurants and eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000, which is not exempt form the provisions of the Equal Opportunity Clause, and that he will retain duplicate of such certifications in his files. The contractor will include the original in his Bid Package.

6. Race or ethnic group designation of bidder. Check race or ethnic group on the appropriate line.

____ Black ____ Spanish American ____ Oriental
____ American Indian ____ Aleut ____ Eskimo
____ White (other than Spanish American) ____ Portuguese

Remarks:
_____
_____
_____
_____
_____
_____
_____

Certification: The information above is true and complete to the best of my knowledge and belief.

_____
Bidder's Name and Title of Signer (please print)

_____ _____
Signature Date

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001

SECTION 3 – CONTRACTOR REQUIREMENTS

This Plan will serve as the Section 3 Plan in compliance with the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended.

The purpose of Section 3 of the Housing and Urban Development Act of 1968 as amended (12. U.S.C. 170lu) (Section 3) is to ensure that employment and other economic opportunities generated by certain HUD financial assistance shall, to the greatest extent feasible, and consistent with existing Federal, State and local laws and regulations, be directed to low and very low-income person, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low and very low-income persons.

Contractors and their subcontractors shall make every effort to ensure that 30% of the aggregate number of new hires are Section 3 individuals.

Any contract for construction funded in whole or in part by Federal Assistance in excess of $100,000.00 is subject to Section 3 requirements.

Section 3 Clause

All contracts subject to the Section 3 requirements will include the following clause:

A. The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for Housing.
B. The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.
C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or worker’s representative of the contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
D. The contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor when the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.
E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed were not filled to circumvent the contractor's obligations under 24 CFR Part 135.
F. Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

   Further, contractors are to submit a Section 3 Plan Certification (attached) by the date of contract signing.

GENERAL CONTRACTOR'S SECTION 3 PLAN CERTIFICATION

1. APPLICABLE TO _____
   PROJECT NAME

2. GENERAL CONTRACTOR'S NAME:_____

3. DEVELOPER'S NAME: Town of Essex _____

The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended. The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance of HUD assistance projects covered by Section 3, are, to the greatest extent feasible and consistent with existing Federal, State, and local laws and regulations directed to low- and very low-income persons particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low- and very low-income persons.

1. _____ agree to comply to the greatest extent feasible with the objectives and percentage goals established in the Section 3 Plan developed for the following project: _____

2. _____ agree that to the greatest extent feasible, vacant positions in relation to this development will be filled with Section 3 residents.

3. _____ agree to conduct its recruitment activities in a manner consistent with the requirements established in the above stated Section 3 Plan.

4. _____ agree to include in all contracts with subcontractors in excess of $100,000 the Section 3 Clause and to require the subcontractor to comply with similar certification requirements.

5. _____ agree to maintain proper records to demonstrate the firm's compliance with the Section 3 Plan.

6. _____ agree to list all projected workforce needs for all phases of this project by occupation, trade, skill level and number of positions.

7. _____ agrees to award to the greatest extent possible, all subcontracts in excess of $100,000 to eligible Section 3 Firms.

I understand that my contract with _____ is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended AND to the Section 3 Plan for this project.

I certify that the firm of _____ is a bonafide Section 3 Company, and that it meets the following definition of a Section 3 business (check one):

_____ 1. 51% or more of the ownership of this company is owned by Section 3 residents, as defined by the developer of this project.

_____ 2. Currently, at least 30% of the employees of the company are Section 3 residents, as defined by the developer of this project.

_____ 3. At least 30 % of the employees of the company were Section 3 residents, as defined by the developer of this project, within three years of the date of first employment with this company.

_____ 4. I commit to subcontract at least 25% of the total value of this contract to Section 3 subcontractors, as these companies are defined above, and to provide the necessary evidence to substantiate this.

GOOD FAITH EFFORT

At a minimum the following tasks must be completed to demonstrate a good faith effort with the requirement of Section 3. The contracting party and each contractor or subcontractor seeking to establish a good faith effort as required should be filling all training positions with persons residing in the target area.

1. Send notices of job availability subcontracting opportunities subject to these requirements to recruitment sources, trade organizations and other community groups capable of referring eligible Section 3 applicants, including the Department of Labor.

2. Include in all solicitations and advertisements a statement to encourage eligible Section 3 residents to apply.

3. When using a newspaper of major circulation to request bids/quotes or to advertise employment opportunities to also advertise in minority owned newspapers.

4. Maintain a list of all residents from the target area who have applied either on their own or by referral form any service and employ such persons, if otherwise eligible and if a trainee position exists. (If the contractor has no vacancies, the applicant, if otherwise eligible, shall be listed for the first available vacancy). A list of eligible applicants will be maintained for future vacancies.

5. The contractor must certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed were not filled to circumvent the contractor's obligation under 24 CFR part 135.

If Federal and State dollars are combined to fund a project this plan may be replaced by an approved Section 3 Plan as mandated by the Housing and Community Development Act of 1968.

We the undersigned have read and have received a copy of the Section 3 Plan for this project. We acknowledge being a party of this plan and further pledge our commitment to adhere to the objectives of the Plan.

_____ _____

Developer/ Municipality Signature Date

_____

Title

_____ _____

Contractor Signature Date

_____

Title

DOH PROGRAM REQUIREMENTS

1. DEFINITIONS

The following terms as used in this document are specifically defined as follows:

A. Apprentice means: 1) a person employed and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the bureau or 2) a person in his first 90 days of probationary employment as an apprentice in such an apprenticeship program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Council (where appropriate) to be eligible for probationary employment as an apprentice.

B. Trainee means: a person receiving on the job training in a construction occupation under a program which is approved (but not necessarily sponsored) by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, and which is reviewed form time to time by the Manpower Administration to ensure that the training meets adequate standards.

C. Covered Area means the geographical area described in the solicitation from which this contract resulted.

D. Director means Director of the Office of Federal Contract Compliance Program, United States Department of Labor, or any person to whom the Director delegates authority.

E. Employer identification number means the Federal Social Security number used on the Employers Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

F. Minority Includes;
   1. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin)
   2. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South America, or other Spanish Culture or origin, regardless of race)
   3. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands)
   4. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification)
   5. Portuguese (all persons having origins in the Iberian peninsula, including Portugal, regardless of race)

2. REQUIRED PROVISIONS DEEMED INSERTED

Each and every provision of law required to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein. If through mistake or otherwise any provision is not inserted, or is inserted incorrectly then upon the application of either party the contract shall be amended to make such insertion or correction.

3. EMPLOYMENT OF CERTAIN PERSONS PROHIBITED:

No persons under the age of sixteen and no person who at the present time is serving sentence in a penal or correctional institute shall be employed on the work covered by this contract.

4. REPORTS, RECORDS, AND DATA

It is imperative that the contractor keeps records and submits reports in strict accordance with all sections of these General Conditions. Several different sections require specific information, which may be addressed individually or in aggregate with other sections at the contractors' option. Provided all information is available, the Municipality will not mandate a specific form to be followed. If information submitted by the contractor is unclear or incomplete, the municipality may request that the records/reports be re-submitted.

The contractor shall submit to the owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the owner may request concerning work performed or to be performed under this contract.

Payrolls and basic records relating thereto will be maintained during the course of the work, and preserved for a period of three years thereafter for all laborers and mechanics working at the site, or under the United States Housing Act of 1937 or under the Housing Act of 1949, in the construction or development of the project.

Such records will contain for each employee, their name, address, correct classification, rates of pay (including rates of contributions or costs anticipated of the types described in section 1(b)(2) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers and mechanics affected and which show the costs anticipated or the actual cost incurred providing such benefits.

The contractor will submit weekly a certified copy of all payrolls to the Project Coordiantor, **Town of Essex**. The payroll shall be accompanied by a statement signed by the employer or authorized representative indicating that the payrolls are correct and complete, that the wage rates contained therein are not less than those determined by the Secretary of Labor and that the classifications set forth for each laborer or mechanic conform with the actual work performed. The submission of a weekly statement of compliance which is required under this contract and under the Copeland regulations of the Secretary of Labor (29CFR Part 3) and the filing with the initial payroll or any subsequent payroll of a copy of any findings by the Secretary of Labor under 29CFR 5.5(a)(1)(iv) shall satisfy this requirement. The prime contractor shall be responsible for the submission of copies of payrolls of all subcontractors. The contractor will make the required records available for inspection by authorized representatives of the municipality, its agents, State DOH and the Department of labor, and will permit such representatives to interview employees during working hours on the job.

A. PAYROLLS AND BASIC RECORDS. Each employer with respect to his/her own workforce employed on the work site shall maintain payrolls and basic records relating to such payrolls. The principal contractor shall maintain such records relative to all laborers and mechanics working on the site. Payrolls and related records shall be maintained during the course of the construction work and preserved by the contractor and all employers for at least three years following the completion of the work. Such records shall contain:

1. The name, address and social security number of each laborer and mechanic
2. His/her correct work classification(s)
3. Hourly rates of pay, including rates of contributions or costs anticipated for fringe benefits
4. Daily and weekly number of hours worked, including any overtime hours
5. Deductions made and actual wages paid
6. Evidence pertaining to any Fringe Benefit Program
7. Evidence of the approval of any apprenticeship or trainee program, the registration of each apprentice or trainee and the ratios and wage rates contained in the program.

B. CERTIFIED PAYROLL REPORTS Certified weekly payroll reports (CPR's) shall be submitted with respect to each week any contract work is performed. Each contractor and subcontractor (employer) shall prepare and certify such payroll reports to demonstrate compliance with the labor standards requirements. The principal contractor is responsible for full compliance with regard to its own workforce and with regard to the compliance of every subcontractor. For this reason, all CPR's and any related records are submitted to the municipality through the principal contractor.

a. CPR Format. CPR information may be submitted in any form provided that the Town's Labor Standards Designee can reasonably interpret the information to monitor the employer compliance with the labor standards. Employers are encouraged to utilize DOL Payroll Form WH-347. The LCA shall make available to each principal contractor a limited number of copies of the WH-347 for the Contractor's reproduction and use.

b. Submission Requirements. CPR's shall be submitted for each contractor/subcontractor (employer) beginning with the first week such employer performs work on the site. CPR's shall be submitted promptly following the close of each such pay week.

c. CPR Preparation. CPR's for each employer shall be numbered sequentially beginning with "1." The CPR's for the last week of work to be performed on the project by each employer shall be clearly marked Final.

1) Employee Information. The first payroll on which each employee appears shall contain the employee's name, address, and Social Security Number. Thereafter, the address and Social Security Number only need to be reported if there is a change in such information.

2) Apprentices or Trainees. The first payroll on which any apprentice or trainee appears shall be accompanied with a copy of that apprentices' or trainee's registration in an approved program. A copy of the approved program pertaining to the wage rates and rations shall also accompany the first CPR on which the first apprentice or trainee appears.

3) Split Classifications. The division of hours worked in different classifications shall be accurately maintained and clearly reported. The employer may list the employee once for each classification, distributing the hours of work accordingly, and reflecting the rate of pay and gross earnings for each classification. Deductions and net pay may be based upon the total gross amount earned for all classifications.

4) Hours Worked at Other Job Sites. The CPR's should reflect ONLY hours worked at the site. If an employee performs work at job sites other than the project for which the CPR is prepared, those hours should not be reported on the CPR. In these cases, the employer should list the employees name, classification, hours this project only, and the rate of pay and gross earnings at this project. Deductions and net pay may be reflected based upon the employee's total earnings (for all projects) for the week.

d. "No Work" Payrolls. Employers are not required to submit CPR's for weeks during which no work was performed on the site of the work, provided that the CPR's are numbered sequentially or that the employer has provided written notice that its work on the project has been suspended.

e. Weekly Payroll Certification. A "Statement of Compliance" shall accompany each weekly payroll. The Statement of Compliance shall be executed by the original signature of the

principal executive of the contractor/subcontractor or of a person authorized in writing by the principal. The Statement shall contain the language prescribed on DOL Form WH-348 or the reverse side of form WH-347 that shall certify to the following:

1) That the payroll period contains the information required to be maintained (see 12-7) and that the information is correct and complete;

2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set for in Regulations, 29CFR part 3; and

3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

f. Falsification. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

5. OTHER PROHIBITED INTERESTS

No official of the owner who is authorized solely or jointly to negotiate, make, accept, or approve any architectural, engineering, inspection, construction or material supply contract in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of or for the owner who is authorized in a capacity to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or any part thereof.

6. NO CONFLICT

No member or Delegate to Congress of the United States, and no Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit to arise from the same.

7. NATIONAL HISTORIC PRESERVATION ACT OF 1966:

The contractor agrees to contribute to the preservation and enhancement of structures and objects of historical, architectural or archaeological significance when such items are found and/or unearthed during the course of project construction and to consult with the State Historic Preservation Officer for recovery of the items. [Reference: National Historic Preservation Act of 1966(80 Stat 915.16 USC 470) and Executive Order No. 11593 of May 31, 1971]

8. CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT:

The contractor agrees to comply with Federal clean air and water standards during the performance of this contract and specifically agrees to the following:

A. The term “facility” means any building, plant, installation, structure, mine, vessel or other floating craft, location or site of operations owned, leased, or supervised by the contractor and the subcontractors for the construction, supply, and service contracts entered into by the contractor.

B. Any facility to be utilized in the accomplishment of this contract is not listed on the Environmental Protection Agency's List of Violating Facilities pursuant to 40CFR, Part 15.20

C. In the event a facility utilized in this contract becomes listed on the EPA list, this contract may be canceled, terminated, or suspended in whole or in part;

D. It will comply with all the requirements of Section 308 of the Water Act relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308, respectively, and all regulations and guidelines issued there under;

E. It will promptly notify the Municipality of the receipt of any notice from the Director of the Office of Federal Activities, Environmental Protection Agency, indicating that any facility utilized or to be utilized in the accomplishment of the contract is under consideration for the EPA list of Violating Facilities;

F. It will include the provisions of the foregoing paragraphs in every subcontract or purchase order entered into for the purpose of accomplishing this contract, unless otherwise exempted pursuant to the EPA regulations implementing the Air or Water Act (40CFR Part 15.5), so that such provisions will be binding upon each subcontractor or vendor;

G. In the event that the contractor or the subcontractor for the construction, supply, and service contracts entered into for the purpose of accomplishing this contract were exempted from complying with the above requirements under the provisions of 40CFR Part 15.5(a) the exemption shall be nullified should the facility give rise to a criminal conviction during the accomplishment of this contract. Furthermore, with the nullification of exemption, the above requirements shall be effective. The contractor shall notify the Municipality, as soon as the contractor or the subcontractor's facility is listed for having given rise to a criminal conviction noted in 40CFR, Part 15.20.

9. ANTI-LOBBYING

1. No Federal Appropriated funds have been paid or will be paid, by or on behalf of it, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement;

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or an employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, it will complete and submit Standard Form- "Disclosure Form To Report Lobbying," in accordance with instructions; and

4. It will require that the language of paragraph (n) of this certification be included in the award documents for all sub awards at all hers (including subcontracts, sub grants, and contracts under grants, loans, and cooperative agreements) and that all sub recipients shall certify and disclose accordingly.

10. SIGNS: The Contractor shall supply, erect, and maintain a project sign at the site in accordance with the following specifications:

DEPARTMENT OF HOUSING

PROJECT SIGN – SMALL CITIES PROGRAM

8'-0"

4'-0"

SEPTIC REPAIRS AT ESSEX COURT

Funds Provided by a Community Development Block Grant Small Cities Program
#SC1501001 from the Connecticut Department of Housing

Constructed in cooperation with the

STATE OF CONNECTICUT
DANNEL P. MALLOY, GOVERNOR

Department of Housing
Evonne Klein, Commissioner

and the
Town of Essex
Norman Needleman, First Selectman

Harry E. Cole and Son, Engineer

Name of General Contractor

SIGN PANEL: ¾" MDO-EXT-APA PLYWOOD SUPPORTED WITH (2) 4X4 TREATED WOOD COLUMNS AND SECURED 4' INTO GRADE. TOP OF SIGN AT 8'-0" ABOVE GRADE.

COLORS: ALL LETTERS AND SYMBOLS ARE TO BE ROYAL BLUE. THE BACKGROUND WILL BE WHITE ENAMEL. BACK OF PLYWOOD AND SUPPORT STRUCTURE SHALL BE PAINTED MATTE BLACK.

TYPEFACE: HELVETICA MEDIUM

LOCATION: SIGN MUST BE LOCATED TO BE CLEARLY VISIBLE TO THE PUBLIC.

TIMING: INSTALL AT THE START OF CONSTRUCTION AND REMOVE AT CONSTRUCTION COMPLETION.

11. APPRENTICES AND TRAINEES:

Apprentices will be permitted to work as such only when they are registered, individually, under a bona fide program registered with a State Apprenticeship Agency which is recognized by the Bureau of Apprenticeship and Training, U.S. Department of Labor, or if no such agency exists in a state, under a program registered with the Bureau of Apprenticeship and Training, U.S. Department of Labor. The allowable ratio of apprentices to journeymen in any craft classification shall not be greater than the ratio permitted to the contractor as to his entire workforce under the registered program. Any employees listed on a payroll at an apprentice wage rate who is not a trainee as defined in paragraph 2(G), or is not registered as above, shall be paid the wage rate determined by the Secretary of Labor for the classification of work he actually performs. The contractor or subcontractor will be required to furnish written evidence of the registration of his program and apprentices as well as of the appropriate ratios and wage rates, for the area of construction prior to using any apprentices on the contract work.

Trainees will be permitted to work as such when they are bona fide trainees employed in accordance with a program approved by the U.S. Department of Labor, Manpower Administration Bureau of Apprenticeship and Training, and where the subparagraph below is applicable, in accordance with the provisions of Part 5a, Subtitle A, Title 29, Code of Federal Regulations (CFR).

On contracts in excess of $10,000, the employment of all laborers and mechanics, including apprentices and trainees shall also be subject to the provisions of Part 5a, Subtitle A, Title 29, CFR. Apprentices and trainees shall be hired in accordance with the requirements of Part 5a.

12. MINIMUM WAGES:

All mechanics and laborers employed or working upon the site of the work, or under the United States Housing Act of 1937, or under the Housing Act of 1949 in the construction or the development of this project, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions permitted by regulations issued by the Secretary of Labor under the Copeland Act {29CFR Part 3}), the full amounts due at the time of payment computed at wage rates not less than those contained in the wage determination decision of the Secretary of Labor contained herein, regardless of any contractual relationship which may be alleged to exist between the contractor and subcontractor and such laborers and mechanics; and the wage determination decision shall be posted by the contractor at the site of the work in a prominent place where it can be easily seen by the workers. The posted wage determination shall contain a statement showing all deductions in accordance with the provisions of this contract, to be made from wages actually earned by persons employed in each classification. For the purpose of this clause, contributions made or costs reasonably anticipated under section 1(b)(2) of the Davis Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers and mechanics, subject to the provisions of 29 CFR 5.5 (a)(1)(iv).

The transporting of supplies to or from the work site, and the manufacturing or furnishing of materials, articles, supplies, or equipment on or to the site by employees of the contractor or any subcontractor is work to which these federal standards apply.

Also for the purpose of this clause, regular contributions made or costs incurred for more than a weekly period under plans, funds, or programs, but covering the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

The owner shall require that any class of laborers or mechanics, including apprentices and trainees, which is not listed in the wage determination and which is to be employed under this contract, shall be classified or reclassified conforming to the wage determination classification and a report of the action taken shall be sent by the local administering agency to the Secretary of Labor. In the event that the interested parties cannot agree on the classification or reclassification of a particular class of laborers or mechanics (including apprentices and trainees) to be used, the question accompanied by the recommendation of the contracting officer shall be referred to the Secretary for final determination.

The owner shall require that whenever the minimum wage rate prescribed in the contract for a particular class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly wage rate and the contractor pay the cash equivalent of such fringe benefit, an hourly cash equivalent thereto will be established. In the event that interested parties cannot agree upon a cash equivalent for that fringe benefit, the question and accompanying recommendation of the owner shall be referred to the Secretary of Labor for determination.

If the contractor does not make payments to a trustee or other third person, he may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing benefits under a plan or program of a type expressly listed in the wage determination decision of the Secretary of Labor which is a part of this contract; provided however, that the Secretary of Labor has found, upon written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside, in a separate account, assets for the meeting of obligations under the plan or program.

The contractor agrees to comply with Executive Order 11588 issued March 29, 1971, and any other Executive Order, statute, or regulation regarding the stabilization of wages and prices in the construction industry.

A. **Complaints, Proceedings, or Testimony by Employees**; No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this contract are applicable shall be discharged or, in any other manner, discriminated against by the contractor or any subcontractor because the employee has filed a complaint or instituted (or caused to be instituted) any proceeding or who has testified (or is about to testify) in any proceeding under or relating to the applicable labor standards of this contract with his employer.

B. **Claims and Disputes Pertaining to Wage Rates**: Claims and disputes pertaining to wage rates or to classifications of laborers and mechanics employed upon the work covered by this contract shall be promptly reported by the contractor in writing to the Town of Essex.

C. **Questions concerning certain Federal statutes and regulations**: All questions arising under this contract which relate to the application or interpretation of any of the five following requirements shall be directed to the Town of Essex.

1. Anti-kickback Act,

2. Contract work hours and Safety Standards Act,

3. Davis-Bacon Act,

4. Secretary of Labors regulations pertaining to l, 2 and 3 above,

5. The labor standards provisions of any other pertinent Federal statute.

13. OVERTIME REQUIREMENTS:

No contractor or subcontractor shall require or permit any laborer or mechanic to work in excess of eight hours in any calendar day or in excess of forty hours in any workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all hours in excess of eight hours/day or in excess of forty hours/week, as the case may be. In the event of any violation of the above, the contractor and any subcontractor responsible therefore, shall be liable to any affected employee for his unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States for liquidated damages. Liquidated damages shall be computed at $10.00 per calendar day for each laborer or mechanic required or permitted to work in excess of eight hours or in excess of the standard week of forty hours without payment of the overtime wages required. -The Municipality may withhold or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor, any sums necessary to satisfy any liabilities of the contractor or subcontractor for unpaid wages and liquidated damages.

The contractor shall insert the foregoing stipulation in all subcontracts. Furthermore, subcontractors are to include these same requirements in any lower-tier subcontracts into which they may enter.

14. EQUAL EMPLOYMENT OPPORTUNITY:

A. The Contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut. The contractor further agrees to take affirmative action to insure that applicants with job related qualifications are employed and that employees are treated when employed with out regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation, 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;

B. The contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the commission;

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

D. The contractor agrees to comply with each provision of Conn. Gen. Stat. §§ 4a-60, 46a-68e and 46a68f and with each regulation or relevant order issued by said commission pursuant to Conn. Gen. Stat. §§ 46a-56, as amended by Section 5 of Public Act 89-253, 46a-68e;

F. The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56. If the contract is a public work contract, the contractor agrees and warrants that he will make good faith efforts to employ minority and women business enterprises as subcontractors and I suppliers of materials on such public works project.

Pursuant to the provisions of Conn. Stat. Sect. 4a.60a.

A. The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientations, in any manner prohibited by the laws of the United States or of the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation;

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

C. The contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f of the general statutes and with each regulation or relevant order issued by said Commission pursuant to section 46a-56, 46a-68e and 46a-68f of the general statutes;

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

Executive Order 11246.30 Federal Regulations 12319(1965) Equal Employment Opportunity Clause

"During the performance of this contract, the contractor agrees as follows:

A. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertisement; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, and to make available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

B. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard too race, color, religion, sex, or national origin.

C. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the Contract Compliance Officer advising the said labor union or workers' representatives of the contractors commitment under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

D. The contractor will comply with all provisions of (Federal) Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the (United States) Secretary of Labor.

E. The contractor will furnish all information and reports required by (Federal) Executive Order 11246 of September 24, 1965, and by the rules and regulations, and orders of the (United States) Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by HUD, by the Connecticut Department of Housing and by the (United States) Secretary of Labor, for purses of investigation to ascertain compliance with such rules, regulations, and orders.

F. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further (United States) Government contracts or federally assisted construction contracts procedures authorized in (Federal) Executive Order 11246 of September 24, 1965, or order of the (United States) Secretary of Labor, or as otherwise provided by law.

G. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the (United States) Secretary of Labor issued pursuant to Section 204 of (Federal) Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as HUD (or the Commissioner of the Connecticut Department of Housing) shall direct as a means of enforcing such provisions, including sanctions for noncompliance: provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by HUD (or the Commissioner of the Connecticut Department of Housing), the contractor may request the United States to enter into such litigation to protect the interest of the United States"

Exemptions from above Equal Employment Opportunity Clause (4)(CFR Chap. 601)

A. Contracts and subcontracts of $10,000 or less (other than Government bills of lading) are exempt. The amount of the contract, rather than the amount of the Federal financial assistance shall govern in determining the applicability of this exemption.

B. Except in the case of subcontracts for the performance of construction work at the site of construction, the clause shall not be required to be inserted in subcontracts below the second tier.

C. Contracts and subcontracts of $100,000 or less for standard commercial supplies or raw materials are exempt.

The contractor shall not be nor enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

The contractor shall carry out sanctions and penalties for violation of these specifications and the Equal Employment Clause, including suspension, termination and cancellation of existing subcontracts, as

imposed or ordered by the Office of Federal Contract Compliance in accordance with Executive Order 11246. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and I Executive Order 11246, as amended.

The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in the sub-paragraphs above, so as to achieve maximum results from its employees to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

The contractor shall designate a responsible official to monitor all employment-related activity in order to ensure that the company EEO policy is being carried out. The designated official must keep records and submit reports relating to the provisions hereof as required by the Municipality. Records shall include for each employee the name, address, telephone numbers, construction trade union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

Nothing herein shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application or requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Executive Order Number 3

This contract is subject to the provisions of Executive Order No.3 of Governor Thomas J. Meskill promulgated June 16, 1971, and, as such, this contract may be canceled, terminated, or suspended by the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Three, or any State or Federal law concerning nondiscrimination, notwithstanding that the Labor Commissioner is not a party to this contract. The parties to this contract, as part of the consideration hereof, agree that said Executive Order No. Three is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the State Labor Commissioner shall have continuing jurisdiction in respect to contract performance in regard to nondiscrimination, until the contract is completed or terminated prior to completion.

Executive Order Number 17

This contract is subject to the provision of Executive Order No.17 of Governor Thomas J. Meskill, promulgated February 15, 1973, and, as such, this contract may be canceled, terminated, or suspended by the Commissioner of Department of Housing or the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Seventeen, notwithstanding that the Labor Commissioner may not be a party to this contract. The parties to this contract, as part of the consideration hereof, agree that Executive Order No. Seventeen is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the Commissioner of Department of Housing and the State Labor Commissioner shall have joint and continuing jurisdiction in respect to listing all employment openings with the Connecticut State Employment Service.

Certification of Non-segregated Facilities

As required by 41 CFR 60-1.8, must be submitted prior to the award I of federally assisted construction contracts exceeding $10,000 which are not exempt from the provisions of the Equal Employment Clause. Contractors receiving federally assisted construction contract awards exceeding $10,000 which are not exempt I from the provisions of the Equal Employment Clause shall be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Employment Clause:

A. A certification of non-segregated facilities as required by the 32CFR 7439, May 19, 1967, must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal --Employment Opportunity Clause.

B. Contractors receiving subcontract awards exceeding $10,000 which are not exempt from the provisions of I the Equal Employment Opportunity Clause shall be required to provide for the forwarding of this notice to -prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Employment Opportunity Clause.

15. COPELAND "ANTI-KICKBACK" PROVISIONS:

The provisions of this section prescribe II Anti-Kickback" regulations under Section 2 of the Act of June 13, 1964, as amended (40 U.S.C. 276c), popularly known as the Copeland Act.
Each contractor or subcontractor shall furnish each week a Statement of Compliance, Form ED-162, to accompany the weekly submission of payroll forms.
Anyone making and/or using a fraudulent document or statement of entry, in any matter within the jurisdiction of any department or agency of the United States, is subject to being fined up to $10,000 or imprisoned for up to five years, or both (refer to 18 USC 1001-72Stat.967).

The provisions of this section shall not apply to any contract of $2,000 or less.

Upon a written finding by the head of a Federal Agency, the Secretary of Labor may provide reasonable -limitations, variations, tolerances, and exemptions from the requirements of this section subject to such conditions as the Secretary of Labor may specify.

Deductions made under the circumstances or in the situations described in the paragraphs below may be made without application to and approval of the Secretary of Labor.

A. Any deduction made in compliance with the requirements of Federal, State, or local law such as Federal or State withholding income taxes and Federal Social Security taxes.

B. Any deductions of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. A "bona fide prepayment of wages" is considered to have been made only when cash or its equivalent has been advanced to the employee in such a manner as to -give the employee complete freedom of disposition of the advanced funds.

C. Any deduction of amounts required by court process to be paid to another unless the deduction is in favor of -the contractor, subcontractor, or any affiliated person, or when collusion or collaboration exists.

D. Any deduction constituting a contribution on behalf of the employee to funds established by the employer or representative of the employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions or annuities or

retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents; provided, however, that the following standards are met:

1. The deduction is not otherwise prohibited by law.

2. It is either voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees.

3. No profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise.

4. The deductions shall serve the convenience and interest of the employee.

E. Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when I voluntarily authorized by the employee.

G. Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.

H. Any deductions voluntarily authorized by the employee for making contributions to Community Chests, United Givers Funds and similar charitable organizations.

I. Any deductions voluntarily authorized by the employee for making contributions to governmental or quasi-governmental agencies.

J. Any deductions to pay regular union initiation fees and membership dues (not including fines or special assessments) as long as a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provided for such deductions and the deductions are not otherwise -prohibited by law.

K. Any deductions not more than for the "reasonable cost' of board, lodging, or other facilities meeting the -requirements of section 3(m) of the Fair Labor Standards Act of 1938, as amended, and Part 531 of this title. When such a deduction is made, the additional records required under S516.25 (a) of this title shall be kept.

16. By execution of this agreement, the municipality hereby certifies that for all subgrants, contacts and subcontracts exceeding $100,000 of Small Cities funds:

A. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

B. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of

Congress, an officer or employee of Congress, or Federal contract, grant, loan, or cooperative agreement, the Municipality shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

C. The Contractor shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under subrecipients shall certify and disclose accordingly.

D. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

17. Federal Wage Rate and Related Documentation

Refer to attached wage rates and related documentation.

FEDERAL LABOR STANDARDS PROVISIONS

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance. A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR-5.5 (a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less than often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employers payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of work in a prominent and accessible place where the workers can easily see it.

(ii)(a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

1. The work to be performed by the classification requested is not performed by a classification in the wage determination; and

2. The classification is utilized in the area by the construction industry; and

3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUG or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administrator, U.S. Department of Labor, Washington, D.C. 20210. The administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under 0MB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the, classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (l)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not wake payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided: that the Secretary of Labor has found, upon the written request of the contractor, that applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 12150140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer of mechanic, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any

apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HU D or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be, maintained by the contractor during the course of the work preserved for a period of three years thereafter Toy all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(6)(2)(8) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget. under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii)(a) The contractor shall submit weekly for each week in which an contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U. s. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under 0MB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of compliance" signed by the contractor or subcontractor or his or her agent who pays of supervises the payment of he persons employed under the contract and shall certify the following:

1. That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;

2. That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

3. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form NH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A.3 (ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3 (i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUO or its designee may, after written notice to the contractor, sponsor, applican4 or owner, take such action as may be necessary to cause the suspension of any further paymen4 advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4. Apprentices and Trainees. (i) Apprentices. Apprentices will be permitted to work less than the predetermined rate far the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the u. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, which is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered

program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen's hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to, and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the 'trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and-participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed, In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirement of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract termination; debarment, A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR5.12

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3 and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U. s. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's fire is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR Part 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of Government contract by virtue of Section 3{a) of the Davis-Bacon Act or 29 CFR 5,12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24,

(iii) The penalty for making false statements is prescribed in the U. s. Criminal Code, 18 U.S.C. 1001, Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part "Whoever, for the purpose of...influencing in any way the action of such Administration, makes, utters or publishes any statement, knowing the same to be false, shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom i' the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

A. Contract York Hours and Safety Standards Act. As used in this paragraph, the terms " "laborers" and "mechanics" include watchmen and guards.

    1. **Overtime requirements**. No contractor or subcontractor contracting any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed in such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. **Violation; liability for unpaid wages; liquidated damages**. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

3. **Withholding for unpaid wages and liquidated damages**. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) or this paragraph and also a clause requiring the subcontractors to include there clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

1. No laborer or mechanic shall be required to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

2. The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

3. The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

General Decision Number: CT160009 01/08/2016 CT9

Superseded General Decision Number: CT20150009

State: Connecticut

Construction Type: Residential

County: Middlesex County in Connecticut.

RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016

ELEV0091-001 01/01/2015

	Rates	Fringes
ELEVATOR MECHANIC.....	$ 47.96	28.385+a+b

FOOTNOTE:
a.Vacation: 6%/under 5 years based on regular hourly rate for all hours worked. 8%/over 5 years based on regular hourly rate for all hours worked.
b. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

ENGI0478-006 04/05/2015

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Backhoe/Excavator 2 cubic yards and over.....	$ 37.23	23.05
Backhoe/Excavator under 2 cubic yards; Rubber Tire Backhoe/Excavator.....	$ 36.49	23.05
Bulldozer (Rough Grade Dozer).....	$ 35.20	23.05
Bulldozer Fine Grade.....	$ 36.49	23.05
Combination Hoe and Loader..	$ 35.51	23.05

Loader (3 cubic yards up to 7 cubic yards)	$ 35.20	23.05
Loader (7 cubic yards or over)	$ 37.55	23.05
Loader (under 3 cubic yards)	$ 34.03	23.05

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.

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* ROOF0009-005 06/01/2015

	Rates	Fringes
ROOFER		
Composition	$ 33.70	18.23
Slate and Tile	$ 34.20	18.23

SFCT0676-002 04/01/2015

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 41.37	20.37

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.

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* SHEE0040-003 07/01/2015

	Rates	Fringes
SHEET METAL WORKER	$ 35.74	30.33

SUCT2002-004 12/16/2008

	Rates	Fringes
CARPENTER, Including Drywall Hanging	$ 17.24	1.60
CEMENT MASON/CONCRETE FINISHER	$ 21.22	0.00
DRYWALL FINISHER/TAPER	$ 16.25	2.70
ELECTRICIAN	$ 19.99	2.00
LABORERS		
Common or General	$ 10.66	1.63
Landscape	$ 14.96	4.63
PAINTER: Brush and Roller,		

Excludes Drywall
Finishing/Taping.....$ 17.10 1.56

PLUMBER, Includes HVAC Pipe
Installation.....$ 16.67 2.63

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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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 clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates

the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

Project: Essex Court Septic System Repairs

Minimum Rates and Classifications for Residential Construction

ID#: **R** 21577

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: SC1505001

FAP#:

Project Town: Essex

State Number:

Project: Essex Court Septic System Repairs

CLASSIFICATION	Hourly Rate	Benefits
Roofers: Composition	33.25	18.05
Roofers: Slate & Tile	33.75	18.05
Sprinkler Fitters (Fire Sprinklers) (Trade License required: F-1,2,3,4)	41.37	20.37 + a
Cement Masons/Concrete Finisher and Tile Setter	21.22	
Elevator Mechanics (Trade License required: R-1,2,5,6)	47.96	28.385+a+b
Power Equipment Operator: Backhoe/Excavator 2 Cubic Yards and Over	37.23	23.05 + a

As of: **Wednesday, January 20, 2016**

Project: Essex Court Septic System Repairs

Power Equipment Operator: Bulldozer Fine Grade	36.49	23.05 + a
Power Equipment Operator: Combination Hoe and Loader	35.51	23.05 + a
Power Equipment Operator: Loader (3 cubic yards up to 7 cubic yards)	35.20	23.05 + a
Power Equipment Operator: Loader (7 cubic yards or over)	37.55	23.05 + a
Power Equipment Operator: Backhoe/Excavator under 2 cubic yards; Rubber Tire Backhoe/Excavator	36.49	23.05 + a
Power Equipment Operator: Bulldozer (Rough Grade Dozer)	35.20	23.05 + a
Power Equipment Operator: Loader (under 3 cubic yards)	34.03	23.05 + a
Sheet Metal Mechanics (Including HVAC Duct Installation) (Trade License required: SM-1,2,3,4,5,6)	35.74	33.22
Carpenter (Including Drywall Hanging)	17.24	1.60
Electricians (Trade License required: E1,2 L-5,6 C-5,6 T-1,2 L-1,2, V-1,2,7,8,9)	19.99	2.00

As of: **Wednesday, January 20, 2016**

Project: Essex Court Septic System Repairs

Painter: Brush and Roller, Excludes Drywall Finishing/Taping	17.10	1.56
Painter: Drywall Finisher/Taper	16.25	2.70
Laborers: Common or General	10.66	1.63
Laborers: Landscape, Asbestos/Toxic Waste Removal, Lead Removal and Encapsulation	14.96	4.63
Plumbers - (Including HVAC Pipe Installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	16.67	2.63

As of: **Wednesday, January 20, 2016**

Project: Essex Court Septic System Repairs

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 $2.00 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 journeyperson instructing and supervising the work of each apprentice in a specific trade.

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

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

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

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

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

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.

***As of:* Wednesday, January 20, 2016**

Project: Essex Court Septic System Repairs

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 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)

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

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

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

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

As of: **Wednesday, January 20, 2016**

[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.

n accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
hall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

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, DDRESS and SECTION	AP/PR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION / Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours / Total O/T Hours	BASE HOURLY RATE / TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY																
												$ Basic Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Basic Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Basic Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Basic Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							

29/2013
PWS-CPL

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER ____ OF

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 _____ 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)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Date _____

I, _____ _____
(Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the
(Contractor or Subcontractor)

_____; that during the payroll period commencing on the
(Building or Work)

_____ day of _____, _____, and ending the _____ day of _____, _____,

all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said

_____ from the full
(Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

_____

_____

_____

_____

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

☐ – In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ – Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.

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.

<u>Informational Bulletin</u>

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE, PROGRAM OR TRAINING

(Applicable to public works contracts as described by Conn. Gen. Stat. § 31-53(g) entered into *on or after July 1, 2009*)

(1) This requirement was created by Public Act No. 08-83, which is codified in Section 31-53b of the Connecticut General Statutes;

(2) The course, program or training is required for public works contracts as described by Conn. Gen. Stat. § 31-53(g) entered into on or after July 1, 2009;

(3) It is required of private workers (not state or municipal workers) and apprentices who perform the work of a mechanic, laborer or worker pursuant to the classifications of labor under Conn. Gen. Stat. § 31-53 on a public works project as described by Conn. Gen. Stat. § 31-53(g);

(4) The ten-hour construction safety and health course, program or training pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, a new mining training program approved by the Federal Mine Safety and Health Administration in accordance with 30 C.F. R. 48, or, 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) Proof of course, program or training completion shall be demonstrated through the presentation of a "completion document" (card, document, certificate or other written record issued by federal OSHA or by the Federal Mine Safety and Health Administration) as defined by Conn. State Agencies Regs. § 31-53b-1(2).

(8) Any completion document with an issuance date more than 5 years prior to the commencement date of the public works project shall not constitute proof of compliance with § 31-53b;

(9) For each person who performs the duties of a mechanic, laborer or worker on a public works project, the contractor shall affix a copy of the completion document to the certified payroll required to be submitted to the contracting agency for such project on which such worker's name first appears;

(10) Any mechanic, laborer or worker on a public works project found to be in non-compliance shall be subject to removal from the project 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;

(11) Any such employee who is determined to be in noncompliance may continue to work on a public works project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(12) The statute provides the minimum standards required for the completion of a construction safety and health course, program or training by employees on public works contracts; any contractor can exceed these minimum requirements.;

(13) Regulations pertaining to § 31-53b are located at Conn. State Agencies Regs. §31-53b-1 *et seq.*, and are effective May 5, 2009. The regulations are posted on the CTDOL website;

(14) Any questions regarding this statute or the regulations 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 ULTMATELY 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.

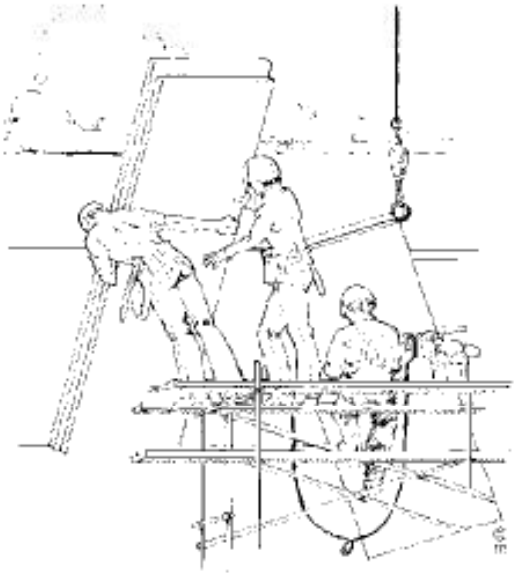
~NOTICE~

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: _____

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): _____

OCCUPATIONAL CLASSIFICATION BULLETIN

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.

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.

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.

- **CLEANING LABORER**

  - The clean up of any construction debris and the general cleaning, including sweeping, wash down, mopping, wiping of the construction facility, washing, polishing, dusting, etc., prior to the issuance of a certificate of occupancy falls under the *Labor classification.*

- **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/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 requires either a blended rate or 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 requires either a blended rate or equal composite workforce. Insulated metal and insulated composite panels are still installed by the Ironworker.
- **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. Past practice using the applicable licensed trades, Plumber, Sheet Metal, Sprinkler Fitter, and Electrician, is not inconsistent with the Insulator classification and would be permitted.
- **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), metal bridge handrail, and decorative security fence 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 hanging+ 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**

  - ates 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. (tear-off and/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, assembles, installs and repairs 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, facia, louvers, partitions, wall panel siding, 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. Insulated metal and insulated composite panels are still installed by the Iron Worker. 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.

- **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**
  - **Definitions:**
    - 1) "Site of the work" (29 Code of Federal Regulations (CFR) 5.2(l)(b) is the physical place or places where the building or work called for in the contract will remain and any other site where a significant portion of the building or work is constructed, provided that such site is established specifically for the performance of the contact or project;
      - (a) Except as provided in paragraph (l) (3) of this section, job headquarters, tool yards, batch plants, borrow pits, etc. are part of the "site of the work"; provided they are dedicated exclusively, or nearly so, to the performance of the contract or project, and provided they are adjacent to "the site of work" as defined in paragraph (e)(1) of this section;
      - (b) Not included in the "site of the work" are permanent home offices, branch plant establishments, fabrication plants, tool yards etc, of a contractor or subcontractor whose location and continuance in operation are determined wholly without regard to a particular State or political subdivision contract or uncertain and indefinite periods of time involved of a few seconds or minutes duration and where the failure to count such time is due to consideration justified by industrial realities (29 CFR 785.47)
    - 2) "Engaged to wait" is waiting time that belongs to and is controlled by the employer which is an integral part of the job and is therefore compensable as hours worked. (29 CFR 785.15)
    - 3) "Waiting to be engaged" is waiting time that an employee can use effectively for their own purpose and is not compensable as hours worked. (29 CFR 785.16)

- 4) "De Minimus" is a rule that recognizes that unsubstantial or insignificant periods of time which cannot as a practical administrative matter be precisely recorded for payroll purposes, may be disregarded. This rule applies only where there are uncertain and indefinite periods of time involved of a short duration and where the failure to count such time is due to consideration justified by worksite realities. For example, with respect to truck drivers on prevailing wage sites, this is typically less than 15 minutes at a time.

- **Coverage of Truck Drivers on State or Political subdivision Prevailing Wage Projects**

  - Truck drivers **are covered** for payroll purposes under the following conditions:

    - Truck Drivers for time spent working on the site of the work.

    - Truck Drivers for time spent loading and/or unloading materials and supplies on the site of the work, if such time is not de minimus

    - Truck drivers transporting materials or supplies between a facility that is deemed part of the site of the work and the actual construction site.

    - Truck drivers transporting portions of the building or work between a site established specifically for the performance of the contract or project where a significant portion of such building or work is constructed and the physical places where the building or work outlined in the contract will remain.

  For example: Truck drivers delivering asphalt are covered under prevailing wage while" engaged to wait" on the site and when directly involved in the paving operation, provided the total time is not "de minimus"

  - Truck Drivers **are not** covered in the following instances:

    - Material delivery truck drivers while off "the site of the work"

    - Truck Drivers traveling between a prevailing wage job and a commercial supply facility while they are off the "site of the work"

    - Truck drivers whose time spent on the "site of the work" is de minimus, such as under 15 minutes at a time, merely to drop off materials or supplies, including asphalt.

These guidelines are similar to U.S. Labor Department policies. The application of these guidelines may be subject to review based on factual considerations on a case by case basis.

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.

General Contractor Partial Affidavit Waiver of Lien

Job Name: _____

State Of: _____

County Of: _____

Location: _____

To Whom It May Concern:

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

_____ for _____
Contracting agency work/materials

on the construction of _____

on the premises of the Owner _____

at said project _____

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

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

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

_____
Firm's Name

_____
Authorized Signature

State of Connecticut:
County of: _____ Date: _____

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

_____
Notary Public Signature
My Commission Expires: _____

Subcontractor/Supplier Partial Affidavit Waiver of Lien

Job Name: _____

State Of: _____

County Of: _____

Location: _____

To Whom It May Concern:

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

_____ for _____
General Contractor work/materials

on the construction of _____

on the premises of the Owner _____

at said project _____,

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

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

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

_____
Firm's Name

_____
Authorized Signature

State of Connecticut:
County of: _____ Date: _____

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

_____
Notary Public Signature
My Commission Expires: _____

General Contractor Final Affidavit Waiver of Lien

Job Name: _____

State Of: _____

County Of: _____

Location: _____

To Whom It May Concern:

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

_____ for _____
Contracting agency work/materials

on the construction of _____

on the premises of the Owner _____

at said project _____

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

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

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

_____
Firm's Name

_____
Authorized Signature

State of Connecticut:
County of: _____ Date: _____

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

_____
Notary Public Signature
My Commission Expires: _____

Subcontractor/Supplier Final Affidavit Waiver of Lien

Job Name: _____

State Of: _____

County Of: _____

Location: _____

To Whom It May Concern:

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

_____ for _____
General Contractor work/materials

on the construction of _____

on the premises of the Owner _____

at said project _____,

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

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

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

_____
Firm's Name

_____
Authorized Signature

State of Connecticut:
County of: _____ Date: _____

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

_____
Notary Public Signature
My Commission Expires: _____

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Project information.
2. Work covered by the Contract Documents.
3. Project schedule.
4. Coordination activities.
5. Use of premises.
6. Owner's occupancy requirements.
7. Work restrictions.
8. Specification formats and conventions.
9. Codes, standards, permits.
10. OSHA.

B. Related Sections include the following:

1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing

1.3 PROJECT INFORMATION

A. Project Identification: Essex Housing Authority, Essex Court.

1. Project Location: 16 Main Street, Centerbrook, CT.

B. Owner: Essex Housing Authority

C. Engineer: The Contract Documents were prepared for Project by Harry E. Cole & Son of Plantsville, CT.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Project consists of the following:

1. Replacement of Subsurface Sewage Disposal Systems, and associated pavement, curb and sidewalk replacement.

B. The Work includes, but is not limited to the following:

1. Site work including removal and installation of subsurface sewage disposal system remove, minor site grading, paving, and landscaping.

1.5 TYPE OF CONTRACT

A. Project will be constructed under a single contract.

1.6 SCHEDULE

A. General: The Contractor shall prepare 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 activities.

1. The Construction Schedule is critical to the project. All work is required to be Substantially Complete, with a Certificate of Occupancy obtained, and ready for occupancy by the Owner, on or before the date agreed upon in the Contractor/Owner Agreement.

1.7 WORK UNDER OTHER CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

1.8 USE OF PREMISES

A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. Use of Site: Limit use of premises to areas determined by the Owner. Do not disturb portions of Project site beyond areas in which the 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 Owner's Representative.
2. Owner Occupancy: Allow for Owner occupancy of Project site.
3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

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

1.9 OWNER'S OCCUPANCY REQUIREMENTS

A. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.

3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

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 5:00 p.m., Monday through Friday, except otherwise indicated.

1. Weekend Hours: Coordinate with Owner’s Representative.
2. Hours for Utility Shutdowns: Coordinate with Owner’s Representative.

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

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

C. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

1.11 SPECIFICATION FORMATS AND CONVENTIONS

A. 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.

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

1. 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.
2. 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.

C. 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, 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.

D. In case of disagreement between the Drawings and Specifications, or within either document itself, the Architect shall interpret the Documents to require the better quality or greater quantity of work for the Owner that can reasonably be construed therefrom. Any work performed by the Contractor without consulting the Architect, when the same requires a decision, shall be performed at the Contractor's risk.

1.12 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 also 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 requirements of the authorities having jurisdiction shall be the responsibility of the 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 facility 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.

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

1. 2005 Connecticut State Building Code (CSBC):

   a. 2003 International Building Code (IBC)
   b. 2003 International Mechanical Code (IMC)
   c. 2003 International Plumbing Code (IPC)
   d. 2003 International Residential Code (IRC)
   e. 2005 National Electrical Code National Fire Protection Association (NFPA) 70-2005 Life Safety Code (NEC)
   f. 2009 International Energy Conservation Code (IECC)
   g. ICC/ANSI A117.1-2003 Accessible and Usable Buildings and Facilities
   h. 2005, 2009, 2011 and 2013 State of Connecticut Amendments/State Building Code

2. 2005 Connecticut Fire Safety Code (CSFSC):

   a. 2003 International Fire Code (IFC)
   b. 2005 State of Connecticut Amendments/State Fire Code
   c. 2003 NFPA 101 Life Safety Code (Existing Occupancy Chapters)
   d. 2003 International Existing Building Code (IEBC)
   e. 2005 and 2009 State of Connecticut Amendments/State Fire Code

3. 2005 Connecticut Elevator Code (CSEC):

   a. 1996 ASME A17.1 Safety Code for Elevators and Escalators with 1997 and 1998 Amendments

4. CHFA Standards of Design and Construction 2012.
5. Federal Housing and Equal Opportunity Laws (FHAct, ADA, ABA, HOPA, Section 504, UFAS, etc.)
6. Title II of the Americans with Disabilities Act (ADA) including the 2010 ADA Standards for Accessible Design.
7. Section 504 of the Rehabilitation Act of 1973, Uniform Federal Accessibility Standards (UFAS).
8. Fair Housing Act and amendments.

C. Code Enforcement and Approvals: Secure and pay for the general building permit for the work, and conform to all conditions and requirements of the permit and code enforcement authorities. Identify all permits (other than general building permit) required from authorities having jurisdiction over the Project for the construction and occupancy of the work. Prepare the necessary applications and submit required plans and documents to obtain such permits in a timely manner. Permit fees to be paid by the Subcontractor.

1. Display all permit cards as required by the authorities, and deliver legible photocopies of all permits to the Owner promptly upon their receipt.
2. Arrange for all inspections, testing and approvals required for all permits. Notify the Owner and Architect at least three business days in advance, so they may arrange to observe.
3. Comply with all conditions and provide all notices required by all permits.
4. Perform and/or arrange for and pay for all testing and inspections required by the governing codes and authorities, other than those provided by the Owner, and notify the Owner and Architect of such inspections at least three business days in advance, so they may arrange to observe.
5. Where inspecting authorities require corrective work in conjunction with applicable codes and authorities, promptly comply with such requirements, except in cases where such requirements clearly exceed the requirements of the Contract Documents, in which case proceed in accordance with the procedures for modifications to the Work established in the Contract Documents.

1.13 OCCUPATIONAL SAFETY AND HEALTH ACT

A. The Contractor and each Subcontractor 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. Said requirements, standards and regulations are incorporated herein by reference.

1. In accordance with Connecticut General Statutes Sec. 31-53b, all project on-site personnel must show proof of completing and maintaining the OSHA 10 hour certification requirements in accordance with federal OSHA Training Institute standards.

B. The Contractor and each Subcontractor 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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 26 00 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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 "Unit Prices" for administrative requirements for using unit prices.
2. Division 01 Section “Project Management and Coordination” for submitting Requests for Information (RFIs).
3. 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, on AIA Document G710, "Architect's Supplemental Instructions” or similar form prepared by Architect.

1.4 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 issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 10 days after receipt of Proposal Request, submit a quotation to the Architect, estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times,

and activity relationship. Use available total float before requesting an extension of the Contract Time.

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” to the Architect. This request will be responded to by the Architect, 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. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

1.5 ADMINISTRATIVE CHANGE ORDERS

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

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

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, the Architect will issue a Change Order for signatures of Owner and Contractor on CHFA Form 2437 entitled “Request for Construction Change.”

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 on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 29 00 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
2. Division 01 Section "Unit Prices" for administrative requirements governing use of unit prices.
3. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

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

B. Format and Content: Use 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 greater than $25,000, provide a separate line item for units of work within each trade with a value not exceeding $25,000.

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. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. 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 the following mandatory line items:

   a. Mobilization.
   b. Demobilization.
   c. Builders Risk Insurance.
   d. Bonds.
   e. Coordination Drawings.
   f. Scheduling.
   g. Project record documents.
   h. Operation and Maintenance manuals.
   i. Field Engineering.
   j. Daily Building Cleanup.
   k. Safety Program.
   l. Full-Time Project Manager.
   m. Full-Time Project Superintendent.
   n. Field Offices.
   o. Dumpsters.
   p. Cold Weather Protection.
   q. Temporary Heat.
   r. 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. If specified, 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. 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.

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

1.5 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. At least ten days before the date established for each formal Application for Payment, the Contractor shall submit to the Architect an itemized preliminary application for payment for review and comment. The Contractor shall then revise the preliminary application and at least two days prior to the date established for formal application, shall submit to the Architect the revised preliminary application, to allow time for the Architect to prepare a written letter of explanation setting forth any objections and recommended changes to be forwarded along with the formal application to the owner.

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 executed before last day of construction period covered by application.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Requests for payment for on-site stored materials shall be made on CHFA form entitled “Accounting of On-Site Inventory.”
2. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
3. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
4. Provide summary documentation for stored materials indicating the following:

a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.

b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

5. Provide summary documentation for off-site stored materials indicating the following:

a. Evidence of insurance (casualty, theft, etc.) for the stored items and the facility itself, if stored other than at the manufacturer's plant.
b. Bonding company's consent to the off-site storage.
c. UCC-1s for the stored materials creating a security interest for CHFA.
d. A CHFA Field Observer's report, which accepts the proposed storage environment, and a report confirming acceptable delivery of the subject item(s) to the facility.

F. Transmittal: Submit **THREE (3)** 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.

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

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit 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 proceeded by conditional 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 the CHFA form "Total of Lien Waiver Payments."

a. Beginning with the second requisition, each monthly requisition shall include lien waivers for a minimum of 90 percent of the amount indicated on the previous month's Contractor Requisition as "Due This Requisition."

H. 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.

I. 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.

J. 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.

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 or services referenced in or related to this Section shall also be bound by the Documents identified in Division 01 Section “Summary”, Paragraph 1.1A, entitled “Related Documents.”

1.2 SUMMARY

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

1. General coordination procedures.
2. Coordination Drawings.
3. Administrative and supervisory personnel.
4. Project meetings.
5. Requests for Information (RFIs).

B. Related Sections include the following:

1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
2. Division 01 Section "Execution" for procedures for coordinating general installation and field engineering services, including establishment of benchmarks and control points.
3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

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

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

B. Key Personnel Names: Within 10 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. Keep list current at all times, resubmit upon update.

1.5 GENERAL COORDINATION PROCEDURES

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

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors 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 additional compensation or extension of Contract Time will be permitted for conditions resulting from lack of coordination.

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

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

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors 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. Preinstallation conferences.
6. Progress meetings.
7. Startup and adjustment of systems.
8. 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.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare and submit Coordination Drawings to achieve maximum utilization of space for efficient installation of different components and for coordination of installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
f. Indicate required installation sequences.
g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 24 by 36 inches but no larger than 30 by 42 inches at a scale suitable for presentation of the information.
3. Number of Copies: Submit six (6) copies of each submittal.

a. Submit one additional copy where Coordination Drawings are required for operation and maintenance manuals. Architect will retain two copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.

4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

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

1. Site Work

a. Size, location, and elevations of subsurface sewage disposal systems.
b. Approximate location of existing subsurface sewage disposal systems to be removed.
c. Location of pavement, curbing, and sidewalk to be removed and replaced.

2. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility. If the Architect determines that the coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, the Architect will so inform the Contractor, who shall make changes as directed and resubmit.
3. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Division 01 Section "Submittal Procedures."

C. Coordination Digital Data Files: Prepare coordination digital data files in accordance with the following requirements:

1. File Preparation Format: Same digital data software program, version, and operating system as the original Drawings.
2. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format.
3. At the Contractor’s written request, a copy of the Architect’s CAD files will be provided for the Contractor’s use in preparing Coordination Drawings for Project. Electronic File availability is limited to the Architectural Floor Plans and Reflected Ceiling Plans.

1.7 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.

1.8 PROJECT MEETINGS

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

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner, Owner's Representative, and Architect of scheduled meeting dates and times.
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 Owner, Owner's Representative and Architect, within three days of the meeting.

B. Preconstruction Conference: Arrange for attendance of subcontractors at Preconstruction Conference convened by Architect, together with any other persons necessary for full review of scheduling and coordination matters for the Project.

1. Attendees: Authorized representatives of Owner, Owner's Representative, Architect, and their consultants; 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: Include 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 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.
    m. Work restrictions.
    n. Owner's occupancy requirements.
    o. Responsibility for temporary facilities and controls.
    p. Construction waste management and recycling.
    q. Parking availability.
    r. Office, work, and storage areas.
    s. Equipment deliveries and priorities.
    t. First aid.
    u. Security.
    v. Progress cleaning.
    w. Working hours.
    x. Owner-furnished and provided items.
    y. Work performed under separate contracts.
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 and Owner's Representative 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 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: Distribute minutes of the meeting to each party present, the Owner, Architect and Owner's Representative, and to parties who should have been present.
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. Dates of meetings may coincide with preparation of payment requests.

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

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule

revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

1) Review schedule for next period.

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

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

3. Minutes: The Architect will record and distribute the meeting minutes.
4. Reporting: The Architect will distribute minutes of the meeting to each party present.

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

E. Coordination Meetings: Schedule Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes.

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. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined 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.
b. Schedule Updating: Revise Combined 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) Deliveries.
4) Access.

5) Site utilization.
6) Temporary facilities and controls.
7) Work hours.
8) Hazards and risks.
9) Progress cleaning.
10) Quality and work standards.
11) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.9 REQUESTS FOR INFORMATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI, to the Architect, in the form specified.

1. RFIs shall originate with Contractor or Subcontractor. RFIs submitted by entities other than the Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

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

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

a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

C. Hard-Copy RFIs:

1. Identify each page of attachments with the RFI number and sequential page number.

D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

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

a. The following RFIs will be returned without action:
b. Requests for approval of submittals.

c. Requests for approval of substitutions.
d. Requests for coordination information already indicated in the Contract Documents.
e. Requests for adjustments in the Contract Time or the Contract Sum.
f. Requests for interpretation of Architect's actions on submittals.
g. Incomplete RFIs or RFIs with numerous errors.

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

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

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

G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log biweekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1. Preliminary Construction Schedule.
2. Contractor's Construction Schedule.
3. Daily construction reports.
4. Material location reports.
5. Field condition reports.
6. Special reports.
7. Certified payroll records.

B. Related Sections include the following:

1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

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

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

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.

1. Float time belongs to Owner.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

G. Major Area: A story of construction, a separate building, or a similar significant construction element.

H. Milestone: A key or critical point in time for reference or measurement.

I. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

J. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 SUBMITTALS

A. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.

B. Daily Construction Reports: Submit two copies at weekly intervals, to the Architect.

C. Material Location Reports: Submit two copies at monthly intervals, to the Architect.

D. Field Condition Reports: Submit two copies at time of discovery of differing conditions, to the Architect.

E. Special Reports: Submit two copies at time of unusual event, to the Architect.

F. Certified Payroll Records: Submit two copies at weekly intervals to Owner’s Representative.

1.5 QUALITY ASSURANCE

A. Review and approval by the Owner and Owner’s Representative of the Contractor’s Construction Schedule is advisory only and does not relieve the Contractor of the responsibility for completing the work within the Contract time.

1.6 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

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

C. Calendar: Compile a project calendar for use in scheduling. Incorporate all limitations on working days and working hours, including the following:

1. Legal Holidays.
2. Other non-working days determined by the Contractor.
3. Optional working days determined by the Contractor.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for commencement of the Work to date of Substantial Completion.

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

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

1. Activity Duration: Define activities so no activity is longer than 10 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than one day for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's and Owner’s Representative's administrative procedures necessary for certification of Substantial Completion.

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

1. Work under More Than One Contract: Include a separate activity for each contract.
2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
3. Work Restrictions: Show the effect of the following items on the schedule:

a. Partial occupancy before Substantial Completion.
b. Use of premises restrictions.
c. Provisions for future construction.
d. Seasonal variations.

e. Environmental control.

4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

   a. Subcontract awards.
   b. Submittals.
   c. Purchases.
   d. Mockups.
   e. Fabrication.
   f. Sample testing.
   g. Deliveries.
   h. Installation.
   i. Tests and inspections.
   j. Adjusting.
   k. Curing.
   l. Startup and placement into final use and operation.

5. Other Constraints: Include the following specific activities in each trade in each phase.

   a. Interface between Contractor and Subcontractor.
   b. Electrical connections to each piece of equipment.
   c. Mechanical connections to each piece of equipment.
   d. Concrete finishing.
   e. Site work constraints on other activities.

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

E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

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

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

G. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. Preliminary Network Diagram: Submit diagram within 14 days of date established for commencement of the Work. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's Construction Schedule using a computerized, time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for commencement of the Work.

   a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.

2. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
3. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the schedule.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

   a. Preparation and processing of submittals.
   b. Mobilization and demobilization.
   c. Purchase of materials.
   d. Delivery.
   e. Fabrication.
   f. Utility interruptions.
   g. Installation.
   h. Work by Owner that may affect or be affected by Contractor's activities.
   i. Testing and commissioning.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

   a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

E. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Principal events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.

7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the Schedule of Values).

F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float time.
7. Changes in the Contract Time.

2.3 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (refer to special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial Completions and occupancies.
19. Substantial Completions authorized.

B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

2.5 CERTIFIED PAYROLL RECORDS

A. The Contractor and each Subcontractor are required to submit a certified payroll with a statement of compliance on a weekly basis.

B. The Owner has the authority to verify payroll reports by checking employees' pay stubs and personal identification.

C. The Owner may withhold a portion of the Application for Payment if payroll reports have not been submitted for a portion of the Work.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before submission of Application for Payment.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.
4. Evaluate progress of the work jointly with the Owner and Owner's Representative at the end of each week to show progress and identify conflicts.

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

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

END OF SECTION 01 32 00

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
4. Division 01 Section "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
5. Division 01 Section "Closeout Procedures" for submitting warranties.
6. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
7. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
8. Division 01 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.
9. Divisions 02 through 26 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. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. 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.

4. 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.
    h. Scheduled dates for purchasing.
    i. Scheduled dates for installation.
    j. Activity or event number.

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.
3. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

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

C. Processing Time: Allow 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.

4. Concurrent Consultant Review: Submittals may be transmitted simultaneously to Architect and to Architect's consultants, as required. Allow two weeks for review of each submittal. Consultant will return submittal to Architect before being returned to Contractor.

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 subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).

    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

E. Paper Submittals: Place a permanent label or title block on each submittal item 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 for processing and recording action taken:

a. Project name.
b. Date.
c. Name of Architect.
d. Name of Contractor.
e. Name of subcontractor.
f. Name of supplier.
g. Name of manufacturer.
h. Submittal number or other unique identifier, including revision identifier.

1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

i. Number and title of appropriate Specification Section.
j. Drawing number and detail references, as appropriate.
k. Location(s) where product is to be installed, as appropriate.
l. 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.

6. 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 label information as related submittal.

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

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

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

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

G. Options: Identify options requiring selection by Architect.

H. 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.

I. 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.”

J. 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.

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

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

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in 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. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
f. Shopwork manufacturing instructions.
g. Templates and patterns.
h. Schedules.
i. Design calculations.
j. Compliance with specified standards.
k. Notation of coordination requirements.
l. Notation of dimensions established by field measurement.
m. Relationship to adjoining construction clearly indicated.
n. Seal and signature of professional engineer if specified.
o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

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.
3. Number of Copies: Submit five paper copies of each submittal, unless copies are required for operation and maintenance manuals. Submit six copies where copies are required for operation and maintenance manuals. Architect will retain two copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.

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.

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

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

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

5. 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. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product.
2. Number and name of room or space.
3. Location within room or space.
4. Number of Copies: Submit five copies of product schedule or list, unless otherwise indicated. Architect will return four copies.

a. Mark up and retain one returned copy as a Project Record Document.

F. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation" for Architect's action.

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

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

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

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

K. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

L. 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.

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

N. 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.

O. 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.

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

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

R. 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.

S. 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.

T. 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.

U. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

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

W. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

X. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

Y. 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.

Z. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

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

AA. 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.

BB. Material Safety Data Sheets (MSDSs): Submit information as required by law.

2.2 DELEGATED DESIGN

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

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

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit five copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

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

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. 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.

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. “No Exception Taken”; Submittal is approved without changes or corrections.
2. “Make Corrections Noted”; Submittal is approved based on changes or corrections noted. Contractor should resubmit one copy for record.
3. “Rejected”; Submittal was incomplete or did not meet the requirements of the Contract Documents. New submission is required. Contractor is responsible for any delays caused by unacceptable submittals.
4. “Revise and Resubmit”; significant changes or corrections are required prior to approval of this submittal. Complete resubmittal addressing all notes is required. Contractor is responsible for any delays caused by incomplete submittals.
5. “Reviewed”; Used for Informational Submittals.

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

END OF SECTION 01 33 00

SECTION 01 40 00 – QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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, Owner’s Representative, 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. Division 01 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
3. Divisions 2 through 16 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 Owner’s Representative.

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.

1. Approved mockups establish the standard by which the Work will be judged.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. 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.

F. 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.

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

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

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

J. 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.

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

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
12. Contract Document requirements.
13. Name and signature of laboratory inspector.
14. 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 the State of Connecticut 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 is 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.

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.

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

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

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

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
7. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

K. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 2 through 16.

1.7 QUALITY CONTROL

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

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

B. 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.

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

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

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

1. Retesting to be performed by the Inspection and Testing Agency that performed the original tests.
2. Retest original failed test and perform two additional tests at new locations to be determined by Architect and Testing Agency.
3. Continue retesting until compliance is achieved.

E. Testing Agency Responsibilities: Cooperate with Architect, Owner’s Representative, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect, Owner’s Representative, 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.
7. Do not permit the Contractor to deviate from the requirements of the Contract Documents.

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.
2. Provide the Testing Agency with a complete set of Contract Documents.

H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for commencement of the Work.

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

1.8 SPECIAL TESTS AND INSPECTIONS

A. A. Special Tests and Inspections: Owner will engage a qualified testing agency and special inspector to conduct special tests and inspections required by the Connecticut State Building Code and by authorities having jurisdiction as the responsibility of Owner, and as follows:

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

    a. Costs associated with retesting and reinspecting are the responsibility of the Contractor.

B. The Connecticut State Building Code, under which this project is designed and will be built, requires the structural engineer of record (SER) to provide a program of structural tests and inspections for this project. The SER is the structural engineer (an individual) who is in responsible charge of the preparation of the structural drawings and structural specifications for this project and whose State of Connecticut professional engineering seal appears on said structural drawings.

C. The SER has prepared a document entitled Program of Structural Tests and Inspections, which has been or will be submitted to the building official who has jurisdiction over this project, with the application fora building permit.

D. The program of structural tests and inspections shall not relieve the Contractor or its subcontractors of their responsibilities and obligations for quality control of the Work, their other obligations for supervising the work, for any design work which is included in their scope of services, and for full compliance with the requirements of the Contract Documents. Furthermore, the detection of, or failure to detect, deficiencies or defects in the Work during the testing and inspection conducted pursuant to the program shall not relieve the Contractor or its subcontractors of their responsibility to correct all deficiencies or defects, whether detected or undetected, in all parts of the Work, and to otherwise comply with all requirements of the Contract Documents.

E. The program of structural tests and inspection does not apply to the Contractor's equipment, temporary structures used by the Contractor to construct the project, the Contractor's means, methods, and procedures, and job site safety.

F. Where the document Program of Structural Tests and Inspections indicates that a structural component or system is subject to structural tests and inspections and that the SER for the project has not been retained to design said component or system or to prepare a performance specification for said component or system, and the Architect has not otherwise provided for the structural design of said component or system, the Contractor shall retain, or require others under his aegis to retain, a professional engineer

registered in the State of Connecticut to design said component or system and to provide the required program of structural tests and inspections for said component or system.

G. The Contractor shall provide free and safe access to the Work for the SER and all other individuals who are observing the Work or performing structural tests or inspections. The Contractor shall provide all ladders, scaffolding, staging, and up-to-date safety equipment, all in good and safe working order, and qualified personnel to handle and erect them, as may be required for safe access.

H. The Contractor shall give reasonable notice to the SER, or to those performing inspections and tests under the SER's direction, of when the various parts of the Work will be ready for inspection. The Contractor shall obtain instructions from the SER as to what is reasonable notice for the various aspects of the work, and who is to be notified.

I. The Owner reserves the right to back charge the Contractor for additional expense incurred by the Owner for the services of the SER or those under his direction when work is not reasonably ready for inspection in accordance with the notice provided by the Contractor.

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 and Owner's Representative'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 or services referenced in or related to this Section shall also be bound by the Documents identified in Division 01 Section “Summary”, Paragraph 1.1A, entitled “Related Documents.”

1.2 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," "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.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the organizations responsible for the standards and regulations.

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 Thomson Gale'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 or services referenced in or related to this Section shall also be bound by the Documents identified in Division 01 Section “Summary”, Paragraph 1.1A, entitled “Related Documents.”

1.2 SUMMARY

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

B. Related Sections include the following:

1. Division 01 Section "Summary" for limitations on utility interruptions and other work restrictions.
2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
3. Division 01 Section "Execution" for progress cleaning requirements.
4. Division 01 Section “Indoor Air Quality Requirements.”
5. Divisions 02 through 33 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.
6. Division 32 Section "Asphalt Paving" for construction and maintenance of asphalt paving for temporary roads and paved areas.

1.3 USE CHARGES

A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water Service: Pay water-service use charges for water used by all entities for construction operations.

C. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.

1.4 INFORMATIONAL SUBMITTALS

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

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

1.5 QUALITY ASSURANCE

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

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

C. Accessible Temporary Egress: Comply with applicable provisions in the 2010 ADA Standards and ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pavement: Comply with Division 32 Section "Asphalt Paving."

B. 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 galvanized steel bases for supporting posts.

2.2 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- square tack and marker boards.
3. Drinking water and private toilet.
4. Coffee machine and supplies.
5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg. F.
6. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 EQUIPMENT

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

B. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

C. HVAC Equipment: Provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

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

1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary."

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

3.2 TEMPORARY UTILITY INSTALLATION

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

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

B. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

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

D. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service underground, unless otherwise indicated.

G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for demolition operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line and one facsimile line for field office.

1. Provide additional telephone lines for the following:

a. Provide a dedicated telephone line for each facsimile machine.
b. Provide one telephone line(s) for common use.

2. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.
b. Ambulance service.
c. Contractor's home office.
d. Architect's office.
e. Engineers' offices.
f. Owner's office.
g. Principal subcontractors' field and home offices.

3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

I. Electronic Communication Service: Provide a desktop computer in the primary field office adequate for use by Architect and Owner to access Project electronic documents and maintain electronic communications. Equip computer with not less than the following:

1. Processor: Intel Pentium D or Intel CoreDuo, 3.0 GHz processing speed.
2. Memory: 4 gigabyte, minimum.
3. Disk Storage: 300 gigabyte hard-disk drive and combination DVD-RW/CD-RW drive.
4. Display: 22-inch LCD monitor with 256-Mb dedicated video RAM.
5. Full-size keyboard and mouse.
6. Network Connectivity: 10/100BaseT Ethernet.
7. Operating System: Microsoft Windows XP Professional.
8. Productivity Software:

a. Microsoft Office Professional, XP or higher, including Word, Excel, and Outlook.
b. Adobe Reader 7.0 or higher.
c. WinZip 7.0 or higher.

9. Printer: "All-in-one" unit equipped with printer server, combining color printing, photocopying, scanning, and faxing, or separate units for each of these three functions.
10. Internet Service: Broadband modem, router and ISP, equipped with hardware firewall, providing minimum 384 Kbps upload and 1 Mbps download speeds at each computer.
11. Internet Security: Integrated software, providing software firewall, virus, spyware, phishing, and spam protection in a combined application.
12. Backup: External hard drive, minimum 40 gigabyte, with automated backup software providing daily backups.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas in same location as permanent roads and paved areas. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

C. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Division 31 Section "Earth Moving."
3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 32 Section "Asphalt Paving."

D. 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.

E. Parking: Provide temporary parking areas for construction personnel.

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

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

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

1. Identification Signs: Provide Project identification signs as indicated on Drawings.
2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

    a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touchup signs so they are legible at all times.

H. 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. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly.

1. Comply with Division 01 Section "Execution" for progress cleaning requirements.
2. Provide sufficient quantity of dumpsters at strategic locations within the Contract limit lines for collection of waste from the work of all Subcontractors.
3. Do not pass materials through open windows, or through window openings when any portion of the window remains in the opening.

I. Temporary Elevator Use: Refer to Division 14 Sections for temporary use of new elevators.

J. Temporary Lifts and Hoists: The Contractor shall provide, operate and maintain in safe operating order facilities for hoisting materials, rubbish, employees and to otherwise carry out the Work. Truck cranes, fork lifts, man lifts and similar devices required for the performance of the Work by each Subcontractor shall be provided by the Subcontractor.

1. Provide temporary lifts and hoists that comply in all respects with the most stringent of all applicable Federal (including OSHA), state and local laws, rules, regulations, codes and ordinances, and provisions of Division 01 of this Specification.
2. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

K. Staging and Scaffolding: Where staging and scaffolding is required, the Contractor shall provide the entire installation.

1. Staging shall be of approved design, erected and removed by experienced stage builders and shall have all accident prevention devices required by State and local laws.

L. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.

M. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

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

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

1. Comply with work restrictions specified in Division 01 Section "Summary."

C. Temporary Erosion and Sedimentation Control: Comply with requirements specified in Division 31 Section "Site Clearing."

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

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

F. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.

G. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

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

I. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.

1. Construct covered walkways using scaffold or shoring framing.
2. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
3. Paint and maintain appearance of walkway for duration of the Work.

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

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Provide enclosures as required on the exterior or interior side of the building, whether the roof has been installed or not, and whether windows or doors have been installed or not, in order to protect the Work and allow Work to continue in accordance with the requirements of the Specifications. Coordinate enclosure

with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

a. Erect and maintain temporary enclosures and temporary heat during the months of November through March.

2. 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.
3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.
4. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire-retardant treated material for framing and main sheathing.
5. Do not use new permanent doors and frames for temporary enclosures until finishing work is begun, and then only if carefully protected from damage. Prior to installation of permanent doors and frames, provide temporary wood or plywood doors with wood frames and proper hardware to make the doors self-closing.

a. Close and lock all openings accessible from ground level at end of each day=s work to prevent entry of unauthorized persons.

K. Protection: Protect the Work at all times from damages. Provide all pumps, equipment and enclosures to ensure this protection.

1. Remove all snow and ice as may be required for proper protection and prosecution of the work.
2. Provide all shoring, bracing and sheeting as required for safety and for proper execution of work.
3. Protect all work from damage during cold weather. If low temperatures make it impossible to continue operations safely in spite of cold weather precautions, cease work and notify Architect. Repair and/or replacement of all work damaged from frost, freezing or any elements of the weather are the responsibility of the Contractor responsible for temporary protection of the Work.
4. Should high wind warnings be issued by the U.S. Weather Advisory Bureau, take every precaution to minimize danger to persons, to the Work, and to adjacent properties, including, but not limited to, removing all loose materials, tools and/or equipment from exposed locations, and removing or securing scaffolding or other temporary work.
5. Protect the building and the site from damage, loss or liability due to theft or vandalism when the work is not in progress at night, weekends, or holidays.
6. Exercise precaution for the protection of persons and property at all times. Observe the provisions of applicable laws and construction codes. Take additional safety and health measures, or cause such measures to be taken as reasonably necessary. Maintain guards on machinery, equipment and other hazards as set forth in the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable laws.
7. Protect and preserve in operating conditions all utilities traversing the work area. Repair all damages to any utility due to work performed under this Contract, the satisfaction of the Architect at no additional cost to the Owner.
8. Protect all existing and new finished surfaces against damage from work under this Contract. Restore or replace finishes that are damaged to their original condition, subject to approval by the Architect, and at no additional cost to the Owner.

L. Roof Protection: The Contractor shall protect all roof surfaces to prevent damage from new construction operations. Keep traffic on roof systems to a minimum, and permit traffic only as required to complete the work under this Contract.

1. Repair or replace roofing system components and substrates to their original condition where damaged by operations under this Contract. Comply with Specifications and/or roofing

manufacturer's written recommendations for maintaining new and existing roofing warranties, subject to approval by the Architect, and at no additional cost to the Owner.

M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 OPERATION, TERMINATION, AND REMOVAL

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

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

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

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor.
2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 56 39 – TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

A. Protect all trees not designated to be removed, in areas near construction, by boxing or fencing before grading operations start.

1.3 RELATED WORK

A. Other specification sections which directly relate to the work of this section include, but are not limited to, the following:

1. Section 31 10 00- Site Clearing
2. Division 31 - Earthwork

PART 2 - PRODUCTS

2.1 MATERIALS

A. Boxing shall consist of simple but durable fence around the tree. It shall consist of 2 inch x 2 x 7 foot posts set no more than 10 feet on center with three stringers (1 inch x 6 inches) per side. Height shall be approximately 4 feet. Fence shall be constructed a minimum of 8 feet from base of tree unless otherwise noted on the plans.

B. Fencing shall consist of 4 foot high snow fencing wired to 8 foot steel fence stakes driven a minimum of 3 feet into the ground. Fencing shall be installed a minimum of 8 feet from base of tree or trees to be protected unless otherwise noted on the plans.

PART 3 - EXECUTION

3.1 Install tree protection using either method described in Part 2 above.

3.2 Trees damaged shall be repaired by and approved tree surgeon. Any tree removed erroneously, or damaged beyond satisfactory repair, shall be replaced with the same species 5 inches in caliper, which shall be balled, burlapped and platformed.

3.3 No material shall be stored or any construction activities carried on within 15 feet of any tree that is to be saved.

END OF SECTION 01 56 39

SECTION 01 57 13– TEMPORARY EROSION AND SEDIMENT CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. The work under this section shall consist of any and all temporary and/or permanent measures to control water pollution and soil erosion as may be required, specified herein, shown on the Contract Drawings or directed by the Inspector, during the construction of the work embraced under this contract and for such a length of time after the completion of the work embraced under this contract for such a length of time after the completion of work as determined by the Developer.

B. This work applies to, but is not limited to, any construction work resulting in water pollution or soil erosion.

C. The work shall consist temporary erosion control protection measures to control water pollution and soil erosion through the use of beams, dikes, dams, sediment traps, sediment basins, temporary seeding, netting, gravel, mulches, grasses, slope drains, ditches, channels, riprap, fabric fences, filter socks, filter bags, erosion control applicator (floc) logs, ditch checks, compost blankets, geo-fabric, hay bales, silt sacks and grading to control surface runoff and other erosion control devices or methods. The work shall include the construction and maintenance of temporary sediment traps or sediment basins to the dimensions and details and at the locations if shown on the Contract Drawings and/or as directed by the Inspector and Developer.

D. Site Work Improvement construction shall not proceed until the erosion and sedimentation controls have been placed and have been approved by the Developer.

E. The Subcontractor shall maintain all erosion controls as indicated in plans and specifications as a minimum and as directed by Centerplan at no additional cost to Developer or Centerplan.

1.3 RELATED SECTIONS

A. Section 01 57 26 – Site Watering for Dust Control

C. Section 31 00 00 – Earthwork

D. Section 32 90 00 – Planting

E. Section 32 91 19.13 – Topsoil Placement and Grading.

1.4 PERFORMANCE REQUIREMENTS

A. Protect adjacent properties and water resources from erosion and sediment damage throughout life of contract.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

1.6 QUALITY ASSURANCE

A. Reference Standards: The latest edition of the following standards, as referenced herein, shall be applicable.

1. "State of Connecticut Department of Transportation Standard Specifications."
2. "Connecticut Guidelines for Erosion and Sediment Control."

PART 2 - PRODUCTS

2.1 MATERIALS

A. The materials shall be satisfactory to the Developer and may consist of the following:

B. Mulches may be hay, straw, wood cellulose, wood chips, stone, netting, burlap, plastic sheets or other suitable mulch material acceptable to the Developer. Mulches shall be reasonably clean and free of noxious weeds and deleterious materials. Asphalt sprays will not be allowed. The Contractor shall prevent straw, wood ships, etc. from entering any reservoirs or watercourses.

C. Slope drains or diversion ditches may be constructed of pipe, rubble, riprap, sod, burlap, jute and excelsior matting, plastic sheets, Portland cement concrete, bituminous concrete or other material satisfactory to the Developer.

D. Permanent Grass shall conform to that as specified in Section 32 92 19 Seeding.

E. Temporary Grass Seed shall be perennial rye-grass (Lolium perenne) or an improved variety thereof, such as Manhattan, having a minimum purity of 98 percent and a minimum germination of 90 percent. The seeding may be altered by the Developer if requested by the Contractor to suit special areas or conditions.

F. Fabrics shall consist of durable polypropylene, polyethylene or other material approved by the Developer or as shown on the Contract Drawings.

G. Hay bales shall be made of hay with 40 pounds minimum weight and 120 pounds maximum weight. Wood stakes shall be a minimum of 1 inch thick by 1-inch normal size by a minimum of 3 feet long.

H. Silt Fence shall consist of 2.5-foot high minimum Geosynthetic fabric with prefabricated wood posts as manufactured by "Mirafi" or approved equal.

I. Silt Sacks shall be constructed by a woven polypropylene fabric as shown by a double needle machine using a high strength nylon thread. The Silt Sack seams shall have a certified average wide strength per ASTM D-4484 standards of at least 165.0 lbs./in. Silt Sacks shall be as manufactured by "ACF Environmental", Richmond, VA or approved equal.

J. Sediment basins and Sediment Traps shall be constructed of materials conforming to applicable items as shown on the Contract Drawings, and in conformance with the Connecticut Guidelines for Soil Erosion and Sediment Control.

K. Erosion Control Applicator Logs shall be APS 700 Series Floc Logs consisting of water treatment components and polyacrylamide copolymer for water clarification and erosion control, by Applied Polymer Systems, Inc. or approved equal.

PART 3 - EXECUTION

A. Sedimentation Basin Traps shall be constructed to the dimensions and details as shown on the contract drawings or as approved by the Engineer or Local Governing Authority in conformance with the Connecticut Guidelines for Soil Erosion and Sediment Control. Except as may be required to provide access to the work and to secure on–job materials required, the sedimentation basins and traps shall be constructed prior to the start of any other work upstream from the basins or traps in the runoff area controlled by the bowl. The Contractor shall provide access to the basin or trap, and shall be responsible for the maintenance, cleaning, protection and repair of all sediment basins and traps for the life of the contract.

B. Prior to the commencement of any work, the Contractor shall submit to the Developer the proposed methods of water pollution and soil erosion control to be incorporated in the work.

C. The Developer and Inspector has the authority to control the surface area of earth materials exposed by construction operations and to direct the Contractor to immediately provide permanent or temporary pollution control measures to prevent contamination of adjacent streams, watercourses, lakes, ponds or other areas of water impoundment. Every effort shall be made by the Contractor to immediately provide permanent or temporary pollution control measures to prevent contamination of adjacent streams, watercourses, lakes, ponds or other areas of water impoundment. Every effort shall be made by the Contractor to prevent erosion on the sire and abutting property.

D. The Developer and Inspector have the authority to direct the Contractor to divert surface water runoff away from the exposed raw earth surfaces through the use of temporary berms, dikes and diversion channels.

E. The erosion control features shall be installed and maintained by the Contractor, and shall be checked daily and after each severe rain storm for damage, until such featured are no longer needed. All sediment traps and sediment basins shall have the accumulated sediment and/or clean water removed before it significantly reduces their storage volume or function, prior to the next rain storm forecast for the region.

F. All slopes of stockpile material and other disturbed areas shall be stabilized and protected by surrounding with silt fencing, mulching, seeding or otherwise protected as the work progresses to comply with the intent of this specification. All damaged areas shall be repaired as soon as possible. The Developer shall limit the surface area of each material exposed if the Contractor fails to sufficiently protect the slopes to prevent pollution.

G. The Contractor shall at all times have on hand the necessary materials and equipment to provide for early slope stabilization and corrective measurements to damaged slopes.

H. Temporary channels, ditches and out-falls shall be protected prior to directing water into them to prevent erosion.

I. The erosion control features installed by the Contractor shall be maintained by the Contractor and he shall remove such installations if ordered by the Developer.

J. The Contractor shall operate all equipment and perform all construction operations so as to minimize pollution during rainstorms.

K. Hay Bales shall be placed as shown on the plans or as directed by the Developer. They shall be held in place by two wooden stakes in each bale. Bales shall be maintained or replaced as ordered by the Developer until they are no longer necessary for the purpose intended or are ordered removed by the Developer.

L. When filter fabric is used it shall be mounted on posts with or without fence backing as recommended by the fabric manufacturer. The bottom six inches of fabric shall be buried by either trenching, laying the six-inch section horizontally across the trench and burying or by laying the six inch section horizontally on the ground and burying by ramping the topsoil up to the control fence.

M. The installations shall be maintained or replaced until they are no longer necessary for the purpose intended or are ordered removed by the Developer.

N. The filter fabric fence systems will be completely removed from the project at the completion of the project, unless specifically authorized by the Developer to be left in place.

O. Hay bale systems will be allowed to remain in toe of slope areas unless ordered removed by the Developer. Bales should be entrenched 4 inches and backfilled with the backfilled soil placed toward the potential silt source.

P. Filter fabric shall be non-rotting, acid and alkali resistant and have sufficient strength and permeability for the purpose intended, including handling and backfilling operations. Fibers shall be low water absorbent. The fiber network must be dimensionally stable and resistant to delamination. The fabric shall be free of any chemical treatment or coating that will reduce its permeability. The fabric shall also be free of any flaws or defects which will alter it physical properties. Torn or punctured fabrics shall not be used. For each specific use, only commercially available fabric which is certified in writing by the manufacturer for the purpose intended shall be used. The Contractor shall submit a two-foot square sample of each type of fabric to be used along with, technical data sheets, certified test reports, materials, certificates and certificates on compliance. The Inspector Engineer reserves the right to reject any fabric which he deems unsatisfactory for a specific use. The brand name shall be labeled on the fabric or the fabric container. Fabrics, which are susceptible to damage from sunlight or heat, shall be so identified by suitable warning information on the packaging material. Fabric susceptible to sunlight damage shall not be used in any installations where exposure to light will exceed 30 days, unless specifically authorized in writing by the Developer.

Q. Geotextile Sedimentation control systems may consist of either a prefabricated geotextile fence or a geotextile fence assembled by the Contractor in the field. Geotextile sedimentation control systems shall be installed so that the bottom 6 inches of the fabric is buried by either trenching or by laying the 6 inch section horizontally on the ground and burying by ramping the soil up to the control fence. All geotextile fences shall be at least 36 inches in exposed height with not less than 2 degree ant not more than a 20 degree inclination toward the potential silt source. Harwood posts shall have a minimum cross section size of at least 1.5 inches by 1.5 inches and a minimum length of 42 inches. Steel Spacing between posts shall be at least 0.5 pounds per linear foot, with a minimum length of 48 inches. Spacing between posts shall not exceed 10 feet and all posts shall be driven a minimum of 12 inches into the ground. When joints between sections of geotextile sedimentation control systems are necessary, geotextile shall be spliced together only at a support post with a minimum 6 inch overlap and securely sealed. The installations shall be maintained or replaced until they are ordered removed by the Inspector or Engineer. The geotextile fence systems will be completely removed from the project at completion of the project unless specifically authorized by the Inspector or Engineer to be left in place.

R. Silt Sacks shall be installed in existing or proposed catch basins. Remove the grate and place the sack in the opening. Hold out approximately 6 inches of the sack outside the frame. Replace the grate to hole the sack in place. The Silt Sack is considered full and should be emptied when the restraint cord is no longer visible. To remove the Silt Sack, take two pieces of 1" diameter rebar and place through the lifting loops on each side of the sack to facilitate the lifting of the Silt Sack. To empty the Silt Sack, place is where the contents will be collected. Place rebar through the lifting straps (connected to the bottom of the sack) and lift. This will turn the Silt Sack inside out and empty the contents. Clean out with a shovel and rinse. Return the Silt Sack to its original shape and place back in the basin. .

S. Temporary Seeding shall be applied by an ergonomically acceptable procedure. The rate of application shall be no less than 220 pounds per acre. Fertilizer conforming to M.13.03 of Bridges and Incidental Construction, Form 816 and as supplemented shall be applied at a rate of 320 pounds per acre during seeding.

T. Temporary erosion control systems installed by the Contractor shall be maintained as directed by the Developer to control siltation during life on contract. Contractor must respond to maintenance or additional work ordered by Property Owner within 24 hours.

U. Erosion Control Applicator Logs shall be installed in accordance with manufacturers requirements and recommendations in swales, ditches, pipe and where directed by the Engineer or Inspector. The type of log shall be specific for the type of soil to be removed from storm water runoff. Maintain logs and replace logs that have reached their service life, and as directed by the Engineer or Inspector.

V. All Dewatering Filter Bags shall be placed with non-regulated areas and embedded on 2 inch nominal crushed stone.

W. Permanent Seeding shall be applied in accordance with Section 32 92 19 Seeding.

X. Removal and Disposal of all erosion and sediment controls, temporary structures, hay bales, filter fabric, silt fences, stakes, etc. as areas are accepted and stabilized and as approved by Developer and governing agencies.

Y. The Subcontractor shall maintain all erosion controls as indicated in plans and specifications as a minimum and as directed by Centerplan at no additional cost to Developer or Centerplan.

END OF SECTION 01 57 13

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

B. Related Sections include the following:

1. Division 01 Section "References" for applicable industry standards for products specified.
2. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
3. Divisions 02 through 26 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

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

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

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

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

1.4 SUBMITTALS

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

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

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

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

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

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of

receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

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

1.5 QUALITY ASSURANCE

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

1. Each Contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between Contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

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

B. Delivery and Handling:

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

C. Storage:

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

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 02 through 48 Sections for specific content requirements and particular requirements for submitting special warranties.

C. List of Warranties: Provide warranties for products and installations as specified, including but not limited to the following:

1. Concrete Moisture Vapor Reduction Admixture: Division 03 Section “Concrete Moisture Vapor Reduction Admixture.”
2. Cellular PVC Trim: Division 06 Section “Exterior Finish Carpentry.”
3. Waterproofing: Division 07 Sections “Self-Adhering Sheet Waterproofing” and “Cold Fluid-Applied Waterproofing.”
4. Asphalt Shingles: Division 07 Section “Asphalt Shingles.”
5. Fiber Cement Siding: Division 07 Section “Fiber Cement Siding.”
6. Membrane Roofing: Division 07 Section “Ethylene-Propylene-Diene-Monomer (EPDM) Roofing.”
7. Sealant: Division 07 Section “Joint Sealants.”
8. Solid Core Interior Wood Doors: Division 08 Section “Stile and Rail Wood Doors.”
9. Aluminum Framing: Division 08 Section “Aluminum-Framed Entrances and Storefronts.”
10. Fiberglass Windows: Division 08 Section “Fiberglass Windows.”
11. Skylights: Division 08 Section “Metal Framed Skylights.”
12. Door Hardware: Division 08 Section “Door Hardware.”
13. Resilient Tile Flooring: Division 09 Section “Resilient Tile Flooring.”
14. Resilient Base: Division 09 Section “Resilient Base and Accessories.”
15. Carpeting: Division 09 Sections “Tile Carpeting” and “Sheet Carpeting.”
16. Toilet Compartments: Division 10 Section “Toilet Compartments.”
17. Mirrors: Division 10 Section “Toilet and Bath Accessories.”
18. Residential Appliances: Division 11 Section “Residential Appliances.”
19. Roller Shades: Division 12 Section “Roller Window Shades.”
20. Elevator: Division 14 Section “Electric Traction Elevators.”

D. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

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

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
2. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
3. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
4. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
5. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

    a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

6. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.

    a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.

b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

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

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

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 30 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

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

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

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

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents; that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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. Coordination of Owner-installed products.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.
8. Correction of the Work.

B. Related Sections include the following:

1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
2. Division 01 Section "Submittal Procedures" for submitting surveys.
3. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
4. 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 INFORMATIONAL SUBMITTALS

A. Qualification Data: For land surveyor.

B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

C. Certified Surveys: Submit two copies signed by land surveyor.

D. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.4 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified 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 site work, 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. Examination and 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. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

D. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

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 for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

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

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

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish 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, grading, fill and topsoil placement, utility slopes, and invert elevations.

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

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

3.4 FIELD ENGINEERING

A. Identification: Owner will 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.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and site work.

E. Final Property Survey: Prepare a final property survey, as required by the Town of Essex and the State of Connecticut, showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

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’-6” 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.

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.

3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction forces.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.7 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.

3.8 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. 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."

3.9 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.

3.10 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 01 73 29 – CUTITNG AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

1.3 DEFINITIONS

A. Cutting: Penetration of in-place construction necessary to permit installation or performance of other Work, including the removal of debris.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
3. Products: List products to be used and firms or entities that will perform the Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive Architect’s right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio. Structural elements include, but are not limited to the following:

1. Concrete foundation construction.
2. Bearing and retaining walls, including architectural precast panels.
3. Lintels.
4. Structural steel frame.
5. Structural decking.
6. Miscellaneous structural metals.
7. Interior and/or exterior load bearing masonry wall construction.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:

1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Mechanical systems piping and ducts.
4. Control systems.
5. Communication systems.
6. Electrical wiring systems.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Piping, ductwork, vessels, and equipment.
4. Noise- and vibration-control elements and systems.
5. Roofing systems.

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

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections

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

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

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

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

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

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

3.3 PERFORMANCE

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

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

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

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

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

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

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather-tight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 01 73 29

SECTION 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Sections include the following:

1. Division 01 Section “IAQ Construction Plan".
2. Division 31 Section “Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 75 percent by weight of total waste generated by the Work.

1.5 SUBMITTALS

A. Waste Management Plan: Submit 3 copies of plan within 30 days of date established for commencement of the Work.

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report. Include separate reports for demolition and construction waste. Include the following information:

1. Project title, name of company completing report, and dates of period covered by the report
2. Calculations and supporting documentation to demonstrate end-of-project recycling rates meeting the requirements for Construction Waste Management Plan above. The process for recording and assembling documentation shall be as follows:

a. Record and document the total weight (in tons) of all demolition and construction waste materials sent to the landfill. Monthly Waste Management Reporting Forms (sample included at the end of this section identified as Exhibit “B") shall be used as the basis for determining the total amount of waste landfilled for the project. The monthly reporting forms shall specify:

1) The number of dumpsters or other containers sent to the landfill for that month;
2) The volume (in cubic yards) of each dumpster or container sent to the landfill for that month;
3) The type of waste contained in each dumpster or container; and
4) The weight of the waste in each dumpster or container. If the weight of the waste is not directly measured for each dumpster or container, the following Solid Waste Conversion Factors shall be used to convert the volume of waste to weight:

a) <u>Solid Weight Conversion Factors:</u>

Mixed Waste	350 lbs./cubic yard
Wood	300 lbs./cubic yard
Card board	l 00 lbs./cubic yard
Gypsum Wallboard	500 lbs./cubic yard
Rubble	1,400 lbs./cubic yard

b. Record and document the total weight (in tons) of all demolition and construction waste materials recycled or salvaged. Monthly Waste Management Reporting Forms shall be used as the basis for determining the total amount of waste recycled or salvaged for the project. The monthly reporting forms shall specify:

1) The number of dumpsters or other containers of recycled or salvaged materials for that month.
2) The volume (in cubic yards) of each dumpster or container of recycled or salvaged materials for that month.
3) The type of recycled or salvaged material contained in each dumpster or container.
4) The weight of the recycled or salvaged material in each dumpster or container. If the weight of the material is not directly measured for each dumpster or container, the Solid Waste Conversion Factors listed for landfill waste (see above) shall be used, where applicable, to convert the volume of material to weight. For materials not contained in the Solid Waste Conversion Factors (e.g., metals, glass), the Contractor shall propose a conversion factor for review by the Owner and Architect.

In addition, the Contractor shall provide the name of the receiving facilities/companies that will be purchasing or accepting the recycled or salvaged materials.

c. Calculate the end-of-project recycling rate percentage by dividing the recycled and salvaged waste (in tons) by the total waste generated (recycled, salvaged, and land- filled waste - also in tons), and multiplying by 100.

FINAL CALCULATION OF C&D WASTE DIVERSION

Final project-wide C&D waste diversion rate will be calculated as follows:

Total C&D Waste	x Tons	Total waste generated by land clearing, demolition, and construction
Total Recycled +	y Tons	Materials diverted from landfills, by salvage, reuse and recycling
Diversion Rate	y/x %	Percentage of projects waste diverted from landfills

C. Waste Reduction Calculations: Before request for Substantial Completion, submit three copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include weight tickets, receipts, and invoices.

H. Submittal: Submittal signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements of the management plan have been met.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Construction Waste Plan:

The construction Waste Management Plan shall include, but not be limited to, the following components:

1. Listing of Targeted Materials: The contractor shall develop a list of the waste materials from the Project that will be targeted for reuse, salvage, or recycling. The following materials shall be accounted for (materials that will not be recycled shall be indicated as such):

   a. Cardboard, paper, packaging
   b. Clean dimensional wood. Palette wood
   c. Beverage Containers
   d. Land clearing debris
   e. Concrete
   f. Bricks
   g. Concrete Masonry Units (CMU)
   h. Asphalt
   i. Metals from banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
   j. Drywall
   k. Carpet and pad
   l. Paint
   m. Rigid Foam
   n. Glass
   o. Plastics

2. Landfill information: The contractor shall provide the name of the landfill(s) where trash will be disposed of and the applicable landfill tipping fee(s).
3. Sorting Method: The contractor shall provide a description of the proposed means of sorting and transporting the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site for off-site sorting).
4. Packaging Waste: The contractor shall provide an estimate of packaging materials generated, and note whether suppliers will eliminate or take back packaging.
5. Field Conditions: The contractor shall include provisions in the Construction Waste Management Plan for addressing conditions in the field that do not adhere to the CWM Plan, including provisions to implement a stop work order, or to rectify non-compliant conditions.
6. Additional Information: The contractor shall include any additional information deemed relevant to describe the scope and intent of the CWM Plan to the Owner and Architect.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan as approved by Architect. Provide handling, containers, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at project site full time for the duration of the Project.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within three days of submittal return.
2. Distribute waste plan to entities when first begin on work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
2. Comply with Division 01 Section “Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Sale and Donation: Not permitted on Project site.

3.3 RECYCLING CONSTRUCTION AND DEMOLITION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Break up and process for use on site.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Site-Clearing Wastes: Chip brush, branches, and trees on-site.

1. Comply with requirements in Division 32 Section "Plants" for use of chipped organic waste as organic mulch.

C. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 74 19

SECTION 01 77 00 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Sections include the following:

1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 01 Section "Execution" for progress cleaning of Project site.
3. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
4. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
5. Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.
6. Divisions 02 through 26 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction

B. Certificate of Insurance: For continuing coverage.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Divisions 2 through 16 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Divisions 2 through 16 Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect’s signature for receipt of submittals.

5. Submit test/adjust/balance records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Division 01 Section "Demonstration and Training."
6. Advise Owner of changeover in heat and other utilities
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
3. Submit lien waivers and/or certificate of payment received, as required by Owner, from all subcontractors.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name
    b. Date
    c. Name of Architect
    d. Name of Owner’s Representative
    e. Name of Contractor

f. Page number

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.

e. Remove snow and ice to provide safe access to building.

f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

h. Sweep concrete floors broom clean in unoccupied spaces.

i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

k. Remove labels that are not permanent.

l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

n. Replace parts subject to unusual operating conditions.

o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

p. The HVAC Subcontractor shall replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

q. The HVAC Subcontractor shall clean ducts, blowers, and coils if units were operated without filters during construction.

r. The Contractor shall clean light fixtures, lamps, globes, and reflectors to function with full efficiency. The Electrical Subcontractor shall replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures that have been provided by the Electrical Subcontractor.

s. Leave Project clean and ready for occupancy.

2. Before requesting final inspection for determining date of Final Completion, complete cleaning operations listed above as required following Substantial Completion and completion of all punch list items.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01 77 00

SECTION 01 78 23 – OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.
2. Emergency manuals.
3. Operation manuals for systems, subsystems, and equipment.
4. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

B. Related Sections include the following:

1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
2. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
3. Division 01 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
4. Divisions 02 through 26 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 SUBMITTALS

A. Submittals: Submit three (3) draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return two copies of draft and mark whether general scope and content of manual are acceptable.

1. Correct or modify each manual to comply with Architect's comments. Submit 2 copies of each corrected manual within 15 days of receipt of Architect's comments.

1.5 COORDINATION

A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Organization: Include a section in the directory for each of the following:

1. List of documents.
2. List of systems.
3. List of equipment.
4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page
2. Table of contents
3. Manual contents

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual
2. Name and address of Project
3. Name and address of Owner
4. Date of submittal
5. Name, address, and telephone number of Contractor
6. Name and address of Architect
7. Cross-reference to related systems in other operation and maintenance manuals

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

    a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for each of the following:

1. Type of emergency
2. Emergency instructions
3. Emergency procedures

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire
2. Flood
3. Gas leak
4. Water leak
5. Power failure
6. Water outage
7. System, subsystem, or equipment failure
8. Chemical release or spill

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions
2. Performance and design criteria if Contractor is delegated design responsibility
3. Operating standards
4. Operating procedures
5. Operating logs
6. Wiring diagrams
7. Control diagrams
8. Piped system diagrams
9. Precautions against improper use
10. License requirements including inspection and renewal dates

B. Descriptions: Include the following:

1. Product name and model number
2. Manufacturer's name
3. Equipment identification with serial number of each component
4. Equipment function
5. Operating characteristics
6. Limiting conditions
7. Performance curves
8. Engineering data and tests
9. Complete nomenclature and number of replacement parts

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures
2. Equipment or system break-in procedures
3. Routine and normal operating instructions
4. Regulation and control procedures
5. Instructions on stopping
6. Normal shutdown instructions
7. Seasonal and weekend operating instructions
8. Required sequences for electric or electronic systems
9. Special operating instructions and procedures

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard printed maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training videotape, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.

B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

G. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

SECTION 01 78 39 – PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Sections include the following:

1. Division 01 Section "Closeout Procedures" for general closeout procedures.
2. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. Divisions 02 through 26 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of record Drawings as follows:

a. Initial Submittal: Submit one paper copy set of marked-up record prints and one set(s) of plots from corrected record digital data files. Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
b. Final Submittal: Submit one paper copy set of marked-up record prints, one set(s) of record digital data files, and three set(s) of record digital data file plots. Plot each drawing file, whether or not changes and additional information were recorded.
1) Electronic Media: DVD-R.

B. Record Specifications: Submit two (2) copies of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit two (2) copies of each Product Data submittal.

1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

   a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
   b. Accurately record information in an understandable drawing technique.
   c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:

   a. Dimensional changes to Drawings.
   b. Revisions to details shown on Drawings.
   c. Depths of foundations below first floor.
   d. Locations and depths of underground utilities.
   e. Revisions to routing of piping and conduits.
   f. Revisions to electrical circuitry.
   g. Actual equipment locations.
   h. Duct size and routing.
   i. Locations of concealed internal utilities.
   j. Changes made by Change Order or Construction Change Directive.
   k. Changes made following Architect's written orders.
   l. Details not on the original Contract Drawings.
   m. Field records for variable and concealed conditions.
   n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.

1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
2. Consult Architect for proper scale and scope of detailing and notations required to record the Actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
3. Identification: As follows:

   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS."
   d. Name of Architect.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

B. Format: Submit record Specifications as paper copy.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

B. Format: Submit record Product Data as paper copy.

1. Include record Product Data directory organized by specification section number and title, electronically linked to each item of record Product Data

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as paper copy.

1. Include miscellaneous record submittals directory organized by specification section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

1. Acceptance of Application for payment is contingent upon acceptance of maintained and up-to-date record documents.

END OF SECTION 01 78 39

SECTION 01 79 00 – DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.
2. Training in operation and maintenance of systems, subsystems, and equipment.
3. Demonstration and training videotapes.

B. Related Sections include the following:

1. Division 01 Section "Project Management and Coordination" for requirements for preinstruction conferences.
2. Divisions 02 through 26 Sections for specific requirements for demonstration and training for products in those Sections.

1.3 SUBMITALS

A. Instruction Program: Submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. At completion of training, submit one complete training manual for Owner's use.

B. Qualification Data: For instructors.

C. Attendance Record: For each training module, submit list of participants and length of instruction time.

D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 CLOSEOUT SUBMITTALS

A. Demonstration and Training Videotapes: Submit two copies within seven days of end of each training module.

1. Identification: On each copy, provide an applied label with the following information:

a. Name of Project.
b. Name of Architect.
c. Name of Contractor.
d. Date videotape was recorded.
e. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

2. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy-duty, 3-ring, vinyl covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding videotape. Include name of Project and date of videotape on each page.

1.5 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.
2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:

1. Fire-protection systems, including fire alarm and fire-extinguishing systems.
2. Intrusion detection systems.
3. Heat generation, including boilers, feedwater equipment, pumps, and water distribution piping.
4. Refrigeration systems, including chillers, cooling towers, condensers, pumps, and distribution piping.
5. HVAC systems, including air-handling equipment, air distribution systems, and terminal equipment and devices.
6. HVAC instrumentation and controls.
7. Electrical service and distribution, including transformers, switchboards, panel boards, uninterruptible power supplies, and motor controls.
8. Lighting equipment and controls.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

    a. System, subsystem, and equipment descriptions.
    b. Performance and design criteria if Contractor is delegated design responsibility.
    c. Operating standards.
    d. Regulatory requirements.
    e. Equipment function.
    f. Operating characteristics.
    g. Limiting conditions.
    h. Performance curves.

2. Documentation: Review the following items in detail:

    a. Emergency manuals.
    b. Operations manuals.
    c. Maintenance manuals.
    d. Project Record Documents.
    e. Identification systems.
    f. Warranties and bonds.
    g. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

    a. Instructions on meaning of warnings, trouble indications, and error messages.
    b. Instructions on stopping.
    c. Shutdown instructions for each type of emergency.
    d. Operating instructions for conditions outside of normal operating limits.
    e. Sequences for electric or electronic systems.
    f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

    a. Startup procedures.
    b. Equipment or system break-in procedures.
    c. Routine and normal operating instructions.

d. Regulation and control procedures.
e. Control sequences.
f. Safety procedures.
g. Instructions on stopping.
h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.
k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

5. Adjustments: Include the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.
c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:

a. Diagnosis instructions.
b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.

B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Owner will furnish Contractor with names and positions of participants.

B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Owner and Commissioning Agent with at least seven days' advance notice.

C. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

D. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.3 DEMONSTRATION AND TRAINING VIDEOTAPES

A. General: The Contractor shall engage a qualified commercial photographer to record demonstration and training videotapes where training and/or demonstration is to be provided by Subcontractors. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. DVD Video Format: Provide high-quality Digital Video Disc, DVD-R format.

C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and training. Display continuous running time.

D. Narration: Describe scenes on videotape by audio narration by microphone while videotape is recorded. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.

E. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.

END OF SECTION 01 79 00

SECTION 02 00 00 – GENERAL SITEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 REFERENCES

A. The Form 816: State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction.

1.3 SPECIAL NOTICE

A. The project site is elderly and affordable housing.

1.4 DESCRIPTION

A. This project involves the demolition of existing pavements, construction of a new building, new pavements and concrete walks, planting, fencing, lighting, curbing, and associated site work.

1.5 QUALITY ASSURANCE

A. Obtain and pay for all required inspections, permits and fees. Provide notices required by governmental authorities.

B. Comply with all applicable local, state and federal requirements regarding materials, methods of work and disposal of excess and waste materials.

1.6 GENERAL JOB CONDIITONS

A. Locate and identify existing underground and overhead services and utilities within contract limit work areas. Provide adequate means of protection of utilities and services designated to remain. Repair utilities damage during site work operations at Contractor's expense.

B. Protect and maintain all existing utility appurtenances and improvements except items designated for removal.

C. When uncharted or incorrectly charted underground piping or other utilities and services are encountered during sitework operations, notify the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active service operation.

D. Locate, protect and maintain bench marks, monuments, control points and project engineering reference points. Re-establish disturbed or destroyed items at Contractor's expense.

E. Perform sitework operations to assure minimum interference with streets, walks and other adjacent facilities.

F. Obtain written permission when required to close or obstruct driveways, walks or adjacent facilities. Provide alternative routes around closed or obstructed traffic ways when required.

G. Control dust caused by the work with calcium chloride conforming to ASTM D-98, or water. Special care shall be taken by the Contractor to control dust and debris due to construction. Dampen surfaces prior to significant earthwork or other grading operations and clean the site on a regular basis to minimize unsightly or dangerous debris.

H. Protect existing building, paving and other services or facilities on site and adjacent to the site from damage caused by sitework operation. Cost of repair and restoration of damaged items shall be at the Contractor's expense.

I. All required submittals shall be in accordance with Division 1 submittal requirements.

J. Coordinate all work of each section with related work of other sections. Failure to coordinate properly will not reduce the obligation to meet the standards of acceptance of the various elements of work contained herein.

K. Examine all work that the work of each section is contingent upon and report any deficiencies to the Owner's Representative. Commencement of work will be construed to mean complete acceptance of the preparatory work of others. No adjustment will be made for discrepancies brought to the Owner's Representative attention after work has begun.

1.7 TRAFFIC MAINTENANCE, SAFETY AND PROTECTION

A. The contractor shall provide for maintenance and protection of traffic, including permits and plans as required per the Town of Essex.

B. Provide, place, move, maintain and dismantle such barricades, warning signs and lights as necessary to adequately protect the work and provide for public safety.

C. Furnish flagmen or police as required for the proper direction and control of traffic during the construction period.

1.8 STANDARD SPECIFICATIONS

A. All reference to the Standard Specifications refers to CT DOT Form 816. A copy of these specifications shall be available on site at all times.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. As selected by Contractor, except as indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine the areas and conditions under which sitework is performed. Do not proceed with the work until unsatisfactory conditions are corrected.

END OF SECTION 02 00 00

SECTION 02 11 00 – CONTAMINATED SOIL EXCAVATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Excavation, handling, stockpiling, and temporary storage of Contaminated Soil.
2. Moving and Placement of Contaminated Soil into a temporary controlled stockpile area.
3. Decontamination of tools, equipment, and vehicles and the collection, management and disposal of resulting liquids and/or solids.
4. Other work involving the handling of contaminated materials which may be required including but not limited to miscellaneous facility component removal, removal of obstructions, excavation support systems, and any incidental work related thereto.

B. Related Sections:

1. Section 02 12 00, Transportation and Disposal of Contaminated Soil
2. Division 31, Earthwork

1.3 REFERENCES

A. Regulations of Connecticut State Agencies (R.C.S.A.) Sections 22a-133k-1 through 22a-133k-3.

B. 40 CFR Part 261, Identification and Listing of Hazardous Waste

C. 40 CFR Part 268, Land Disposal Restrictions

1.4 DEFINITIONS

A. Natural Soils

1. Soil in which all substances naturally occurring therein are present in concentrations not exceeding the concentrations of such substances occurring naturally in the environment and in which soil no other substances is analytically detectable.

B. Contaminated Soil and/or Sediment

1. Means treated or untreated soil and/or sediment affected by a known or suspected release and determined, or reasonably expected to contain substances exceeding Residential Direct Exposure Criteria or GS Pollutant Mobility Criteria, as these terms are defined in Section 22a-133k-1 of the Regulations of the Connecticut State Agencies.

C. Polluted Soil

1. Means soil affected by a release of a substance at a concentration above the analytical detection limit for such substances.

D. Clean Fill

1. Means (1) natural soil and (2) rock, ceramics, uncontaminated brick and concrete.

E. Special Handling

1. Methods used to excavate, collect, grade, load, move, transport, stockpile, dispose, or otherwise manage a contaminated material or Contaminated Soil or Polluted Soil are such that (1) the spillage, loss, co-mingling, or uncontrolled deposition of such material is minimized, (2) personal exposure to contaminants present in such a material are minimized, (3) the adverse impacts to the community and the surrounding environment from contaminants present in such material are minimized, (4) all applicable regulatory requirements applicable to such activity are satisfied.

1.5 QUALITY ASSURANCE

A. All contaminated soil and/or polluted soil excavated or otherwise collected, consolidated and managed during the course of the work will require Special Handling in accordance with these specifications, Contractor Health and Safety Plan, and all applicable permits, approvals, authorizations, and Regulations.

B. Perform the handling of contaminated materials with equipment and techniques in accordance with the performance requirements defined in this specification.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 GENERAL

A. Provide all employees and subcontractor(s) with personal protective equipment and protective clothing consistent with the levels of protection for this work as indicated in Contractor's Health and Safety Plan.

B. Perform all contaminated or polluted material handling operations in accordance with standard engineering practices applicable to such activity, according to CTDEP regulations, and according to the provisions of Contractor Health and Safety Plan. Utilize methods which consider the health and safety of all Contractor and subcontractor personnel, support personnel, Engineer and his representatives, and the surrounding environment.

C. All site health and safety controls shall be fully established and in operation prior to beginning any contaminated material handling activity. Site controls shall include but not be limited to work zones properly barricaded, decontamination facilities, air monitoring, and all support and supplies including personal protective equipment.

D. Minimize the spread of contaminated materials during handling. Transport vehicles used to move Contaminated Soil and the Project Site shall be free from leaks. Trucks or other conveyances deemed unacceptable for use by Engineer shall not be used for the movement of contaminated materials.

E. Keep work areas, including but not limited to, areas, adjacent to excavations, roadways leading to and from excavation areas, driveways, parking areas, and public roadways free of contaminated materials. If such material s are deposited, spilled, or spread, such material shall be removed promptly, and properly disposed of to the satisfaction of Engineer no later than the end of each working day or as requested by Engineer.

F. Owner is the generator and will sign all manifests and bills of lading. Except for materials required to be transported under manifest, transport all Contaminated or Polluted Soil material under bills of lading (prepared by Engineer) regardless of the chemical quality of the soils.

3.2 EXCAVATION OF CONTAMINATED MATERIALS

A. Perform excavation in accordance with the requirements of Section 31 12 00, Earth Moving, and this section.

B. Engineer will continually evaluate field conditions to determine if additional excavation is required to achieve remedial objectives. This evaluation may require Engineer to work in close proximity to Contractor's excavation equipment, and may require frequent pauses in the work. Contractor shall work in a cooperative manner at all times during these operations to ensure the safety of Engineer, and to allow for thorough field evaluations to be conducted.

1. When contaminated material excavation is undertaken, Engineer will make the final determination as to the limits of excavation required to achieve remediation objectives. Such limits be based upon actual conditions encountered at the time of excavation.

C. Minimize the spread and loss of contaminated materials during excavation activities.

1. Following excavation, transport contaminated materials directly to the temporary controlled stockpile area for stockpiling. Excavated contaminated materials shall not be placed directly on the ground. The locations that the temporary stockpile areas are to be constructed are on the Drawings.

D. Employ methods necessary to isolate contaminated materials from non-contaminated soils to the degree practicable.

E. Segregate construction debris from excavated contaminated materials at the point of excavation, prior to the movement of contaminated materials from excavation areas. Engineer may evaluate debris during excavation to determine if such material can be designated uncontaminated general demolition material.

F. Open excavations represent a substantial hazard. Contractor shall implement measures as appropriate to secure open excavations while awaiting Engineer's confirmation test results from soils or any other period when excavations remain open.

G. Implement measures to divert surface water around excavation sites to prevent water from directly entering into open excavations.

3.3 BACKFILL

A. Backfill excavations in accordance with Section 31 23 33, Trenching and Backfilling.

B. Backfill excavations as soon as possible after Engineer has indicated that test results, if required by Engineer, confirm remediation objectives have been achieved and backfilling may proceed.

3.4 UNFORSEEN CONTAMINATED MATERIALS

A. In the event that unforeseen contaminated materials are encountered during the course of the work, permit the Engineer sufficient time to devise an appropriate course of action based upon the conditions present.

1. Until such an appropriate course of action is devised, Contractor shall secure the work area in question such that it does not pose a health and safety risk.
2. Engineer will provide Contractor with a scope of work and performance requirements for the collection, consolidation, removal or excavation of unforeseen contaminated material. Contractor shall then undertake contaminated material. Contractor shall then undertake contaminated material remediation with equipment and techniques established by Contractor in accordance with said scope of work and performance requirements.

B. Contaminated material remediation shall be performed in accordance with scope of work outlined in Item 3.4.A.2 and in accordance with this specification.

3.5 CONFIRMATION TESTING BY ENGINEER

A. At such time the Engineer is satisfied that the limits of contaminated material have been reached, Engineer ill perform appropriate confirmation sampling to confirm remediation objectives have been achieved and no additional contaminated material excavation or removal is required.

B. Contractor is hereby notified that laboratory turnaround time for the analysis of confirmation samples may be up to 7 working days from date of collection. No claim for delay will be considered based upon Contractor failing to accommodate the laboratory turnaround time as defined herein.

C. Engineer will inform Contractor if test results confirm remediation objectives have been achieved and backfilling may proceed.

D. Should the results of Engineer's testing indicate additional contaminated material excavation or removal is required, Engineer will define those areas beyond the limits originally indicated where additional contaminated material excavation or removal shall be required.

3.6 STORAGE OF EXCAVATED MATERIALS

A. Excavated contaminated material shall be temporarily stockpiled on-site. Stockpile contaminated soils in an area designated by the Engineer in such a manner to protect existing site surface, materials and structures from contamination, runoff and erosion. Place the contaminated soil on a minimum of 6 mil polyethylene sheeting and at the end of each day the stockpiled soil shall be covered with 6 mil polyethylene sheeting and secure the covering to protect the stockpile from becoming uncovered due to winds.

3.7 DUST CONTROL

A. Implement fugitive dust suppression to prevent unacceptable levels of dust resulting from handling operations associated with contaminated materials. Dust suppression methods shall be subject to

approval from Engineer. Supervise fugitive dust control measures and monitor airborne particulate matter as required.

END OF SECTION 02 11 00

SECTION 02 11 50 – UNDERGROUND STORAGE TANK REMOVAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. The work of this Section consists of the removal, cleaning, and disposal of underground petroleum storage and conveyance facilities including tanks, piping, associated equipment and appurtenances.

B. Excavation and subsequent handling of Contaminated Soils, which may be associated with underground storage tanks is not included in the work of this section. Refer to Section 02 11 00 "Contaminated Soil Excavation" and Section 02 12 00 "Transportation and Disposal of Contaminated Soil."

C. Backfilling of underground storage tank excavations is not included in the work of this Section. Refer to applicable Specifications.

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

E. Contractor is responsible for the health and safety of all Contractor and Subcontractor workers during progress of the work.

1.3 REFERNECES

A. National Fire Protection Association (NFPA) 326- "Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning or Repair", 1999 or latest revision thereof.

1.4 DEFINTITIONS

A. Underground Storage Tank (UST): Any one, or combination of tanks (including underground conveyance piping related thereto) that is, or was used to contain an accumulation of petroleum or other regulated substance, and volume of which (including the volume of underground pipes connected therefore) is 10 percent or more beneath the surface of the ground.

1.5 SUBMITTALS

A. Ten (10) working days prior to performing the work of this Section, Contractor shall submit to Engineer the following::

1. Copies of all local, state, or federal permits and licenses obtained as required herein.

2. Written confirmation that local authorities have been notified of planned tank removal activities in accordance with local requirements.

1.6 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 property performance of the work of this Section.

1.7 TANK SUMMARY

A. There are ten (10) underground storage tanks at the Project Site:

Approximate Capacity (Gallons)	Contents	Material of Construction
1,250	**Septic**	**Concrete**

B. The approximate locations of the tanks are shown on the Drawings.

1.8 REGULATORY REQUIREMENTS

A. Obtain local, state, or federal permits and licenses to perform the work of this section. Notify and obtain such permits or approvals from all agencies having jurisdiction over the work prior to commencing tank removal operations including, but not limited to Health, Building, and Fire Departments of the Town of Essex, state and federal agencies.

B. Perform all tank removal, cleaning and disposal work in accordance with local, State, and Federal regulations and the requirements of any permits or authorizations.

PART 2 - PRODUCTS

2.1 All materials required to complete the work under this Section shall conform to the standards and requirements of local codes, ordinances, municipalities, regulatory agencies, utility companies and other agencies having jurisdiction over the work to be performed.

2.2 Safety fence shall be heavy-duty grade ultraviolet-stabilized polyethylene mesh-type fencing, minimum 6-foot height, orange in color, as manufactured/distributed by Plastic Safety Systems, Inc. (Cleveland, OH), Roadtech Manufacturing, Inc. (Oak Park, IL), Utility Safeguard, LLC (Southampton, PA) or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

A. At all times during performance of the work of this section, Contractor shall perform operations in a manner which considers the health, safety and protection of all Contractor and Subcontractor personnel, support personnel, Engineer and his representatives, and the surrounding environment.

B. Verify all existing conditions affecting the performance of the work.

C. Prior to initiating tank removal activities, disconnect all electrical services to equipment that may be connected to the tank system to be removed.

D. Remove residual petroleum product and other free liquids from the tank prior to removal of the tank from the ground.

3.2 TANK REMOVAL WORK PLAN

A. Contractor shall develop, implement, maintain, and supervise as part of the work a comprehensive Tank Removal Work Plan for tank removal, cleaning, and related operations. At a minimum the plan shall include, but not be limited to, methods, means and sequence of operations for excavation, removal, cleaning, and ultimate disposal of the tank. The Tank Removal Work Plan shall be based on NFPA 326, Contractor experience, requirements of this section, and applicable permits, approvals, authorizations, laws and Regulations.

B. At a minimum, the Tank Removal Work Plan shall include:

1. Overall approach to tank removal.
2. Pre-removal investigation activities.
3. Methods to be employed for product, sludge, vapor, and pumpable liquid removal; purging and inerting; and storage/ disposal methods.
4. Proposed location(s) of any tank staging area(s) to be utilized for the temporary storage and cleaning of tanks.
5. Thank opening and tank cleaning procedures applicable to in-place cleaning, if applicable, and cleaning at tank staging areas.
6. Identification of waste and tank cleaning procedures applicable to in-place cleaning, if applicable, and cleaning at tank staging areas.
7. Treatment, disposal, and alternate facilities, and means of treatment, disposal or remediation.
8. Spill prevention procedures.
9. Spill contingency procedures.
10. Decontamination procedures and safety measures in accordance with applicable Specifications.

3.3 PREPERATION

A. Tank Contents Determination - Contractor shall determine nature and quantity of tank residuals to facilitate disposal of same. Residual product, pumpable liquids, and sludge shall be sampled by Contractor. If the data is not adequate, additional sampling and analysis to the extent required by the approved off-site treatment/ disposal facility receiving the material shall be re responsibility of the Contractor. Meeting all regulatory requirements related to management of tank residuals shall be the responsibility of Contractor.

B. Before excavating, drain product piping back to the tank, remove residual liquids trapped in the product lines and remove all product from the tank.

C. Disposal - Tank product, pumpable liquids, and sludge shall be collected, contained and disposed of off the Project Site in accordance with Section 02 12 00 “Transportation and Disposal of Contaminated Soils.”

D. All equipment used in draining and ventilating the tanks shall be properly grounded to prevent electrostatic discharge hazards.

3.4 PURGING AND INERTING

A. After tank and piping contents have been removed, but prior to excavation beyond top of tank, disconnect all piping (except the piping which may be needed to purge or inert the tank). Flammable and toxic vapors shall be purged from the tank or the tank made inert in accordance with NFPA 326, with exception that filling with water shall not be used. At a minimum, the tank atmosphere shall be continuously monitored for combustible vapors if that tank is purged, or continuously monitored for oxygen if the tank is inerted.

3.5 EXCAVATION

A. Control excavation areas in accordance with Contractor's Health and Site Safety Plan (HASP).

B. Excavate exploratory trenches as necessary to determine the tank location, orientation, limits and the location, orientation, limits and the location of ancillary equipment.

C. Excavate around the perimeter of the tank so as to limit the amount of potentially Contaminated Soils that could be mixed with previously uncontaminated soil.

1. If tank is to be cleaned in-place, excavate and remove soil only as required to gain access to the tank and safely perform cleaning operations.

D. Excavate as necessary to remove tank, piping, and ancillary equipment. Maintain around the tank an excavation of sufficient size to allow workers ample room to complete the work, but also protect the workers from sliding or cave-ins. Sheeting, bracing, or shoring shall be installed in the absence of adequate side slopes if there is a need for workers to enter the excavated area.

E. Open excavations represent a substantial hazard. At a minimum, provide full enclosure with safety fencing and implement additional measures as appropriate to secure open excavations while awaiting Engineer's confirmation test results from soil beneath tanks or any other period when tank excavations remain open. Backfill the excavations as soon as possible after tank and contaminated soil removals have been completed and confirmation samples have been taken.

1. Contractor shall also implement measures as appropriate divert surface water around excavation sites to prevent water from directly entering into open excavations.

3.6 REMOVAL OF PIPING, ANCILLARY EQUIPMENT, AND TANK

A. Disconnect all piping and ancillary equipment from the tank. Remove all piping associated with tank completely. Cap all tank ancillary equipment and piping connections, except those connections necessary to inert the tank within the excavation zone. The piping exterior and ancillary equipment shall be cleaned to remove all soil and inspected for signs of corrosion and leakage. Soil believed to meet the definition of Contaminated Soil shall be removed and deposited in the Temporary Stockpile Area. Contractor shall ensure no spillage of piping contents occurs, as specified in his Work Plan.

B. Tank shall be removed from the excavation and the exterior cleaned to remove all soil and inspected for signs of corrosion, structural damage, or leakage. All materials coming into contact with the tank, or in the vicinity of the excavation such as shovels, slings and tools shall be of the non-sparking type. After

removal from the excavation, place tank in approved tank staging are on a level surface and secure with wood blocks or other approved devices to prevent movement.

C. Remove all associated pumps, piping, concrete pads, and associated equipment. It is anticipated that non-contaminated tank- related materials such as concrete debris or tank saddle will not require management as Contaminated Materials.

1. After the tank and associated equipment has been removed from the ground, Engineer will examine and test adjacent and underlying soils for any evidence of Contaminated Soil. Should Engineer's examination or testing indicate soils require excavation as Contaminated Soil, Contractor shall conduct Contaminated Soil excavation in Accordance with Section 02 11 00 "Contaminated Soil Excavation".

3.7 TANK CLEARING

A. All tank cleaning/ decontamination will be conducted at the Project Site in designated tank staging area(s), to be approved by Engineer. No tanks will be permitted to leave the site until such work has been completed.

B. Prior to cleaning the tank interior, monitory tank atmosphere for combustible vapors. If required, purge or inert accordance with Article 3.4 herein.

C. Clean exterior of tank, piping, and associate equipment, as required, using non-sparking tools, to eliminate soil deposition on roadways during transportation to temporary storage area and to simplify tank cutting.

D. Clean tank interior in accordance with NFPA 326 using water rinse, steam cleaning, cleaning agents, or other approved method until all residual product, loose scale, and sludge is removed, and contamination, in the form of a sheen, is no longer visible in the effluent stream. The interior surfaces of piping shall also be cleaned, to the extent possible, using the same method used for cleaning the tank. Contaminated water generated from interior cleaning operations (of both piping and tank) shall be minimized to the extent practicable.

1. All rinse water or other residuals resulting from cleaning operations shall be collected, consolidated and otherwise contained for disposal in accordance with Section 02 12 00 "Transportation and Disposal of Contaminated Soils."

E. Tank cleaning shall be accomplished eliminating, to the greatest extent possible, the need for personnel to enter the tank. Cleaning shall be done using specially designed tank cleaning equipment which allows the tank to be cleaned prior to cutting into sections without requiring personnel to enter the tank or, if less specialized equipment is used, the tank shall be partially dissected to minimize confined space entry hazards.

F. If the tank is stored after tank exterior is cleaned and ancillary equipment is removed, and prior to being cut into sections, tank shall be thoroughly secured and temporarily stored in designated tank staging area.

3.8 DISPOSAL REQUIREMENTS

A. After the tank, piping, and ancillary equipment have been cleaned, cut the tank into pieces of manageable size for transport off of the Project Site. Tank, piping sections and ancillary equipment shall be recycled to the extent practicable. Contractor shall not sell the tank intact.

B. Transport Tank- related materials and any ancillary equipment shall be transported for off-site disposal by the Contractor in accordance with applicable Regulations.

3.9 CONFIRMATION TESTING BY THE ENGINEER

A. Following tank removal, if Engineer does not require Contaminated Soil excavation, Engineer will collect confirmation samples from the tank area in accordance with the Connecticut Department of Environmental Protection requirements.

1. Open excavations represent a substantial hazard. Implement measures as appropriate to secure open excavations while awaiting Engineer's confirmation test results from soils, or any other period when excavations remain open. Contractor shall also implement measures as appropriate to divert surface water around excavation sites to prevent water from directly entering into open excavations.
2. Contractor is hereby notified that laboratory turnaround time for testing of such confirmation samples may be up to seven (7) working days from date of collection. No claim or delay will be considered based upon Contractor failing to accommodate the laboratory turnaround time as defined herein.
3. Should the results of Engineer's testing indicated Contaminated Soil excavation is required, Engineer will define those areas beyond the original excavation limits where additional Contaminated Soil excavation shall be required.

B. Following tank removal, if Engineer determines that Contaminated Soil excavation is required; such work will be completed in accordance with Section 02 11 00 "Contaminated Soil Excavation".

END OF SECTION 02 11 50

SECTION 02 12 00 – TRANSPORTATION AND DISPOSAL OF CONTAMINATED SOIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Under this Section Contractor shall provide all labor, materials, tools and equipment necessary for the coordination, loading, transportation and disposal of Contaminated Materials.

B. Contaminated Materials to be disposed of include, but may not be limited to:

1. Asbestos and Asbestos Containing Materials.
2. Hazardous Materials, including but not necessarily limited to lead contaminated materials, fluorescent lights, ballasts, capacitors, machinery components, refrigerants, compressed gases, fuels, residual petroleum and non-petroleum chemicals, cleaners or maintenance-type materials, and other unidentified/uncharacterized Hazardous Materials.
3. Water residuals from Contractor decontamination operations.
4. Petroleum fuels and petroleum residuals from underground storage tanks.
5. Contaminated or Polluted Soil.

C. All Contaminated Materials consolidated or otherwise managed during the course of the work will require Special Handling in accordance with these specifications, the Contractor's Health and Safety Plan, and all applicable permits, approvals, authorizations, and Regulations.

D. The disposal of Contaminated or Polluted Materials will occur at facilities proposed by Contractor and approved by Owner.

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

F. Contractor is responsible for the health and safety of all subcontractor workers during progress of the work.

1.3 DEFINITIONS

A. Disposal

1. The legal off-site disposition, including handling, transport and ultimate disposal, of a waste material at a facility licensed/ permitted for the type of waste in question, including treatment facility licensed/ permitted for the type of waste in question, including treatment facility or landfill in accordance with all applicable waste management rules, laws and regulations.

B. Generator

1. Any person, by site, whose act or process produces hazardous waste, or whose act first causes a hazardous waste to become subject to regulation.

C. Regulated Waste

1. Includes non-Resource Conservation and Recovery Act (RCRA) hazardous wastes such as oils, petroleum products or residuals, chemical liquids, chemical gases or vapors, non-Toxic Substances Control Act (TSCA) polychlorinated biphenyls (PCBs), waste chemical solids, including soils, and other Contaminated Material wastes not defined as RCRA Hazardous, TSCA-regulated, or Special Waste.

D. Special Wastes

1. The following wastes, so long as they ae not hazardous waste pursuant to Section 22a-115 of the General Statues or radioactive material subject to Section 22a-148 of the General Statutes: (1) water treatment, sewage treatment, or industrial sludge's, liquid solids and contained gases; fly-ash and casting sands or slag; and contaminated dredge spoils; (2) scrap tires; (3) Bulky Waste; (4) asbestos; and (5) biomedical waste.

E. Manifest

1. An approved form used as a shipping document to identify the quantity, composition, and the origin, routing, and destination or regulated or hazardous waste from the site of generation to the point of disposal, treatment, storage, or use.

F. Shipping Log

1. A tabulated summary of all shipments of Contaminated Materials leaving the Project Site.

G. Shipping Paper

1. An invoice, bill of lading, or other shipping document serving a similar purpose; other than a hazardous waste manifest used to document the conveyance of materials between different locations, including regulated wastes when applicable.

H. Treatment

1. Ant method, technique or process, including neutralization, incineration, stabilization or solidification, designed to change the physical, chemical or biological character or composition of any hazardous waste so as to neutralize such waste or so as to render such waste less hazardous, non-hazardous, safer to transport, amenable to storage, or reduced in volume, except such method or technique as may be included as an integral part of a manufacturing process at the point of generation.

1.4 SUBMITTALS

A. Within five (5) days of Notice of Award, Contractor shall submit in writing to the Engineer the following:

1. For each type of Contaminated Material, the name of the treatment/ disposal facility or facilities which Contractor proposes to utilize to receive such Contaminated Materials from the Project.
2. Information for proposed treatment/ disposal facility or facilities including the following:

a. General Information

1) Facility Name
2) Facility Address
3) Name of Contact Person

4) Title of Contact Person
5) Telephone Number of Contact Person
6) Permit Number.

b. The facility shall specify the volume of material that can be accepted from the Project on a weekly and total basis.
c. The facility shall provide written confirmation that they are permitted to accept and will accept the classified Contaminated Materials the general quality and quantity described by these specifications.
d. The facility shall provide a listing of all current and valid permits, licenses, letters of approval, and other authorizations to operate that they hold, pertaining to the receipt and treatment/disposal of the Contaminated Materials described by these specifications.

3. Submit a complete list of the disposal facility's permitted allowable contaminant levels and physical characteristic requirements for contaminated material, and list any required regulatory approvals for individual waste streams.
4. Submit in writing to Engineer name of the transportation company or companies which Contractor proposed to utilize to transport Contaminated Materials from the Project. For each transporter identified, include the following information:

a. Name and address of all Contaminated Material transporters to be used to complete Project.
b. State of Connecticut Transporter Identification Number and expiration date, if applicable.
c. Proof of permit, license, or authorization to transport Contaminated Materials in all affected states.

B. Project Submittal Requirements:

1. Upon receipt of final approval from treatment/ disposal facility to accept Contaminated Materials, forward copy of said approval to Engineer.
2. Submit updated Shipping Log to Engineer on a weekly basis.
3. Within ten (10) working days after the off-site transportation of Contaminated Materials, submit to Engineer copies of all paperwork related to transportation of each type of Contaminated Material. Such paperwork may include, but not be limited to Manifests, Shipping Papers, receipts, weight tickets, and disposal certificates suitable for documenting that Contaminated Materials were transported to, accepted, and disposed of, at the selected treatment/disposal facility.
4. Contaminated Soil and Petroleum and Petroleum Residuals:

a. Provide certified tare and gross weight slips for each load received at the designated treatment/ disposal facility which hall be attached to a copy of related Manifests or Shipping Papers.

1.5 REGULATORY REQUIREMENTS

A. Contractor shall obtain all Federal, State and local permits, approvals, or authorizations required for the transport and disposal of Contaminated or Polluted Materials. Contractor shall adhere to all requirements of such permits, approvals, or authorizations.

B. All materials designated as Resource Conservation and Recovery Act (RCRA) Hazardous Waste shall be characterized and disposed of in accordance with applicable regulations. Utilization of a hazardous material manifest shall require the use of appropriate identification number and a licensed hazardous material transporter in conformance with applicable State and Federal regulations.

1.6 SHIPPING LOG

A. Contractor shall maintain a Shipping Log, consisting of a tabulated summary of all shipments of Contaminated Materials leaving the Project Site. Such Shipping Log shall include, at a minimum, the following information categories for each shipment:

1. Sate shipment left the site.
2. Waste type/ category.
3. Packaging type.
4. Destination.
5. Transporter name.
6. Unique identification number applicable to shipment from Shipping Paper, manifest, etc.

PART 2 - PRODUCTS

2.1 GENERAL

A. All Contractor personnel shall wear personal protective equipment and protective clothing consistent with the levels of protection for this work as indicated in Contractor's Site Health and Safety Plan.

B. Contractor shall select treatment/ disposal facilities to receive Contaminated or Polluted Materials from the Project which are established, fully operational, and in full compliance with all applicable Federal, State, and local regulations.

PART 3 - EXECUTION

3.1 GENERAL

A. All Contaminated Materials shall be removed from the Project Site and legally recycled or disposed of by a Contractor.

3.2 CHARACTERIZATION FOR DISPOSAL

A. Engineer shall be solely responsible for collection, analysis and interpretation of analytical characterization samples as required for the proposed off-site disposal of all Contaminated Materials under this Section.

3.3 DISPOSAL COORIDNATION AND TRANSPORT

A. Contractor shall be solely responsible for coordinating treatment/ disposal facility approval, scheduling, loading, transport, and ultimate disposal of Contaminated or Polluted Materials at treatment/ disposal facility. No claim for delay will be considered based upon Contractor's facility failing to meet Contractor's production schedule. No payments will be made for rejected loads.

B. Contractor shall be responsible for professional certifications or verifications which may be required by state agencies for the disposal of Contaminated or Polluted Materials.

3.4 MANIFEST AND SHIPPING PAPERS

A. Unless otherwise indicated, Owner will be designated "Generator" for all Contaminated Materials.

1. Owner will sign all Manifests and Shipping Papers. Manifests and Shipping Papers shall be prepared by Contractor twenty four (24) hours in advance of shipment of Contaminated Materials. Authorized Owner's representative will sign as "Generator" as each load of Contaminated Material leaves the Project Site. Contractor shall forward appropriate original copies of Manifests or Bills of Lading to Engineer on the same day the Contaminated Materials leave the Project Site.

B. Owner shall be "Generator" and shall sign all Manifests and Shipping Papers for all Contaminated Materials related to the decontamination of Contractor's tools or equipment.

3.5 TRANSPORT OF CONTAMINATED MATERIAL

A. Transport contaminated materials off-site after all treatment/disposal facility documentation has been completed and the material accepted by said facility.

B. Transport Contaminated or Polluted Materials from the site to treatment/ disposal facility in accordance with all United Stated Department of Transportation (DOT), USEPA, Connecticut regulations and other regulations of all affected states.

C. The Hauler(s) shall be licensed in all states affected by transport.

D. Track all off-site shipments in Shipping Log.

E. Provide to Engineer copies of all paperwork related to transportation of each type of Contaminated or Polluted Material.

END OF SECTION 02 12 00

SECTION 02 32 19 – EXPLORATORY EXCAVATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section includes the excavation and backfilling of test pits for the purpose of verifying the exact locations of underground utilities, structures and other subsurface conditions.

1.3 SUBMITTALS

A. Sketches: Submit a sketch showing the location of the subsurface features which were uncovered in the test pits, including the following information:

1. Horizontal location of the subsurface feature relative to three individual surface features.
2. Depth of feature below ground surface.
3. Diameter, type and condition of pipe or conduit.
4. Orientation of pipe, conduit or structure relative to other site features.
5. Other pertinent dimensions.
6. Test pit identification number

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 GENERAL

A. Perform test pits only within the limits of the work, easements and rights of way, unless otherwise authorized or directed by the Engineer.

B. Excavate test pits with care to avoid damage to structures and utilities. Excavate by hand is necessary. Promptly repair any damaged utilities and structures at no cost to the Owner.

C. Test pit excavations and submittals shall be completed prior to procurement of utilities and structures to allow time to clarify field adjustments based on the information gathered.

3.2 EXCAVATION

A. Excavate test pits advance of construction, at the locations shown on the Drawings, or where directed by the Engineer. Determine the exact location of all pipes, conduits, duct, or other interfering structures in both horizontal and vertical locations. Excavate to the depth and width necessary to accurately determine the locations of the utilities of interest.

B. Excavate test pits with care to avoid damage to structures and utilities. Excavate by hand if necessary.

C. Any utilities or structures damaged by the Contractor during excavations shall be immediately repaired at no additional cost to the Owner. Public and private utility companies shall be notified of any damages to utilities.

3.3 BACKFILL

A. Test pits shall remain open and protected until all required information has been obtained by the Contractor and Engineer.

B. Backfill test pits in accordance with Section “Trenching and Backfilling” and grade surface as suitable for temporary traffic use.

3.4 COMPLETION

A. Upon satisfactory execution of the required test pits submit sketches to the Engineer.

B. The Engineer shall adjust pipe elevations, alignment or design as necessary to minimize interfaces.

END OF SECTION 02 32 19

SECTION 02 41 13.23 – SELECTIVE SITE DEMOLITION- UTILITY LINE REMOVAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. The work under this item shall consist of plugging, filling and abandoning storm sewers, manholes, catch basins, or other structures, so directed by the Engineer, that are to remain in place. Sewer, Manholes, and/or other structures to be abandoned shall be as indicated on the Contract Drawings or as ordered by the Engineer.

1.3 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete

B. Division 31 – Earthwork

C. Section 33 30 00 – Sanitary Sewerage Utilities

PART 2 - PRODUCTS

2.1 BACKFILL

A. The backfill material for filling sewers, catch basins, manholes, and structures shall be fine mason sand or other material as may be acceptable to the Engineer. A lean mixture of concrete will also be acceptable. Backfill material for filling manholes or other structures shall conform to Structural Fill as specified in Division 31 – Earthwork.

2.2 CAPS AND/OR PLUGS

A. All pipes (e.g. manhole pipe stubs, building laterals, sewers to be abandoned, etc.) shall be either plugged with manufactured units or masonry bulkheads as specified hereinafter.

2.3 MANUFACTURED PLUGS

A. Whenever possible, manufactured watertight plugs shall be used. The material of the plug shall be compatible with the pipe and when necessary shall be given protective coating. Pipes shall be closed with

the plug having a gasket set into the bell of the pipe in accordance with the manufacturer's recommended installation procedures and as approved by the Engineer.

2.4 MASONRY BULKHEADS

A. Where manufactured plugs are not available, the Contractor shall cap pipes to be abandoned by constructing masonry bulkheads of brick, of a thickness appropriate to the size of the pipe, (no less than 6 inches thickness) its depth below surface and other conditions. The outside of brick bulkheads shall be purged with non-shrink mortar.

PART 3 - EXECUTION

3.1 GENERAL

A. At all times during performance of the work of this section, Contractor shall perform operations in a manner which considers the health, safety and protection of all Contractor and Subcontractor personnel, support personnel, Engineer and his representatives, and the surrounding environment.

B. Verify all existing conditions affecting the performance of the work.

3.2 EXCAVATION

A. Control excavation areas in accordance with Contractor's Health and Site Safety Plan (HASP).

B. Excavate exploratory trenches as necessary to determine the pipe location, orientation, and limits.

C. Excavate around the perimeter of the pipe so as to limit the amount of potentially Contaminated Soils that could be mixed with previously uncontaminated soil.

D. Excavate as necessary to remove piping. Maintain the area around the pipe an excavation of sufficient size to allow workers ample room to complete the work, but also protect the workers from sliding or cave-ins. Sheeting, bracing, or shoring shall be installed in the absence of adequate side slopes if there is a need for workers to enter the excavated area.

E. Open excavations represent a substantial hazard. At a minimum, provide full enclosure with safety fencing and implement additional measures as appropriate to secure open excavations while awaiting Engineer's confirmation test results from soil beneath pipes or any other period when pipe excavations remain open. Backfill the excavations as soon as possible after pipe and contaminated soil removals have been completed and confirmation samples have been taken.

   1. Contractor shall also implement measures as appropriate divert surface water around excavation sites to prevent water from directly entering into open excavations.

3.3 DISPOSAL OF MATERIAL

A. After the piping has been cleaned, cut the pipe into pieces of manageable size for transport off of the Project Site. Piping sections shall be recycled to the extent practicable.

B. Excess and unsuitable materials shall be removed and disposed of off-site by the Contractor at no additional cost to the Owner.

END OF SECTION 02 41 13.23

SECTION 03 05 10 - CONCRETE MOISTURE VAPOR REDUCTION ADMIXTURE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes:
   1. High Performance Concrete Admixture for all new concrete slabs on grade.

B. Related Sections:
   1. Division 03 Section "Cast-in-Place Concrete" for cast-in-place concrete materials and placement and vapor retarder.

1.3 REFERENCES

A. American Society for Testing and Materials International (ASTM)
   1. ASTM C 157: Standard Test Method for Length Change For Hardened Hydraulic-Cement Mortar and Concrete.
   2. ASTM D 5084: Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.
   3. ASTM E 96: Standard Test Method for Water Vapor Transmission of Materials.
   4. ASTM E 1643 Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
   5. ASTM E 1745 Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
   6. ASTM F 710-11 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
   7. ASTM C 494/C 494M-08a Chemical Admixtures For Concrete Type S

1.4 SUBMITTALS

A. Product Data: Manufacturer's printed data sheets.
   1. Include standard slab repair details.
   2. Include vapor barrier data showing compliance with this section.

B. Product test reports performed by a qualified independent testing agency evidencing compliance of products with specified requirements of water-vapor transmission based on comprehensive testing of current products.

C. Manufacturer's certificate certifying admixture provided meets or exceeds specified requirements.

D. Sample warranty.

1.5 QUALITY ASSURANCE

A. Quality Control Protocol shall consist of the concrete water vapor transmission inhibiting admixture representative procuring two random cylinders from every placement of concrete containing the concrete water vapor transmission inhibiting admixture. These cylinders shall be sent to an independent laboratory for hydraulic conductivity (coefficient of permeability) per ASTM D5084. The results of this "project specific" quality control protocol shall form the basis for the issuance of the project specific warranty.
   1. Should the Quality Control Protocol deliver results in excess of 6.0 E-08 cm/sec, the concrete water vapor transmission inhibiting admixture manufacturer shall provide, at their expense, an epoxy topical moisture mitigation system for all areas not meeting the stated limit.
      a. The moisture mitigation system shall include all labor and material for slab profiling, epoxy material, and application.
      b. The moisture mitigation system shall include a warranty meeting or exceeding the terms of the manufacturer's warranty specified in Article 1.7 of this Section.

B. Toxicity/Hazardous Materials: Provide products that contain no urea-formaldehyde.

C. Repairs to slabs must be in accordance with concrete industry standards and meeting waterproofing admixture manufacturer's published details.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturers written instructions for handling prior to adding to concrete batch.

B. Store both components protected from exposure to harmful weather conditions and in a temperature controlled area above 36 deg F. Do not allow product to freeze.

1.7 WARRANTY

A. Special Warranty: Provide manufacturer's standard warranty documents executed by an authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights the owner may have under provisions of the Contract Documents.
   1. Warranty Period: Life of the concrete.
   2. Warranty Terms: Terms shall include moisture related failures, including removal of floor coverings, moisture remediation of the concrete substrate, and all finish floor materials and labor.
   3. Warranty Basis: Follow Quality Control Protocol specified in Paragraph 1.5A of this Section, achieving a maximum coefficient of permeability of 6.0 E-08 cm/sec on all project test samples.

PART 2 - PRODUCTS

2.1 CONCRETE MOISTURE VAPOR REDUCTION ADMIXTURE

A. Concrete Moisture Vapor Reduction Admixture (MVRA): Concrete moisture vapor reduction admixture for all interior slabs on grade, elevated slabs, and stair treads and landings, shall be a non-toxic, liquid admixture that is specifically designed to have a natural chemical reaction with pre-existing elements inside the concrete to eliminate the route of moisture vapor emission through the slab by restricting the integral capillary system. The chemical reaction forms a permanent barrier (capillary break) that is integral to the concrete, insoluble and irremovable.
   1. Basis of Design Product: Subject to compliance with requirements, provide Barrier One Inc., **Barrier One High Performance Concrete Admixture.**

522 S. Hunt Club Blvd. #303
Apopka, FL 32703
Manufacturer's Representative: 877.224.5850, Fax: 866.594.3490.
Email: info@Barrier-1.com

2. Provide the above-named product or, upon approval of the Architect/Structural Engineer, provide a product that meets or exceeds the following project specific performance requirements at the expense of the concrete moisture vapor reduction admixture (MVRA) manufacturer:
   a. Project specific quality control process to include, but not be limited to:
      1) Independent procurement of one cylinder per day of placement of concrete containing MVRA.
      2) Independent testing of all cylinders for hydraulic conductivity per ASTM D 5084.
      3) Assessing each cylinder for maximum flow of 6.0 E-08 cm/sec.
      4) Should any cylinder exceed the maximum flow, procure a core from that day's placement.
      5) Independently test core for hydraulic conductivity per ASTM D 5084.
      6) Should any core exceed the maximum flow, provide a topical moisture mitigation system for all areas not meeting the stated limit; moisture mitigation system to include all labor, material and warranty that meets or exceeds the terms of the concrete moisture vapor reduction admixture manufacturer's warranty.
   b. Warranty requirements: Said product must be installed according to and in compliance with the manufacturer's published data sheet to include but not limited to dosing instructions, onsite representation requirements, and the use of an ASTM E 1745 vapor retarder, installed following ASTM E 1643 and ASTM F 710 guidelines; suspended concrete slabs do not require a vapor retarder.
      1) MVRA Manufacturer's warranty shall include:
         a) Term: Life of the concrete.
         b) Repair and/or removal of failed flooring.
         c) Placement of a topical moisture remediation system.
         d) Replacement of flooring materials like original installed to include material and labor.
      2) MVRA Manufacturer shall provide an adhesion warranty to match the term of the adhesive manufacturer's warranty in accordance with the MVRA manufacturer's requirements for conveyance of such.

2.2 MATERIALS

A. Concrete Water Vapor Transmission Inhibiting Admixture: Non-toxic, liquid admixture for concrete that reacts with water and portlandite filling the capillary system with calcium silicate hydrate (CSH) to eliminate the route for moisture migration. Once the admixture is added to the mix design, the admixture shall react with the water to allow the concrete to be flexible, even at low slump.
   1. Product Description: Concrete water vapor transmission inhibiting admixture shall be a complex formula that is free of all volatile organic compounds (VOC). It shall be specifically designed to have a natural chemical reaction with pre-existing elements inside the concrete to eliminate the route of moisture vapor emission through concrete by closing down the integral capillary system. The chemical reaction shall form a permanent barrier (capillary break) which is integral to the concrete and irremovable.
      a. Water Vapor Transmission: 0.20 US perms per ASTM D 5084
      b. Appearance: Colorless
      c. Odor: None
      d. Toxicity: None
      e. Flammability: None
      f. Ph: 11.3

g. Shelf Life: Indefinite
h. Weight: 11.2 lbs per gallon
i. Freeze Temp: 32°F
j. Storage Temp: Above 36°F
k. Solvent: Water
l. Acid Resistance: Excellent
m. Hazardous Vapors: None
n. Capillary Break: Calcium Silicate Hydrate Gel
o. Installation: All concrete
p. VOC Levels: Zero

B. Barrier One contains an anti-microbial biocide to inhibit mold and bacteria growth.

2.3 RELATED MATERIALS

A. Sheet Vapor Retarder: As specified in Division 03 Section "Cast-in-Place Concrete." Comply with the following:
1. Sheet Vapor Retarder: ASTM E 1745-09 vapor barrier maintaining a permeance of 0.01 US perms (grains/ft2*hr*inHg) or less after the required product conditioning specified in ASTM E 1745-09 Include manufacturer's recommended adhesive or pressure-sensitive tape.
a. Products: Any sheet vapor barrier that can show compliance with required perm rating after product conditioning specified in ASTM E 1745-09. Final approval is with Barrier One.

PART 3 - EXECUTION

3.1 APPLICATION

A. Install vapor barrier following ASTM E 1643-98(2005) guidelines and in accordance with Division 03 Section "Cast-in-Place Concrete."

B. Moisture Vapor Reduction Admixture: Add Barrier One Admixture in accordance with manufacturer's recommendations to all ready-mix concrete, to be placed in interior slab-on-grade construction, at the batch plant or at the job site.
1. A representative or agent of Barrier One Admixture must be present at the jobsite during the placement of all treated concrete. Do not proceed without the Barrier One representative being present for the certification of the mix and placement process. Provide minimum 10 days notice of the placement of the treated concrete.
2. The Quality Control Protocol for Barrier One Admixture shall consist of the Barrier One representative procuring two random cylinders from every placement of concrete containing Barrier One Admixture. These cylinders will be sent to an independent laboratory for hydraulic conductivity (coefficient of permeability) per ASTM D5084. The results of this "project specific" quality control protocol forms the basis for the issuance of the project specific warranty.

C. Dispense Barrier One admixture at a rate of 14 oz. per 100 lbs. of cementitious materials at the tail end of the load, dose to be within plus or minus 3 percent. Additional dosage may be required based on the mix design.
1. Add Barrier One Admixture to ready mix concrete truck, in the require dosage, and mix for 7 (seven) minutes before discharge. Barrier One Admixture is to be used in lieu of designed mix water, not in addition to mix water.
2. Do not alter 0.45 water/cementitious materials ratio without prior approval.
3. The addition of non-chlorinated admixtures is permitted.

4. The addition of Shrink Reducing Admixtures is **not** permitted.

D. Other admixtures may be used in the same concrete batch with Barrier One provided that such admixtures are added separately.
   1. The water-to-cementitious material ratio (w/cm) is critical and it is imperative to comply with the mix design. Barrier One is used in lieu of that portion of the mix water, not in addition to the mix water.
   2. Use of plasticizers or water reducers is recommended to achieve slumps greater than 4 inches.

3.2 CURING

A. Comply with curing requirements in Division 03 Section "Cast-in-Place Concrete."

3.3 FIELD QUALITY CONTROL

A. Concrete Water Vapor Transmission Inhibiting Tests: Testing of slabs containing concrete water vapor transmission inhibiting admixture shall be carried out by the concrete water vapor transmission inhibiting admixture manufacturer's technical representative to include: two random, 4-inch drilled sample cores and/or cylinders on all project slabs. The sample cores and/or cylinders shall be sent to an independent laboratory and tested for permeability in accordance with ASTM D 5084, and shall achieve a minimum 6.0 E-08 cm/sec. The results shall be provided to the Architect prior to the installation of floor coverings and as part of the warranty closeout documents. Additional testing may be required in accordance with the water vapor transmission inhibiting admixture manufacturer's requirements. No other testing shall be required for installation of floor coverings.

3.4 REPAIRS

A. Make repairs to slab in accordance with Division 03 Section "Cast-in-Place Concrete" and as shown in manufacturer's published details and remediation program.

END OF SECTION 03 05 10

SECTION 03 10 00 - CONCRETE FORMWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

A. Provide all labor, materials, equipment and appliances to furnish and install all concrete formwork.

1.3 RELATED WORK SPECIFIED IN OTHE SECTIONS

A. Concrete Reinforcement: Section 032000

B. Cast-In-Place Concrete: Section 033000

1.4 QUALITY ASSURANCE

A. All materials and work shall conform to the requirements of all standards, codes, and recommended practices required in this section. In conflicts between standards, required standards, and this specification, the more stringent requirements shall govern.

B. Applicable Standards:
   1. ACI 347 (Latest Edition) - "Recommended Practice for concrete Formwork"
   2. ACI 301(Latest Edition) - "Specifications for Structural Concrete for Buildings"

PART 2 - PRODUCTS

2.1 MATERIALS

A. Forms shall be constructed of the following materials as indicated for the use and purpose intended:
   1. For unexposed surfaces and rough work, undressed lumber may be used. Lumber once used in forms shall have nails withdrawn, and surfaces to be I contact with concrete shall be thoroughly cleaned before being used again.
   2. For exposed exterior sides of foundations walls which show exposed above grade, and surfaces of walls, columns, and slabs to be left exposed in the finished building, forms lined with plastic coated plywood or masonite shall be used. All joints shall be filled with suitable joint filler in order to produce a reasonable straight, smooth surface, free from honeycombs, bulges, and depressions.
   3. Form ties and spreaders shall be of such type as to leave no metal closer than ¾" from exposed concrete surfaces and 1 ½" from unexposed surfaces, below grade.

B. Expansion joints - premolded expansion joint filler shall conform to one of the following:
   1. ASTM D 1751 “Standard Specifications for Preformed Expansion Joint Fillers for Concrete paving and Structural Construction” (Nonextruding and resilient bituminous types).
   2. ASTM D 1752 “Standard Specifications for Preformed Expansion Joint Fillers for Concrete Paving and Structural construction” (Nonexturding and resilient nonbituminous types).

PART 3 - EXECUTION

3.1 ERECTION

A. Forms shall conform to the shapes, lines, grades and dimensions of the members as called for on the drawings. They shall be erected with sufficient strength, bracing and ties as to remain in correct position during and after depositing of concrete. They shall be substantially free from surface defects and sufficiently tight to prevent leakage of mortar. They shall produce a plumb, true, even concrete surface. Lumber in forms for exposed surfaces shall be dressed and free form loose knots or other defects. Undressed lumber may be used for rough work or unexposed surfaces. They shall permit thorough cleaning and inspection before depositing of concrete.

B. Form ties and spreaders shall be of such type as to leave no metal closer than ¾” from exposed concrete surfaces. Tie rod holes shall be plugged solid with a mortar of same color and texture as the concrete.

C. Forms, if oiled, shall be coated with a non-staining mineral oil or other approved material and allowed to dry before placing of reinforcing steel.

D. Forms shall not be disturbed until the concrete has sufficiently hardened to prevent injury by this operation. All forms, except permanent metal forms, shall be removed when he concrete is thoroughly hardened. Forms for walls shall be left in place for a minimum of three days.

E. Provide ¾” chamfers at all exposed concrete edges if shown by Architectural Drawings.

F. Shoring, posts or uprights shall not be removed until the supported member has acquired sufficient strength to support safely its own weight and all loads upon it. Re-shoring will not be permitted. Members subjected to additional loads during construction shall be adequately shored or braced. Contractor shall assume responsibility for any damage to the structure due to premature removal of forms or inadequate bracing.

G. Sleeves shall not be formed into any structural member unless shown on structural drawings.

H. Construction Joints, when not shown on working drawings shall be made and located to least impair the strength of the structure.
   1. All reinforcement shall be continued across joints and keys shall be provided.
   2. Slabs on Fill: Joints shall be located so that slabs can be poured in or cut into panels, each panel not exceeding 900 square feet in area. The ratio of length to width shall not exceed 3.
   3. Foundation Walls: Vertical joints shall be placed at intervals not exceeding 75 feet. Horizontal joints shall not be permitted.

I. Expansion Joints - premolded expansion joint filler shall be placed along edges of slab on grade where abutting foundation walls, and at all other locations as detailed.

J. Control joints shall be as shown on the working drawings and as directed by the Architect.
   1. Contraction joints may be formed, tooled or sawed approximately equal to ¼ the thickness of the member.

K. Erect formwork to produce concrete members conforming to the following dimensional tolerances:
   1. Variations from plumb in the lines and surfaces of columns, piers, and walls shall not exceed ¼" in any 10 feet of height nor 1" for entire length.
   2. Variation of linear building lines from established position in plan shall not exceed 1".
   3. Variation in cross-sectional dimensions of columns and beams and in thickness of slabs and walls shall not exceed minus ¼", nor plus ½".

END OF SECTION 03 10 00

SECTION 03 20 00 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

A. Furnish and erect in place all reinforcing steel and welded wire fabric as indicated on Drawings. Include all splices, ties, supports, and other accessories required to properly place and secure all reinforcing during placing of concrete.

1.3 RELATED WORK SPECIFIED IN OTHE SECTIONS

A. Section 03 10 00 - Concrete Formwork

B. Section 03 30 00 - Cast-In-Place Concrete

1.4 SUBMITTALS

A. Shop Drawings: Contractor shall prepare detailed drawings showing dimensions, bar schedules, bending details and placing diagrams and details, for all reinforcement. Drawings shall be submitted for approval and no reinforcement shall be placed before drawings are approved.

1.5 QUALITY ASSURANCE

A. All work shall conform to the requirements of the following:

1. ACI 318 (Latest Edition) "Building Code Requirements for Reinforced Concrete"
2. ACI 315 (Latest Edition) "Manual of Standard Practice for Detailing Reinforced Concrete Structure
3. ACI 301 (Latest Edition) "Specifications for Structural Concrete for Buildings"

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Steel Reinforcement: Reinforcing bars shall be new domestic with a minimum fy = 60,000 psi; and shall conform to the requirements of "Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement" (ASTM A615).

B. Wire Fabric: Welded wire fabric for concrete reinforcement shall conform to the requirements of "Specifications for Welded Steel Wire Fabric for Concrete Reinforcement" (ASTM A185). Equivalent fiber mesh reinforcement can be substituted for slab on grade welded wire fabric reinforcement (submit documentation for review/approval).

C. Bar supports shall have CRSI " Rust Prevention Classification" as listed:

1. Unexposed: Concrete beams, slabs, etc. - Class "A".
2. Exposed: Concrete beams, slabs, and soffits, etc. - Class "C".

PART 3 - EXECUTION

3.1 FABRICATION AND SITE STORAGE

A. Reinforcing shall be accurately formed to dimensions on drawings details, and schedules within the following tolerances:

1. Sheared Length ……..+ or - 1 inch
2. Stirrups, Ties and Spirals…….+ or - ½ inch
3. All other bends……..+ or - 1 inch

B. Fabrication shall not commence until details and schedules have been approved by the Architect.

C. Reinforcement shall be bent cold and shall not be straightened or rebent in a manner than will injure the materials. Bars with bends or kinks not shown on Drawings shall not be used. Bars shall be stored on site, off of the ground and separated by individual groups that shall be tagged for ease of identification. Bundles shall be securely wrapped to prevent separation prior to placement.

3.2 PLACING REINFORCEMENT

A. Metal reinforcement shall be secured against displacement with suitable ties or clips and all accessories such as chairs, metal bar-supports, bolsters, etc., which come in contact with exposed concrete surface shall have Rust Prevention Classification "C" and shall have plastic coated bearing surfaces.

B. Welded wire fabric shall be lapped 8" at ends and sides and the upper layer shall be placed within 1" of the top of the slab and to be held in place by high chairs at 4'-0" o/c maximum, this includes welded wire fabric in slabs-on-grade.

C. Follow all manufacturer guidelines for dosage and proper fiber mesh installation procedures.

D. Metal reinforcement, at the time concrete is placed, shall be free from mill scale, rust, or other coatings that will reduce bond.

E. Metal reinforcement shall have a protection of concrete not less than the following:
1. Three inches (3") at sides and on bottoms of footings.
2. Two inches (2") where concrete is exposed to weather or to the ground after removal of forms for bars larger than #5 and one and one-half inches (1 ½") for #5 bars and smaller.
3. One and one-half inches (1 ½") in columns, beams and girders not exposed to the weather.
4. Three fourths inch (3/4") in slabs, joists and walls not exposed to the weather.

F. Metal reinforcement shall be accurately bent, spliced, and placed to dimensions shown on the Drawings and in accordance with the latest specifications of the American Concrete Institute. Bars shall be tied at all intersections.

END OF SECTION 03 20 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 or services referenced in or related to this Section shall also be bound by the Documents identified in Division 01 Section "Summary", Paragraph 1.1A, entitled "Related Documents."

1.2 DESCRIPTION OF WORK

A. This contract includes all labor, materials, equipment and appliances necessary to complete all cast-in-place concrete as indicated on the drawings or hereinafter specified.

B. Anchor bolts, leveling plates, sleeves, inserts, hangers, etc. furnished under other divisions and required to be cast into the concrete shall be set by this Contractor where required.

C. Provide all concrete bases, curbs, mats, pads, trenches, slots, openings, etc., as required by any or all of the drawings; Architectural, Site, Structural, Plumbing, Heating and Ventilating, and Electrical, and to accommodate equipment or work of all the divisions of these specifications.

D. Provide thickened slabs on grade with flush top surfaces where required to accommodate conduit, piping, etc. Consult structural and mechanical drawings for conditions and maintain minimum 1 ½" thickness of concrete below conduit and full slab on grade thickness above conduit. Provide required thickness of gravel below such thickened slabs.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

A. Section 03 10 00 - Concrete Formwork

B. Section 03 20 00 - Concrete Reinforcement

1.4 QUALITY ASSURANCE

A. Materials and work shall conform to the requirements of all standards, codes, and recommended practices required in this section. In conflicts between standards, required standards and this specification and the local building code, the ore stringent requirements shall govern.

B. Applicable Standards:

1. "Specifications for Structural Concrete for Buildings" ACI 301 (Latest Edition)
2. "Building Code Requirement for Structural Concrete" ACI 318 (Latest Edition)
3. "Standard Specification for Ready-Mixed Concrete" ASTM C 94 (Latest Edition)

C. Testing and Inspection:

1. Materials and operations shall be tested and inspected as work progresses. Failure to detect defective work shall not prevent rejection when defect is discovered, nor shall it obligate the Architect for final acceptance.
2. Testing agencies shall meet the requirements of "Recommended Practices for Inspection and Testing Agencies for Concrete and Steel in Construction" ASTM E 329 (Latest Edition).
3. The following testing services shall be performed by the designated agency, paid for by the Owner.
    a. Secure composite samples in accordance with "Method of Sampling Fresh Concrete" ASTM C 172 (Latest Edition).
    b. Mold and cure three specimens from each sample in accordance with "Method of Making and Curing Concrete Test Specimens in the Field" ASTM C 31 (Latest Edition).
    c. Test Specimens in accordance with "Method of Test for Compressive Strength of Cylindrical Concrete Specimens" ASTM C 39 (Latest Edition). Two specimens shall be tested at 28 days for acceptance and one shall be tested at 7 days for information.
    d. Make one strength test for each 50 cu. Yd. or fraction thereof, of each mix design of concrete placed in any one day.
    e. Determine slump for each strength test and whenever consistency of concrete appears to vary, using "Method of Test for Slump of Portland Cement Concrete". ASTM C 143 (Latest Edition).
    f. Determine total air content of normal-weight concrete sample for each strength test in accordance with "Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method". ASTM C 231 (Latest Edition).
    g. Determine temperature of concrete sample for each strength test.
    h. Unit weight, yield and air content (gravimetric) of concrete. ASTM C 138.
4. The contractor shall provide and pay for the necessary testing services of the following:
    a. Qualification of proposed materials and the establishment of mix design in accordance with "Building Code requirements for Structural Concrete" ACI 318 (Latest Edition).
    b. Other testing services needed or required by the Contractor.
5. To facilitate testing and inspection, the contractor shall:
    a. Furnish necessary labor to assist testing agency in obtaining and handling samples at the job-site.
    b. Advise the testing agency in advance of operations to allow for the assignment of testing personnel and testing.
    c. Provide and maintain for the use of the testing agency adequate facilities for proper curing of concrete test specimens on the project site in accordance with "Method of Making and Curing Concrete Test Specimens in the Field" ASTM C 31 (Latest Edition).

D. Evaluation and Acceptance:

1. The strength level of the concrete will be considered satisfactory if 90% of the strength test results and the averages of all sets of three consecutive strength test results equal or exceed specified strength and no individual test result is below specified strength by more than 500 psi.

1.5 SUBMITTALS

A. Submit copies of two laboratory trial mix designs proposed in accordance with Method 1, ACI 301 (Latest Edition), or copies each of 30 consecutive test results and the mix design used from a record of past performance in accordance with ACI 301 (Latest Edition), Method 2.

B. Submit copies of all concrete cylinder test results.

C. Submit copies of fine and coarse aggregate sieve analysis showing conformance to this specification.

D. Submit copies of specifications for each product proposed for use as listed in Part 2 of this section.

PART 2 - PRODUCTS

2.1 CONCRETE AND RELATED MATERIALS

A. Portland Cement; Type I conforming to ASTM C 150 (Latest Edition). Cement used in the work shall correspond to that upon which the selection of concrete proportions was based.

1. Only one brand and manufacturer of approved cement shall be used for exposed concrete.
2. Type III cement shall be used only with prior written approval from the Architect.

B. Aggregates; conforming to ASTM C 33 (Latest Edition) and C330 (Latest Edition) for lightweight aggregates used in lightweight concrete.

1. Fine aggregate: clean, sharp, natural sand free from loam, clay, or other deleterious matter.
2. Coarse aggregate, clean, uncoated, graded aggregate containing no clay, loam or foreign matter.
3. Pre-soak aggregates used in lightweight concrete.

C. Water; shall be fresh, and drinkable.

D. Concrete admixtures; provide admixtures used in compliance with manufacturers recommendations.

1. Air-entraining agent; conforming to ASTM C 260 (Latest Edition), MB-AE 10, or MB-VR, manufacturer by Master Builders, or approved equal as manufactured by Sonneborn, Euclid, or W. R. Grace Companies.
2. Water-reducing; set-controlling admixture; conforming to ASTM C 494 (Latest Edition), Type A (water-reducing), Type D (water-reducing and retarding) and Type E (water-reducing, acceleration), manufacturer by Master Builders, Sonneborn, Euclid or W. R. Grace Companies.
3. Concrete moisture vapor reduction admixture (to be used in all new cast-in-place concrete interior slabs on grade) conforming to ASTM E 96 (Latest Edition) and ASTM C494 (Latest Edition).

E. Metal Accessories; shall conform to the requirements of the Concrete Reinforcing Steel Institute (CRSI) “Manual Construction”.

F. Expansion Joint; conforming to ASTM D 1751 or ASTM D 1752.

G. Curing Materials; exceeding the requirements of ASTM C 309 (Latest Edition) “Standard Specifications for Liquid Membrane-Forming Compounds for Curing Concrete”. “MB-429” manufactured by Master Builders, or approved equal manufactured by Sonneborn, Euclid or W. R. Grace Companies.

1. Material providing water retention not exceeding loss of .055 gm/cm2 when used at a coverage of 450 sq. ft. per gallon and tested in accordance with ASTM C 156.

H. Grout: Non-shrink, “SETGROUT” as manufactured by Master Builders.

I. Vapor retarder: shall be installed under concrete slabs on grade and shall be 10 mil polyethylene. It shall be installed in widest practical width. All joints shall be lapped a minimum of six (6) inches, and all breaks or holes shall be patched prior to pouring the concrete.

1. Vapor retarder must have the following qualities:

a. Minimum WVTR as tested by ASTM E 96 of 0.037 perms.

b. Minimum thickness of 0.01 in (10 mils).
c. Manufacturer of selected product must provide documentation that clearly illustrates submitted water vapor retarder product meets or exceeds the above requirements in accordance with ASTM E 1745 and ASTM F 710.

2. Vapor retarders:

a. Stego Wrap (10 mil) Vapor Retarder by Stego Industries, LLC, San Juan Capistrano, CA.
b. SealTight Vapor-Mat by W.R. Meadows.
c. Moistop Ultra "C" by Fortifiber Building Services Group, Reno, Nevada.

J. Curing paper shall be the approved equal of Sisalkrafrt Paper "Orange Label" that conforms with ASTM C171, Type I.

K. Premolded joint filler shall be a preformed bituminous expansion type that conforms to ASTM D-994. Joint material thickness shall be one-half (1/2) inch thick, except as otherwise indicated on the drawings.

L. Concrete Moisture Vapor Reduction Admixture: [Refer to Specification Section 030510, "Concrete Moisture Vapor Reduction Admixture"].

2.2 SELECTION OF CONCRETE PROPORTIONS

A. Concrete shall be composed of Portland Cement, fine and Coarse aggregate, water, Pozzolith admixture, and as specified, an air-entraining admixture. Proportions of ingredients shall produce concrete which will work readily into corners and angles of forms, bond to reinforcement, without segregation or excessive bleed water forming on the surface. Proportioning of materials shall be in accordance with ACI 211.1(Latest Edition), "Recommended Practice for Selecting Proportions for Normal Weight Concrete".

1. Proportions of ingredients shall be selected by past field experience or by laboratory trial mixes to produce placability, durability, strength and the additional properties specified.

B. Required average strength above specified strength shall be determined in accordance with ACI 318 (Latest Edition) "Building Code Requirements for Structural Concrete" and evaluations of compressive strength results of field concrete shall be in accordance with ACI 214 (Latest Edition) "Recommended Practice for Evaluation of Strength Test Results of Concrete".

1. Past field Experience; proportions shall be established on the actual field experience of the readymix produced with the materials proposed to be employed. Standard deviation shall be determined by 30 consecutive tests (or two groups of tests totaling 30 or more).

a. Average strength used for selecting proportions shall exceed specified strength (f'c) by at least:

1) 400 psi - standard deviation is less than 300
2) 550 psi - standard deviation is 300 to 400
3) 700 psi - standard deviation is 400 to 500
4) 900 psi - standard deviation is 500 to 600
5) 1200 psi - standard deviation is above 600 or unknown

2. Trial Mixes; when the ready-mix producer does not have a record of past performance, the combination of materials and the proportions selected shall be selected from trial mixes having proportions and consistencies suitable for the work based on ACI 211.1 (Latest Edition), using at least three different water-cement ratios which will produce a range of strengths encompassing those required.

a. Average strength required shall be 1200 psi above specified strength.

2.3 CONCRETE QUALITIES REQUIRED

A. Specified compressive strength at 28 days shall be 3,000 psi for footings and foundations walls, 3,500 psi for interior building slabs and 4,000 psi for interior parking slabs and exterior slab-on-grades unless noted on the drawings.

B. Concrete subject to exposure shall be air-entrained. Total air content required (air-entrained and entrapped air) shall be:

Nominal Max. Size Coarse Aggregate	Total Air Content
¾”	6% + or - 1
1”	5% + or – 1
1 ½”	4% + or - 1

C. Concrete shall be proportioned and produced to have a slump, not to exceed 4 in. if consolidation is by vibration or 5 in. if consolidation is by other means.

D. Slump for concrete flatwork shall be 1” less than specified above.

E. Maximum size of coarse aggregate shall not exceed one-third the thickness of slabs, and one-fifth the narrower dimension between forms.

F. Concrete shall be adjusted to produce the required rate of hardening for varied climatic and job-site conditions.

1. Under 50°F ambient temperature - Accelerate (Approval in Writing Required from the Architect) (Type E Admixture - ASTM C 494-Latest Edition)
2. Between 50°F and 80°F - Normal rate of Hardening (Type A Admixture - ASTM C 494-Latest Edition)
3. Over 80°F ambient temperature - Retard (Type B Admixture - ASTM C 494-Latest Edition)

PART 3 - EXECUTION

3.1 PRODUCTION OF CONCRETE

A. Concrete shall be ready-mixed batched, mixed, and transported in accordance with ASTM C 94 (Latest Edition) “Specifications for Ready-Mixed Concrete”.

3.2 PLACING

A. Preparation - contractor shall provide access for delivery and provide sufficient equipment and manpower to rapidly place all concrete.

1. All work shall be in accordance with ACI 304 (Latest Edition) “Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete”.
2. Formwork shall have been completed; snow, ice, water, & debris removed from within forms.
3. Expansion joint material, anchors and all embedded items shall have been positioned.
4. Concrete shall not be placed on frozen ground.
5. Subgrades shall be sprinkled sufficiently to eliminate water loss from concrete.

B. Conveying - concrete shall be handled from mixer to final placement rapidly by methods which will prevent segregation or loss of ingredients to maintain required quality of concrete.

C. Depositing - concrete shall be deposited continuously; when continuous placement is not possible, construction joints shall be located as approved by the architect. Concrete shall be placed as nearly as possible to its final position; avoid rehandling or flowing.

1. Concrete shall be consolidated by vibration, spading, rodding, or forking. Work concrete around reinforcement, embedded items, and into corners, eliminating all air and stone pockets, and other sources of honeycombing and planes of weakness.
2. Internal vibration shall have a minimum frequency of 8000 v/min with amplitude to consolidate effectively.

   a. Vibrators shall be operated by competent workmen.
   b. Use of vibrators to transport concrete shall not be allowed.
   c. Vibrators shall be inserted and withdrawn approximately every 18 in. for 5 o 15 sec.

3.3 WEATHER CONDITIONS:

A. Cold Weather - temperature of concrete delivered at the job site shall conform to the following minimum:

Air Temperature	Concrete Temperature
30 to 45 ^{o}F	55 ^{o}F to 90 ^{o}F
0 to 30 ^{o}F	60 ^{o}F to 90 ^{o}F
Below 0 ^{o}F	65 ^{o}F to 90 ^{o}F

B. Water heated to above 100°F shall be combined with the aggregates before cement is added. Cement shall not be added to water or aggregated having a temperature greater than 100°F .

1. All work shall be in accordance with ACI 306 (Latest Edition) “Recommended Practice for Cold Weather Concreting”. Contractor shall maintain a copy of this on the project site.
2. When the outdoor temperature is less than 40oF temperature of the concrete shall be maintained at not less than 50°F for the required curing time.

   a. Arrangements shall be made before placement to maintain required temperature without injury from excessive heat.
   b. Combustion heaters shall not be used during the first 48 hours without precautions to prevent exposure of concrete and workmen to exhaust gases containing carbon dioxide and carbon monoxide.

C. Hot Weather - temperature of concrete delivered at the job-site shall not exceed 90oF. Cool materials before mixing as required.

1. All work shall be in accordance with ACI 305 (Latest Edition) “Recommended Practice for Hot Weather Concreting”. Contractor shall maintain a copy of this on the contract site.
2. Provisions shall be made for windbreaks, shading, fog, spraying, sprinkling or wet cover when necessary.

3.4 CURING AND PROTECTION

A. Immediately following placement, concrete shall be protected from premature drying, hot and cold temperatures, rain, flowing water and mechanical injury.

B. Materials and method of curing shall be approved by the Architect. Final curing shall continue for not less than 7 days.

1. Application of liquid membrane-forming compound shall conform to ASTM C 309 (Latest Edition) “Specifications for Liquid Membrane-Forming Compounds for curing Concrete.

C. Forms for walls shall be left in place for a minimum of 3 days.

D. Grout cleaning of exposed walls: Exposed exterior concrete walls shall be patched as required and shall have a grout cleaned finish as indicated on drawings or as instructed by the Architect.

E. No cleaning operations shall be undertaken until the walls of the building are entirely completed. Cleaning portions of the walls as the work progresses will not be permitted.

F. The Contractor shall use the following method for grout cleaning of exposed concrete:

1. Mix 1 part Portland Cement and 1 ½ parts fine sand with enough water to produce a grout having he consistency of thick paint. White Portland cement shall be used for all or part of the cement in the grout, as directed by the Architect, to give the color desired. Wet the surface of the concrete and apply the grout with brushes or a spray gun uniformly, completely filling air bubbles and holes.
2. Immediately after applying the grout, float the surface with a wood float, and scour the wall vigorously. The grout shall then be allowed to set partially for an hour or two depending on weather conditions. In hot, dry weather, the wall shall be kept damp during this period, using a fine fog spray. When grout has hardened so it can be scraped form the wall with the edge of a steel trowel without removing the grout from the small air holes cut off all that can be removed with a trowel. Next allow surface to dry thoroughly and rub it vigorously with a dry burlap to completely remove any dried grout. There shall be no visible film of grout remaining after this rubbing. The entire cleaning operation for any area must be completed the day it is started. No grout shall be left on the wall overnight and sufficient time shall be allowed for the grout to dry after it has been cut with the trowel so it can be wiped off clean with the burlap.
3. After the entire building has been grout cleaned, if any slightly dark spots or streaks remain, they shall be wiped off lightly with a fine abrasive hone. The rubbing with the hone shall not be enough to change the texture of the concrete. This final operation shall be included as a part of the grout cleaning.

G. Slab Finishing:

1. All interior concrete floor slabs shall be steel troweled to a smooth uniform finish, free from defects and blemishes, nothing to be added to either wet or dry finish. Steel troweling shall not be done until concrete has hardened sufficiently to prevent excess fine material from working to the surface.
2. All exterior concrete floor slabs shall have a broom finish.

3.5 SLAB FLATNESS/LEVELNESS TOLERANCES

A. Finished surfaces shall be smooth, free from blemishes and trowel marks, with a maximum variation in finish elevation as defined by ACI FF/FL requirements.

B. All floor slabs shall conform to the following ACI F-number requirements::

1. Specified overall value of flatness, FF-35; and of levelness, FL-25; with minimum local values of flatness, FF-24; and of levelness, FL-17; for slabs-on-grade.

C. Floor slab flatness and level tests on the slabs shall be conducted in accordance with the provisions set forth is ASTM E 1155.

3.6 PROTECTION OF WORK:

A. Concrete shall be protected from damage. Damaged concrete shall be replaced at the Contractor's expense.

B. This Contractor shall be responsible for the protection of concrete slabs on grade through winter weather. If they should heave due to cold weather, they shall be removed and replaced. All fill below the slabs shall be removed and replaced.

END OF SECTION 03 30 00

SECTION 03 30 01 – CAST-IN-PLACE CONCRETE FOR SITEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1. Sidewalk.

B. Related Sections:

1. Division 32 Section "Cement Concrete Pavement" for concrete pavement and walks.

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 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.

C. 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. Curing compounds.

1.5 QUALITY ASSURANCE

A. 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."

B. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

C. 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.

D. 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."

E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

F. Preinstallation Conference: Conduct conference at Project site.

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. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete subcontractor.
e. Special concrete finish subcontractor.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. 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.

B. 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.

C. 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 ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.

2.2 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150

2.4 ADMIXTURES

A. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inches thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.6 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:

1. Fly Ash: 25 percent.
2. Combined Fly Ash and Pozzolan: 25 percent.
3. Ground Granulated Blast-Furnace Slag: 50 percent.
4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent Portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
5. Silica Fume: 10 percent.

6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 50 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

C. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.7 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 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 347 as abrupt or gradual.

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. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

G. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

H. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

I. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 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 dovetail anchor slots in concrete structures as indicated.

3.3 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. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be 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 Landscape Architect.

3.4 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.
   1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.5 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Landscape 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. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.6 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 Landscape Architect.

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. 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 deg 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 anti-freeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

E. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated 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.

3.7 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
   c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

    a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

END OF SECTION 03 30 01

SECTION 31 10 00 – SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Trees and grass to remain.
2. Removing existing trees and grass.
3. Clearing and grubbing.
4. Removing pavement, base materials.
5. Removing miscellaneous site improvements.

B. Related Sections include the following:

1. Division 31 Section "Earth Moving" for soil materials, excavating, backfilling, and site grading.
2. Division 32 Section "Turf and Grasses” and “Plants" for finish grading including preparing and placing planting soil mixes and testing of topsoil material.
3. Division 31 Section “Erosion Control” for soil stabilization.

1.3 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other non-soil materials.

B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

1.6 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Utility Locator Service: Engage a utility locator service before site clearing.

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

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

3.2 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.

1. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new paving.
2. Grind stumps and remove roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
3. Use only hand methods for grubbing within tree protection zone.
4. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.3 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.

3.4 DISPOSAL

A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

1. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 31 10 00

SECTION 31 12 00 – EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Form 816: State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction.

1.2 SUMMARY

A. This Section includes, but is not limited to the following:

1. Excavation and legal off-site disposal of unsuitable or excess materials including fill materials, boulders, excess topsoil and overburden soil.
2. Soil and rock excavation, fill, backfill, refill and subgrade preparation as indicated or required using specified materials.
3. Soil structure excavation, placement of bedding or backfilling of storm and sanitary sewers and utility trenches.
4. Preparation of subgrade for structures, slabs, pavements and landscaping.
5. Removal of unsuitable materials from beneath proposed buildings, utilities and pavement areas.
6. Removal of rock, ledge, boulders, concrete, masonry, and rubble as required for foundations and site excavations to the lines and grades indicated on the Contract Drawings.

B. Related Sections include the following:

1. Division 31 Section "Site Clearing" for site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
2. Division 32 Section "Turf and Grasses" for finish grading, preparing and placing topsoil, planting soil for lawns and planting soil amendments.
3. Division 32 Section "Plants" for planting bed establishment, tree and shrub pit excavation, planting soils and soil planting soil amendments.
4. Division 32 Section “Processed Aggregate Base” for base course.
5. Division 32 Section “Gravel” for subbase course.

1.3 REFERENCES

A. A copy of all the following documents shall be kept at the job site for the duration of the contract

1. Form 816: State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction.
2. OSHA 24 1926 Safety and Health Regulations for Construction.

1.4 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

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

C. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Landscape Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Landscape Architect. Unauthorized excavation, as well as remedial work directed by Landscape Architect, shall be without additional compensation.

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

E. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Excavation of Trenches, and Pits: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch- wide, maximum, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,090 lbf and stick-crowd force of not less than 18,650 lbf; measured according to SAE J-1179.
2. Bulk Excavation: Late-model, track-mounted loader; rated at not less than 210-hp flywheel power and developing a minimum of 48,510-lbf breakout force with a general-purpose bare bucket; measured according to SAE J-732.

F. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

G. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.5 SUBMITTALS / TESTING

A. Product Data: For the following:

1. Each type of plastic warning tape.

B. Sieve analysis for proposed Common Fill - Borrow and on-site material.

1. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
2. Laboratory compaction curve according to ASTM D 1557 for each on-site and borrow soil material proposed for fill and backfill.

1.6 PROJECT CONDITIONS

A. The Contractor shall protect existing underground utilities to remain, the location of which is shown approximately on the drawings or which are located in the field. Utilities whose location is not known shall be protected insofar as possible. All costs for repair of broken or damaged utilities will be the responsibility of the Contractor.

B. Visit the site to review all details of the work and working conditions and to verify dimensions in the field including headroom and interference's from adjacent structures. Notify the Owner in writing of any discrepancy before performing any work.

C. Protect existing above ground structures and appurtenances from movement or settlement. Provide bracing and shoring as needed.

D. Consult official records of existing utilities, both surface and subsurface, and their connections to be fully informed on all existing conditions and limitations as they apply to this work and its relation to other construction work. The Contractor shall contact Call before you Dig" at 1-800-922-4455 and/or a utility locator service to assist in locating utilities at least 4 working days prior to performing any earthwork operations on the site.

E. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Landscape Architect and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify Landscape Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Landscape Architect's written permission.

F. 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.

1.7 UNSUITABLE SOILS

A. Unsuitable soils as described in the Geotechnical report shall be removed and disposed of to the limits described at no additional costs to the owner

PART 2 - PRODUCTS

2.1 COMMON FILL

A. Bank-run sand, gravel, or mixture graded within following limits:

Sieve Size	% Passing (by weight)
8"	100
#200	0-25

1. Excavated material may be used if it meets the specifications.

B. All common fill material, whether from the excavation or from borrow, shall be of such nature that after it has been placed and properly compacted, it will make a dense, stable fill.

2.2 TOPSOIL

A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 6 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth. Topsoil shall contain no foreign material such as broken glass, trash, roots, etc.

1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

    a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Obtain topsoil displaced from naturally well-drained construction sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

2.3 FILL UNDER PAVEMENTS

A. All fill and backfill under pavement subbase sections shall meet the requirements of Common Fill.

B. It shall not contain vegetation or masses of roots, and shall be free from loam and other organic matter, and other fine or harmful substances.

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. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Erosion Control," during earth moving operations.

D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

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.

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.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
2. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction without exceeding the following dimensions:

   a. 24 inches outside of concrete forms other than at footings.
   b. 12 inches outside of concrete forms at footings.
   c. 6 inches outside of minimum required dimensions of concrete cast against grade.
   d. 6 inches beneath bottom of concrete slabs on grade.
   e. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

B. Excavations in the on-site soils fall into OSHA Type C and any unshored excavations exceeding 5 feet in height shall be cut back to slopes less than 1.5H: 1V.

3.5 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.6 SUBGRADE INSPECTION

A. Notify Landscape Architect when excavations have reached required subgrade.

B. If Inspector determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Revise locations for proof-rolling in paragraph below if required.

D. Authorized additional excavation and replacement material, beyond the limits described in the plans and specifications, will be paid for according to Contract provisions for extra work.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Civil Engineer, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Civil Engineer/Special Inspector.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Civil Engineer/Special Inspector.

3.8 COMPACTION OF SUBGRADE

A. Compact the subgrade soils beneath buildings and pavements with a minimum of six passes of a vibrating roller that weighs at least 10 tons. The subgrades should be observed by the Geotechnical Engineer prior to any proof rolling. All soft and yielding material and other portions of the subgrade which will not compact readily when rolled, vibrated or tamped shall be removed and replaced with suitable material. Subgrade shall meet 95% maximum dry unit weight according to ASTM D-1557.

B. Proof roll subgrade at pavement areas with 4 passes (min) of a fully loaded dump truck.

C. Slope subgrade under pavements at same slope as pavement.

D. When more than one compacting unit is used, the unit exerting the greatest compactive effort shall be used to make the initial compaction. Any portion of the subgrade which is not accessible to a roller or other compacting unit shall be compacted thoroughly with hand tampers or with approved mechanical vibrators.

3.9 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

B. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.10 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Surveying locations of underground utilities for Record Documents.
2. Testing and inspecting underground utilities.
3. Removing concrete formwork.
4. Removing trash and debris.
5. Removing temporary shoring and bracing, and sheeting.
6. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.11 UTILITY TRENCH BACKFILL

A. Per local utility company specifications.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

C. Place and compact crushed stone bedding course on trench bottoms as shown in the Contract Drawings. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

D. Place and compact initial backfill of gravel over the utility pipe or conduit.

1. Carefully compact initial backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with testing.

E. Place and compact final backfill to final subgrade elevation.

F. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.12 MOISTURE CONTROL

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

3.13 COMPACTION OF FILLS

A. Place backfill and fill soil materials in accordance with the geotechnical report.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

   1. Structural Fill: 95%.
   2. Common Fill: 93%.

3.14 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

   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.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

   1. Lawn or Unpaved Areas: Plus or minus 1 inch.
   2. Walks: Plus or minus 1/4 inch.
   3. Pavements: Plus or minus 1/2 inch.

3.15 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage, contractor will coordinate, a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade on Controlled Fill: For each strata of soil on which footings will be placed, conduct a nuclear compaction test to verify required compaction at 50 ft. o/c along line of ribbon footings at every pier footing and throughout the field.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 1000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.
2. Foundation Wall Backfill: At each compacted backfill layer, at least 1 test for each 100 feet or less of wall length, but no fewer than 2 tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.
4. Building Subgrade Areas, including 5’ Outside of Exterior of Building Lines: Not less than 1 compaction test for every 2,500 sq. ft
5. Area of Construction exclusive of Building Subgrade Areas: In cut areas, not less than 1 compaction test for every 10,000 sq. ft. In fill areas, same rate of testing for each 12-in lift, measured loose.
6. Pavement base thickness tests - One per 20,000 square feet of surface area
7. Field density test will be required for each foot of depth of backfill at an average interval of 200 feet along the trenches.
8. If compaction requirements are not complied with at any time during construction process, remove and recompact deficient areas until proper compaction is obtained at no additional expense to Owner.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.16 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Civil Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.17 DISPOSAL OF SURPLUS AND WASTE MATERIALS

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

B. Material must be handled in accordance with applicable CT DEP regulations regarding clean fill, solid waste, and remediation standards.

END OF SECTION 31 12 00

SECTION 31 23 33 – TRENCHING & BACKFILLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. The contractor shall provide all labor, materials, equipment and services necessary for, and incidental to complete the work within this section. This Section includes but is not limited to the following as related to utility installations:

1. Trenching and excavation
2. Preparing subgrades
3. Bedding
4. Backfilling and compaction

B. This section includes excavation, backfilling and compaction for utility structures including but not limited to catch basins, manholes and vault.

1.3 REFERENCE STANDARDS

A. The latest edition of the following standards, as referenced herein, shall be applicable.

1. "State of Connecticut Department of Transportation, Standard Specifications"
2. "Standard Specifications for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO)."
3. American Society for Testing and Materials (ASTM).

1.4 DEFINITIONS

A. Refer to Section 31 00 00- Earth Work

1.5 SUBMITTALS

A. Submit Qualifications of the Contractor's Independent Testing Laboratory: Refer to Section 02200- Earthwork

B. Pre-Qualification of the Contractor's Independent Testing Laboratory: Refer to Section 31 00 00- Earthwork

C. Qualification Testing During Construction:

1. Additional samples shall be submitted at the direction of the Engineer if the soil materials visually change from previous excavations.
2. Submit additional samples, geotechnical tests, analytical test data and certifications for every 1,000 cubic yards of material imported or reused on-site or anytime consistency of material changes in the opinion of the Engineer.

D. Field Quality Control Tests: Submit field quality control tests from an independent qualified testing laboratory to the Engineer in accordance with the Field Quality requirements.

1.6 QUALITY ASSURANCE

A. Comply with Section "Quality Requirements"

B. Field Testing and Inspection Service:

1. Contractor shall coordinate with the independent soil testing laboratory to be used for soil testing.
2. The Contractor shall coordinate Field Quality Control testing with the independent laboratory approved by the Engineer and comply with the recommendations of the laboratory.

C. The Contractor shall provide additional soil gradation and compaction testing when required by the Engineer if it appears that materials changed.

D. The Engineer will determine the suitability of materials that are used in the work and should any materials encountered be unsatisfactory for the purpose intended, they shall be removed from the site at the Contractor's expense.

1.7 PROJECT REQUIREMENTS

A. The Contractor shall accept the site in the condition in which it exists at the time of the award of the Contract.

B. Notify the Engineer of any unexpected subsurface condition.

C. Protect excavations by shoring, bracing, sheet piling, or by other methods, as required to ensure stability of the excavation. Comply with OSHA requirements.

D. Protection of Existing Utilities: Refer to Section 31 00 00- Earthwork

E. Protection of Persons and Property: Refer to Section 31 00 00- Earthwork

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pipe Zone Bedding: Shall consist of durable crushed rock or durable crushed gravel stone, free from ice and snow, sand, clay, loam or other deleterious or organic material. Gradation shall conform to CONNDOT Section M.01.01 (No.6)

Sieve	Percent Passing
1”	100
¾”	90-100
½”	20-55
3/8”	0-15
No. 4	0-5

B. Pipe Zone Backfill: Sound, durable sand, gravel, stone or blends of these materials, free from organic, frozen or other deleterious materials, conforming to the following gradation requirements:

Sieve	Percent Passing
2”	100
¼”	30-65
No.40	5-40
No.200	0-10

C. Trench Backfill (Suitable Material): Sound, durable sand, gravel, stone or blends of these materials, free from organic, frozen or other deleterious materials, meeting the requirements of CONNDOT Article M.02.06 Grading “B”. Run-of-trench material meeting the criteria above shall be considered suitable material and shall be used for trench backfill only after tested and approved by the Engineer. The Contractor shall pay for all additional testing required to determine the conformance of run-of-trench material, if at any time during the Work this material appears to be in non-conformance in the opinion of the Engineer.

D. Structure Backfill: Backfill for Retaining Walls, Columns and Footings shall conform to structural fill requirements. Refer to Section 31 00 00- Earthwork.

E. Detectable Warning Tape: Acid-and alkali- resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches (150 mm) wide and 4 mils (0.1 mm) 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 (750 mm)deep; colored as follows:

1. Red: Electric.
2. Orange: Telephone and other Communications
3. Blue: Water Systems
4. Green: Sewer Systems

PART 3 - EXECUTION

3.1 PREPERATION

A. Establish required lines, levels, contours and datum.

B. Maintain benchmarks and other elevation control points; re-establish if disturbed or destroyed, at no additional cost to the Owner. Establish location and extent of existing utilities prior to commencement of excavation

3.2 EXCAVATION

A. All excavation shall be made to such depth as required and of the width shown on the Contract Drawing to provide suitable room for building the structures and laying the pipe(s) they are to contain and for sheeting, shoring, pumping and draining as necessary, and for removing pear, silt, or any other materials which the Engineer may deem unsuitable.

B. Trench excavation for pipes shall be made by open cut to accommodate the pipe or structure at the depths indicated on the Contract Drawings. Excavation shall be made to such a depth and to the width indicated on the Contract Drawings so as to allow a minimum of six (6) inches of pipe zone bedding to be placed beneath the bottom of all structures and barrels, bells or couplings of all pipes installed unless otherwise specified on the drawings.

C. The bottom of the trench shall be accurately graded to provide a uniform layer of bedding material, as required, for each section of pipe. Trim and shape trench bottoms and leave free of irregularities, lumps and projections.

D. Stockpile excavated subsoil for reuse where directed or approved. Remove excess or unsuitable excavated material from the site.

E. Excavation Below Grade: If, in the opinion of the Engineer, existing material below the trench grade is unsuitable for properly placing bedding material and replace the same with an approved fill material properly compacted.

F. Stability of Excavation: Slope sides of excavations shall comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavation in safe condition until completion of backfilling.

G. Removal of materials beyond the indicated subgrade elevations without authorization by the Engineer, shall be classifies as unauthorized excavation and shall be performed at no additional cost to the Owner.

3.3 DEWATERING

A. The Contractor shall remove all water from the excavation promptly and continuously throughout the progress of the work and shall keep the excavation dry at all times until the structures to be built are therein are completed and are backfilled or have sufficient weight to resist uplift pressures. Groundwater levels shall be depressed to a minimum of 2 feet below excavation subgrade. No pipe or masonry is to be laid in the water and water shall not be allowed to rise on or flow over any pipe or masonry until such time as approved by the Engineer

B. All necessary precautions shall be taken to prevent disturbances of and to properly drain the subgrades up on which concrete is to be paced and upon which pipe is to be laid. If necessary, in the opinion of the Engineer, well points, deep wells, or other means shall be used to lower the groundwater level, and observation wells shall be installed to confirm that groundwater levels are lowered as specified. Well

points, if used, shall be shifted frequently to avoid drainage from too long a distance. Provide a suitable point of discharge in a manner satisfactory to the Engineer.

C. Precautions shall be taken to protect uncompleted work from flooding during storms or from other causes. All pipe lines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected.

3.4 BEDDING AND BACKFILLING

A. General: Bedding and backfilling shall be accomplished in three stages unless otherwise specified on the Contract Drawings. The first stage shall involve placement of "pipe zone bedding" as a layer(s) of selected material required to support, or to stabilize unsound or unsatisfactory foundation conditions. The second stage shall involve placement of "pipe zone backfill" from the top of the bedding material up to one (1) foot above pipe. The third stage involves the placement of "trench backfill" in the remainder of the trench up to the surface of the ground or the bottom of any special surface treatment subgrade elevation.

B. Bedding

1. The bedding material shall be placed in the trench after the trench has been excavated a minimum of six (6) inches below the bell of the pipe to permit the placing of not less than six (6) inches of bedding material unless otherwise specified on the Contract Drawings. Where, in the opinion of the Engineer, more than six (6) inches of bedding material shall be required, the excavation shall be performed and bedding placed to the depth ordered by the Engineer.
2. The bedding material shall be placed to the full width of trench. The bedding material shall be placed in loose lifts not exceeding six (6) inches to the elevation shown on the Contract Drawings or directed by the Engineer. The bedding material shall be tamped and compacted to form a firm and even bearing surface.

C. Pipe Zone Backfill: Pipe zone backfill shall be placed to the elevation shown on the Contract Drawings in loose lifts not-to-exceed six (6) inches in thickness, before compaction. The backfill shall be placed on both sides of the pipe at the same time and to approximately the same elevation. Any pipe that is damaged or moved out of alignment, regardless of cause, shall be replaced or realigned at the Contractor's expense. Each layer shall be thoroughly compacted by hand-tamping or mechanical means being careful not to damage the pipe. When the pipe zone backfill reaches one (1) foot over the top of the pipe, the entire surface shall be compacted by mechanical means.

D. Trench Backfill: The remainder, if any, of the trench above the pipe zone backfill shall be backfilled with suitable material loose lifts not exceeding eight (8) inches in thickness before compaction. Each layer shall be thoroughly compacted by mechanical means.

E. Compaction: Pipe trench backfill (pipe zone bedding, pipe zone backfill and trench backfill) shall be compacted by tamping or rolling to achieve the following compaction requirements

1. General Areas: A minimum of dry density of 90 percent of the standard Proctor maximum dry density of the material used (ASTM D698).
2. Traffic Areas and Structures: Backfill in pipe trenches to be covered with asphalt; concrete or other hardscape designed for vehicular traffic loading and backfill around structures shall be compacted to a minimum 95 percent of standard Proctor maximum dry density.
3. Backfill materials shall be placed with water content within plus or minus 4 percent of optimum moisture content per the standard Proctor method (ASTM D698). Any water used for compaction shall be provided by the Contractor at his own expense.

4. The approval of the Engineer of the proposed method of compaction of backfill shall in no way be construed as relieving the Contractor of responsibility of settlement of trenches, etc. and any settlement shall be repaired by him at his own expense.

3.5 BACKFILLING AROUND STRUCTURES

A. The Contractor shall not place backfill against any structure without obtaining the approval of the Engineer. No dumping shall be allowed where materials would flow against or around such structures. Backfill material shall be deposited in horizontal layers not exceeding eight (8) inches in loose thickness or as shown on the Contract Drawings and thoroughly compacted by hand or pneumatic tampers to the satisfaction of the Engineer.

B. No backfill or compaction shall take place against any cast-in-place concrete footing or slabs prior to seven (7) days initial concrete set, or against any cast-in-place concrete walls prior to achieving the desired design strength.

3.6 SUSPENSION OF WORK

A. Whenever work is suspended, excavations shall be protected and the roadways, if any, left unobstructed. Within or adjacent to private property, material shall be stored at such locations as will not unduly interfere with traffic of any nature and in no case shall materials be stored in locations which will cause damage to existing improvements.

3.7 FIELD QUALITY CONTROL

A. Notify the Engineer at least one (1) working day in advance of all phases of filling and backfilling operations.

B. In-place density testing shall be performed to ascertain the compacted density of the fill and backfill materials in accordance with the following methods:

1. In-place relative density

   a. Method: AASHTO T191, Sand Cone Method
   b. Method: AASHTO T238, Nuclear Method

C. In-place density tests on trench backfills shall be provided for every 500 cubic yards of fill and in vertical lifts not exceeding two (2) feet, and at least once daily.

D. One particle size analysis (ASTM D422) and one standard Proctor compaction test (ASTM D698) shall be competed for every 1,000 cubic yards of material placed.

E. The Engineer may direct additional tests to establish gradation, maximum density and in-place density as required by working conditions, at the Contractor’s expense.

F. Acceptance Criteria: The criteria for acceptability of in-place fill shall be in-situ dry density and moisture content. If a test fails to qualify, the fill shall be further compacted and re-tested. Subsequent test failures shall be followed by removal and replacement of the material.

3.8 DISPOSAL OF MATERIAL

A. Excess and unsuitable materials shall be removed and disposed of off-site by the Contractor at no additional cost to the Owner.

END OF SECTION 31 23 33

SECTION 31 25 00 – EROSION & SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. The work of this Section includes, but is not limited to the furnishing of all labor, materials and equipment required to provide silt fences, erosion control linings and any other measures necessary to prevent erosion and resulting sedimentation in areas adjacent to the site improvements.

1.3 REFERENCES

A. Form 816: “State of Connecticut Department of Transportation, Standard Specifications for Roads, Bridges, and Incidental Construction".

B. CT Guidelines for Soil Erosion and Sediment Control-2002 published by CT Council on Soil and Water Conservation in cooperation with the Connecticut Department of Environmental Protection.

C. Qualifications: Engaged firm shall be able to demonstrate experience in the installation of the erosion and sedimentation controls described in the Contract Documents.

1.4 SUBMITTALS

A. Provide written certification of compliance to the specification for the following:

1. Silt Fence
2. Silt Sack
3. Erosion Control Fabric

1.5 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements: Protect adjacent properties and water resources from erosion and sediment damage throughout Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Silt Fences

1. Filter Fabric Fence: The fabric used shall be a non-woven material and a minimum of 30-inches high, fastened to stakes.
2. Posts: Provide wood or metal posts of the length shown in the Contract Documents and of sufficient strength to support the wire backing and filter fabric.

B. Siltsack

1. Siltsack shall be manufactured from a specially designed woven polypropylene geotextile and sewn by a double needle machine, using a strength nylon thread – ACF Environmental or equal.
2. Siltsack will be manufactured to fit the opening of the catch basin or drop inlet. Siltsack will have the following features: two dump straps attached at the bottom to facilitate the emptying of Siltsack; Siltsack shall have lifting loops as an integral part of the system to be used to lift Siltsack from the basin; Siltsack shall have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls, this yellow cord is also a visual means of indicating when the sack should be emptied. Once the cord is covered with sediment, Siltsack should be emptied, cleaned and placed back in the basin.
3. Siltsack seams shall have a certified average wide width strength per ASTM D-4884.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General

1. Comply with Form 816, Section 2.10.03.

B. Silt Fences

1. Install silt fences in the locations shown and as detailed and described in the Contract Documents. Silt fence shall be installed with end runs turned up grade at 45° for a distance of 2’.
2. Drive the support posts firmly into the ground so as to maintain the silt fence in a vertical position.

C. Siltsack

1. To install Siltsack in the catch basin, remove the grate and place the sack in the opening. Hold approximately six inches of the sack outside the frame. This is the area of the lifting straps. Replace the grate to hold the sack in place.
2. When the restraint cord is no longer visible, Siltsack is full and should be emptied.
3. To remove Siltsack, take two pieces of 1” diameter rebar and place though the lifting loops on each side of the sack to facilitate the lifting of Siltsack.
4. To empty Siltsack, place unit where the contents will be collected. Place the rebar through the lift straps (connected to the bottom of the sack) and lift. This will lift Siltsack from the bottom and empty the contents. Clean out and rinse. Return Siltsack to its original shape and place back in basin.

3.2 MAINTENANCE AND CLEANING

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

B. Erosion Control Supervisor:

1. The Contractor shall name one (1) individual as his sediment and erosion control supervisor whose responsibility will be maintenance and repair of all on-site erosion control measures. He will keep a daily log of his activities and an updated schedule of proposed construction activities. The log shall be made available to the local authority as well as any State/ Federal Inspectors.

C. Silt Fences: Remove silt as required maintaining the integrity of silt fences. If required, remove the silt fence completely and remove all accumulated silt, then reinstall.

D. Silt Sacks: Remove silt as required, maintaining the integrity of silt sacks.

3.3 ADJUSTMENTS AND CLEANUP

A. At the end of construction and after project areas have been stabilized with vegetation or other permanent site improvements as noted on the drawings, remove and legally dispose of, off site, all non-permanent erosion control devices and restore the damaged areas. Leave the site neat and clean.

END OF SECTION 31 25 00

SECTION 31 50 00 – EXCAVATION SUPPORT & PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Section includes temporary excavation support and protection systems.

B. Related Sections:

1. Division 01 Section "Photographic Documentation" for recording pre-existing conditions and excavation support and protection system progress.
2. Division 01 Section "Temporary Facilities and Controls" for temporary utilities and support facilities.
3. Division 23 Section "Earthwork" for dewatering system for excavation.

1.3 PERFORMANCE REQUIREMENTS

A. Design, furnish, install, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting soil and hydrostatic pressure and superimposed and construction loads.

1. Design excavation support and protection system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
2. Prevent surface water from entering excavations by grading, dikes, or other means.
3. Install excavation support and protection systems without damaging existing buildings, structures, and site improvements adjacent to excavation.
4. Monitor vibrations, settlements, and movements.

1.4 ACTION SUBMITTALS

A. Shop Drawings: For excavation support and protection system.

B. Delegated-Design Submittal: For excavation support and protection system indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer licensed in the state of Connecticut responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified professional engineer.

B. Other Informational Submittals:

1. Show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by the absence of, the installation of, or the performance of excavation support and protection systems. Submit before Work begins.
2. Record Drawings: Identifying and locating capped utilities and other subsurface structural, electrical, or mechanical conditions.
    a. Note locations and capping depth of wells and well points.

1.6 QUALITY ASSURANCE

A. Pre-installation Conference: Conduct conference at Project site.
1. Review methods and procedures related to excavation support and protection system including, but not limited to, the following:
    a. Geotechnical report.
    b. Existing utilities and subsurface conditions.
    c. Proposed excavations.
    d. Proposed equipment.
    e. Monitoring of excavation support and protection system.
    f. Working area location and stability.
    g. Coordination with waterproofing.
    h. Abandonment or removal of excavation support and protection system.

1.7 PROJECT CONDITIONS

A. Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:
1. Notify Construction Manager no fewer than five days in advance of proposed interruption of utility.
2. Do not proceed with interruption of utility without Construction Manager's written permission.

B. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from the data.
1. Make additional test borings and conduct other exploratory operations necessary for excavation support and protection.
2. The geotechnical report is in the Project Manual.

C. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
1. During installation of excavation support and protection systems, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Architect if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that are either new or in serviceable condition.

B. Structural Steel: ASTM A 36/A 36M, ASTM A 690/A 690M, or ASTM A 992/A 992M.

C. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of size and strength required for application.

D. Cast-in-Place Concrete: ACI 301, of compressive strength required for application.

E. Reinforcing Bars: ASTM A 615/A 615M, Grade 60.

F. Tiebacks: Steel bars, ASTM A 722/A 722M.

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 that could develop during excavation support and protection system operations.

1. Shore, support, and protect utilities encountered.

B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

C. Locate excavation support and protection systems clear of permanent construction so that forming and finishing of concrete surfaces are not impeded.

D. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protection systems remain stable.

E. Promptly repair damages

3.2 SOLDIER PILES AND LAGGING

A. Install steel soldier piles before starting excavation. Extend soldier piles below excavation grade level to depths adequate to prevent lateral movement. Space soldier piles at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of flanges to vary not more than install wood lagging within flanges of soldier piles as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.

B. Install wales horizontally at locations indicated on Drawings and secure to soldier piles.

3.3 TIEBACKS

A. Tiebacks: Drill, install, grout, and tension tiebacks. Test load-carrying capacity of each tieback and replace and retest deficient tiebacks.

1. Test loading shall be observed by a qualified professional engineer responsible for design of excavation support and protection system.
2. Maintain tiebacks in place until permanent construction is able to withstand lateral soil and hydrostatic pressures.

3.4 BRACING

A. Bracing: Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move brace, install new bracing before removing original brace.

1. Do not place bracing where it will be cast into or included in permanent concrete work unless otherwise approved by Architect.
2. Install internal bracing, if required, to prevent spreading or distortion of braced frames.
3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.5 REMOVAL AND REPAIRS

A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging structures, pavements, facilities, and utilities.

1. Remove excavation support and protection systems to a minimum depth of 48 inches below overlaying construction and abandon remainder.
2. Fill voids immediately with approved backfill compacted to density specified in division 31 Section "Earthwork."
3. Repair or replace, as approved by Architect, adjacent work damaged or displaced by removing excavation support and protection systems. Leave excavation support and protection systems permanently in place.

3.6 QUALITY ASSURANCE

A. Qualifications of Installers: 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. General: Construct concrete curbing on the prepared base to the lines and grades indicated on the Drawings. Use either cast-in-place or precast concrete curbing unless otherwise indicated on the Drawings. Cast-in-place and precast concrete curbing may be mixed. Make color of each type to match the other as closely as possible, subject to acceptance by the Architect.

C. Excavation: Excavate the trench to the bottom of the 6-inch granular base below the curbing. Make trench to a width that will permit thorough tamping. Obtain Architect's acceptance of conditions at bottom of trench.

D. Placing Base: Place and compact granular base to a firm, even surface. Obtain Architect's acceptance of the surface.

E. Installation of Cast-in-Place Concrete Curbing

1. Refer to DOT Specifications: Conform to the requirements of Article 6.01.03 for concrete for structures, as supplemented by Article 8.11.03.

F. Installation of Precast Concrete Curbing

1. Set curbing on prepared base and settle into place to the line and grade required, straight and true for the full depth of curbing. Use a heavy wood hand-rammer to settle curbing into place.
2. Place mortar and point joints for full depth of curbing. At approximately 50 foot intervals, leave a ½-inch wide joint free of mortar for expansion.
3. At driveways and intersections, form ends of the curbing so that they are beveled or rounded as directed by the Architect.
4. Where indicated on the Drawings or as directed by the Architect, make drainage openings through the curbing at the elevations and of the size required.

G. Backfilling: Backfill the trench with the specified granular base material. Make the first layer 4 inches in depth, thoroughly rammed. Make successive layers 6 inches in depth, thoroughly rammed. Fill the trench to elevations as indicated on the drawings.

END OF SECTION 31 50 00

SECTION 32 11 16.16 – AGGREGATE SUBBASE COURSE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section includes the following:

1. Gravel for trenches.
2. Sub-base courses for paving.

B. Related sections:

1. Division 3 Section “Cast-in-Place Concrete” for sidewalks.
2. Division 31 Section “Earth Moving” for grading, compaction and trenching requirements.
3. Division 32 Section “Asphalt Paving” for surface treatment.

1.3 REFERENCES

A. Form 816: "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction”.

1.4 SUBMITTALS

A. Provide written certification of compliance to the Specification for:

1. Gravel.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Gravel/Aggregate: Conform to Article M.02.03 of Form 816, except that gravel should conform to grading "A”.

PART 3 - EXECUTION

3.1 PRE-INSTALLATION REQUIREMENTS

A. Secure approval of compacted subgrade by Owner's Representative prior to commencing installation of rolled base.

3.2 INSTALLATION

A. As pavement base:

1. Conform to Article 3.02.03 of Form 816.
2. Gravel shall be spread upon the prepared, compacted sub-grade to such depth that this course will be to the specified depth after compaction.
3. If after the material has been spread and shaped, it is found that additional binder is required, it shall be furnished and applied as necessary.
4. The material shall then be shaped, wetted and compacted with a power roller weighing not less than ten tons or an equivalent vibratory roller until thoroughly compacted.
5. The compacting and wetting shall continue until all voids are filled after which this course may be left to dry. Compacting shall continue until this course is thoroughly compacted.
6. Compact each lift to 95 percent compact of modified AASHTO laboratory density (ASTMD-1557, Method C).

B. As trench backfill:

1. See Earth Moving Section 31 12 00.

END OF SECTION 32 11 16.16

SECTION 32 11 23 –AGGREGATE BASE COURSE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section includes the following:

1. Processed aggregate compacted in base courses.

1.3 RELATED SECTIONS

A. Division 32 Section "Asphalt Paving".

1.4 REFERENCES

A. Form 816: "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Constriction".

1.5 SUBMITTALS

A. Provide written certification of compliance to the Specification for:

1. Processed Aggregate.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Processed Aggregate: Conform to Article M.05.01 of Form 816.

PART 3 - EXECUTION

3.1 PRE-INSTALLATION REQUIREMENTS

A. Processed Aggregate: Conform to Article M.05.01 of Form 816.

3.2 INSTALLATION

A. Processed Aggregate:

1. Processed Aggregate shall be spread upon the prepared, compacted sub-base to such depth that this course will be to the specified depth after compaction.
2. If after the material has been spread and shaped, it is found that additional binder is required, it shall be furnished and applied as necessary.
3. The material shall then be shaped, wetted and compacted with a power roller weighing not less than ten tons or an equivalent vibratory roller until thoroughly compacted.
4. The compacting and wetting shall continue until all voids are filled after which this course may be left to dry. Compacting shall continue until this course is thoroughly compacted.

B. Conform to Article 3.04.03 of Form 816.

C. Compact each lift to 95 percent of modified AASHTO laboratory density (ASTMD-1557, Method C).

END OF SECTION 32 11 23

SECTION 32 12 16 – ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Hot-mix asphalt paving.
2. Pavement marking paint.

B. Related Sections:

1. Division 32 Section "Processed Aggregate Base" for aggregate base course.
2. Division 32 Section "Gravel" for sub-base course.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A paving- mix manufacturer registered with and approved by the CT DOT.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.

1. Job-mix Designs: Parking areas.
2. Pavement marking point.

B. Material Test Reports: For each paving material.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

B. Store pavement- marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:

1. Asphalt Surface Course: Minimum surface temperature of 60 deg. F at time of placement

B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg. F and not exceeding 95 deg. F.

PART 2 - PRODUCTS

2.1 AGGREGATES

A. General: Use materials and gradations that have performed satisfactorily in previous installation.

B. Coarse Aggregate: ASTM D 92, sound; angular crushed stone, crushed gravel, or cured, crushed blast0-furnace slag.

C. Fine Aggregate: ASTM D 1073, sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof.

1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.

D. Mineral Filler: ASTM D 242 rock or slag dust, hydraulic cement, or other inert material.

2.2 ASPHALT MATERIALS

A. Binder Course: Class 1 – Conform to M.04 of 816.

B. Tack Coat: Grade CSS-LH, cationic emulsified asphalt.

C. Surface Course: Class 2 – Conform to M.04 of 816.

D. Curbs: Class 3 – Conform to M.04 of 816.

E. Water: Potable.

2.3 PAVEMENT MARKINGS

A. Epoxy resin – Conform to M.07.22.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that subgrade is dry and in suitable condition to begin paving.

B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction. Limit vehicle speed to 3 mph.
2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Landscape Architect, and replace with compacted backfill or fill as directed.

C. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

3.3 HOT-MIX ASPHALT PLACING

A. Conform to Article 4.06.03 of Form 816.

B. All asphalt shall be delivered in a heated asphalt truck.

C. Apply tack coat to binder course prior to placement of surface course.

D. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place hot-mix asphalt courses in single lifts.
2. Spread mix at minimum temperature of 280deg F.
3. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
4. Hand tamp and bevel edges of pavements. Raveled edges will be rejected.

E. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.

F. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.4 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time.
5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.

6. Compact asphalt at joints to a density within 2 percent of specified course density.
7. Seal all joints, including joints between existing asphalt and new paving.

3.5 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with self - propelled tandem rollers weighing between 8 and 10tons, with a rear wheel compression of 200/300 lbs/in. Roll at a max. rate of 800 SY/hour. Compact to a density of 97% minimum.

1. Complete compaction before mix temperature cools to 185 deg F.
2. In areas inaccessible to tandem rollers, compact with walk-behind vibratory plate compacters.

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

1. Average Density: 96 percent of reference laboratory density according to ASTM D 6927, but not less than 94 percent nor greater than 100 percent.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 INSTALLATION TOLERANCES

A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Surface Course: Plus 1/8 inch, no minus.
2. Base Course: Plus or minus 1/4 inch.

B. Pavement Surface: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Surface Course: 1/8 inch: No “birdbaths” deeper than the thickness of a quarter.
2. Base Course: 1/4 inch.

3.7 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Landscape Architect.

B. Sweep and clean surface to eliminate loose material and dust.

C. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (100-115 SF / gallon).

D. Paint shall be applied in a neat workmanlike manner. Lines shall be sharp and clear with no feathered edging or fogging. Care shall be taken to prevent tracking.

3.8 DISPOSAL

A. Remove extra materials from Project site and legally dispose of them in an EPA-approved landfill.

END OF SECTION 32 12 16

SECTION 32 13 13 –CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 REFERENCES

A. Form 816: State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction.

1.3 SUMMARY

A. This Section includes exterior cement concrete.

B. Related Sections include the following:

1. Division 31 Section "Earth Moving" for subgrade preparation, grading, & base course.
2. Division 32 Section "Gravel" for base material.

1.4 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, expansive hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.5 SUBMITTALS

A. Product Data: For each type of manufactured material and product indicated.

B. Design Mixes: For each concrete pavement mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed pavement work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

1. Manufacturer must be certified according to the National Ready Mix Concrete Association's Plant Certification Program.

C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.

D. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.

E. Mockups: Cast mockups of full-size sections of concrete pavement to demonstrate typical joints, surface finish, texture, color, and standard of workmanship.
   1. The first section of poured concrete may serve as a mockup. All joints and finishes shall be included.
   2. Notify Landscape Architect seven days in advance of dates and times when mockups will be constructed.
   3. Obtain Landscape Architect's approval of mockups before continuing construction.
   4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.
   5. Demolish and remove non-approved mockups from the site when directed by Landscape Architect.
   6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

A. General: Forms shall be of sufficient strength to maintain alignment without bowing.

B. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
   1. Use flexible or curved forms for curves of a radius 100 feet or less.

C. 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.

2.2 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420); deformed.

C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement bars, welded wire fabric, and dowels in place. Manufacture bar supports according to

CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete.

2.3 CONCRETE MATERIALS

A. General: Use the same brand and type of cementitious material from the same manufacturer throughout the Project.

B. Portland Cement: ASTM C 150 gray Portland cement, Type I.

C. Water: ASTM C 94.

D. Normal-Weight Aggregates: ASTM C 33, Class 4S, uniformly graded. Provide aggregates from a single source with documented service-record data of at least 10 years' satisfactory service in similar paving applications and service conditions using similar aggregates and cementitious materials. Conform to Form 816 M.03.01, 1& 2, grading C.
   1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
   2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

2.4 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures.

B. Air-Entraining Admixture: AASHTO M 154.

C. Water-Reducing Admixture: ASTM C 494, Type A.

D. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.

E. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.

F. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

2.5 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating type.
   1. AASHTO M 148 type 2 class b.

2.6 RELATED MATERIALS

A. Expansion Joint-Filler Strips: ASTM D 1751, AASHTO M 213 asphalt-saturated cellulosic fiber.

B. Dowels – 5/8” diameter, 12” length smooth steel.

2.7 CONCRETE MIXES

A. Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.

B. Proportion mixes to provide concrete with the following properties:
   1. Compressive Strength (28 Days): 4000 psi.
   2. Slump Limit: 3 inches.
   3. Water-cementitious materials ratio: .44.
   4. Air entrainment: 6%.
   5. Cementous materials 658 1b/cy.

C. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland Cement in concrete as follows:
   1. Fly Ash: 15 percent for plain concrete. No fly ash shall be used in colored concrete.
   2. Combined Fly Ash and Pozzolan: 25 percent.
   3. Ground Granulated Blast-Furnace Slag: 50 percent.
   4. Combined Fly Ash or Pozzolan, and Ground Granulated Blast-Furnace Slag: 50 percent Portland Cement minimum, with fly ash or pozzolan not exceeding 25 percent.

D. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus or minus 1.0 percent:
   1. Air Content: 6.0 percent for 3/4-inch maximum aggregate.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94 and ASTM C 1116.
   1. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 11/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 PREPARATION

A. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating reinforcement and with recommendations in CRSI's "Placing Reinforcing Bars" for placing and supporting reinforcement.

1. Apply epoxy repair coating to uncoated or damaged surfaces of epoxy-coated reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concretw placement. Maintain minimum cover to reinforcement.

D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.4 JOINTS

A. General: Construct construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct joints at right angles to centerline, unless otherwise indicated. Joints to form a “picture frame” pattern

1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.

B. Expansion Joints: Form expansion joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

1. Locate expansion joints as noted on plans
2. Extend joint fillers full width and depth of joint.
3. Terminate joint filler le 1/2 inch below finished surface if joint sealant is indicated.
4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
6. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
7. Doweled Joints: Install dowel bars and support assemblies at expansion joints, 12” O.C. Lubricate one-half of dowel length to prevent concrete bonding to one side of joint.

C. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, and as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.

D. Edging: After initial floating, tool edges of paving, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcement steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.

D. Comply with requirements and with recommendations in Form 816, Section 4.01.03 for measuring, mixing, transporting, and placing concrete.

E. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

F. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete according to recommendations in ACI 309R.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.

G. Place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay welded wire fabric or fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed.

1. Remove and replace portions of bottom layer of concrete that have been placed more than 15 minutes without being covered by top layer, or use bonding agent if approved by Landscape Architect.

H. Screed pavement surfaces with a straightedge and strike off. Commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surface treatments.

I. 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 air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.

J. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F. 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. Cover reinforcement steel with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, reinforcement steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.6 CONCRETE FINISHING

A. General: Wetting of concrete surfaces during screening, initial floating, or finishing operations is prohibited. Conform to Form 816 4.01.03-F-5.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.7 CONCRETE CURING

A. AIR CURING IS NOT ACCEPTABLE.

B. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and follow recommendations in ACI 305R for hot weather protection during curing. Conform to Form 816 4.01.03--(7). Cure for 7 days minimum. Begin curing within 2 hours of placing concrete.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screening, and bull floating or darbying concrete, but before float finishing.

D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Apply in two coats, the second application at right angles to the first. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.
4. Seal all concrete with “Salt Guard” as manufactured by A.H. Harris or equal.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/4 inch.
4. Joint Spacing: 3 inches.
5. Contraction Joint Depth: Plus 1/4 inch, no minus.
6. Joint Width: Plus 1/8 inch, no minus.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Owner may engage a qualified testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this Article.

1. Testing Frequency: Obtain at least one composite sample for each 3000 sq. ft. fraction thereof of each concrete mixture placed each day.

B. Testing Services: Testing shall be performed according to the following requirements:

1. Sampling Fresh Concrete: Representative samples of fresh concrete shall be obtained according to ASTM C 172, except modified for slump to comply with ASTM C 94.
2. Slump: ASTM C 143; one test at point of placement for each compressive-strength test, but not less than one test for each day's pour of each type of concrete. Additional tests will be required when concrete consistency changes.
3. Air Content: ASTM C 231, pressure method; one test for each compressive-strength test, but not less than one test for each day's pour of each type of air-entrained concrete.
4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each set of compressive-strength specimens.
5. Compression Test Specimens: ASTM C 31/C 31M; one set of four standard cylinders for each compressive-strength test, unless otherwise indicated. Cylinders shall be molded and stored for laboratory-cured test specimens unless field-cured test specimens are required.
6. Compressive-Strength Tests: ASTM C 39; one set for each day's pour of each concrete class exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. One specimen shall be tested at 7 days and two specimens at 28 days; one specimen shall be retained in reserve for later testing if required.
7. When frequency of testing will provide fewer than five compressive-strength tests for a given class of concrete, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
8. When total quantity of a given class of concrete is less than 50 cu. yd., Landscape Architect may waive compressive-strength testing if adequate evidence of satisfactory strength is provided.
9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, current operations shall be evaluated and corrective procedures shall be provided for protecting and curing in-place concrete.

10. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive compressive-strength test results equal or exceed specified compressive strength and no individual compressive-strength test result falls below specified compressive strength by more than 500 psi.

C. Test results shall be reported in writing to Landscape Architect, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing agency, concrete type and class, location of concrete batch in pavement, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Landscape Architect but will not be used as the sole basis for approval or rejection.

E. Additional Tests: Testing agency shall make additional tests of the concrete when test results indicate slump, air entrainment, concrete strengths, or other requirements have not been met, as directed by Landscape Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

3.10 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section.

B. Drill test cores where directed by Landscape Architect when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland Cement concrete bonded to pavement with epoxy adhesive.

C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 32 13 13

SECTION 32 16 13 – CONCRETE CURBS AND GUTTERS

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION

A. Work Included: Precast and cast-in-place concrete curbing, complete in place, as shown on the Drawings and as specified.

B. Related Work Specified Elsewhere

1. Section 31 20 00 – Earth Moving;
2. Section 32 12 16 – Asphalt Paving.

1.3 QUALITY ASSURANCE

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

1.4 APPLICABLE SPECIFICATIONS

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 816 (2004) as modified by Supplemental Specifications issued by the Connecticut Department of Transportation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cast-in-Place Concrete: Article M.03.01, DOT Specifications. Class: As shown on the Drawings.

B. Precast Concrete

1. Materials: Article M.03.01, DOT Specifications, except that coarse aggregate gradation may be varied subject to acceptance by the Architect.
2. Minimum 28-day compressive strength: 4000 psi
3. Entrained air: 5 to 7 percent
4. Cement: Type I or II

C. Joint Filler: Bituminous cellular type, AASHTO M213.

D. Mortar: Article M.11.04, DOT Specifications.

E. Granular Base: Article M.02.03, DOT Specifications.

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

A. General: Construct concrete curbing on the prepared base to the lines and grades indicated on the Drawings. Use either cast-in-place or precast concrete curbing unless otherwise indicated on the Drawings. Cast-in-place and precast concrete curbing may be mixed. Make color of each type to match the other as closely as possible, subject to acceptance by the Architect.

B. Excavation: Excavate the trench to the bottom of the 6-inch granular base below the curbing. Make trench to a width that will permit thorough tamping. Obtain Architect's acceptance of conditions at bottom of trench.

C. Placing Base: Place and compact granular base to a firm, even surface. Obtain Architect's acceptance of the surface.

D. Installation of Cast-in-Place Concrete Curbing

1. Refer to DOT Specifications: Conform to the requirements of Article 6.01.03 for concrete for structures, as supplemented by Article 8.11.03.

E. Installation of Precast Concrete Curbing

1. Set curbing on prepared base and settle into place to the line and grade required, straight and true for the full depth of curbing. Use a heavy wood hand-rammer to settle curbing into place.
2. Place mortar and point joints for full depth of curbing. At approximately 50 foot intervals, leave a ½-inch wide joint free of mortar for expansion.
3. At driveways and intersections, form ends of the curbing so that they are beveled or rounded as directed by the Architect.
4. Where indicated on the Drawings or as directed by the Architect, make drainage openings through the curbing at the elevations and of the size required.

F. Backfilling: Backfill the trench with the specified granular base material. Make the first layer 4 inches in depth, thoroughly rammed. Make successive layers 6 inches in depth, thoroughly rammed. Fill the trench to elevations as indicated on the drawings.

END OF SECTION 32 16 13

SECTION 32 16 19 – ASPHALT CURBS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Bituminous concrete curbs.

1.3 RELATED SECTIONS

A. Section 01 40 00- Quality Requirements.

B. Division 31 – Earthwork

C. Section 32 12 16 – Asphalt Paving

1.4 STANDARDS

A. State of Connecticut Department of Transportation (CTDOT):

1. Standard Specifications for Roads, Bridges and Incidental Construction, Form 816, 2004.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Submit copies of materials certificates signed and certified that the material item complies with, or exceeds, specified requirements.

1.6 JOB CONDITIONS

A. Apply prime and tack coats when ambient temperature is above 50 degrees F. (10 degrees C) and when temperature has not been below 35 degrees F. (1 degree C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

B. Construct bituminous concrete curbing when atmospheric temperature is above 40 degrees F. (4 degrees C), and when bituminous concrete asphalt is dry and frost free.

C. Grade Control: Establish and maintain required lines and elevations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Use locally available materials and graduations that exhibit a satisfactory record of previous installations.

B. Curbs: Bituminous concrete conforming to the requirements of CTDOT Form 816 Section M.04, Articles M.04.01 through M.04.03, Class 3 mix.

PART 3 - EXECUTION

3.1 MATERIALS

A. Examine the subgrade and the conditions under which the bituminous concrete curbs are to be installed. Installation of bituminous concrete curbs shall not proceed until unsatisfactory conditions, if any, have been corrected.

3.2 INSTALLATION OF BITIMOUS CONCRETE CURBING

A. Tack Coat: Apply approved tack coat to perfectly dry and clean pavement prior to placement of curbing. Rate of distribution shall be 0.05 to 0.15 gallons per square yard of surface.

B. Curbing: Install to requirements of CTDOT Form 816 Section 8.15, Articles 8.15.01 through 8.15.03. Place curb materials by machine to cross-section as detailed.

3.3 FIELD QUALITY CONTROL

A. Refer to Section 01 40 00.

B. Quality Control Testing During Construction: Allow testing service and/or Architect to inspect in-place bituminous concrete courses for compliance with requirements for lines and grades. Repair or remove and replace unacceptable curbing as directed by the Architect.

C. Lines and Grades: All finished bituminous concrete surfaces shall drain properly from high points to drainage structures in accordance with the grading plans with no depressions or “bird baths”. All depressions that may develop after the initial rolling shall be corrected.

D. Repairs: All portions of the completed pavement that are defective in surface smoothness, thickness or lines and grades, or that do not comply with the requirements of the specifications shall be taken up , removed and replaced with suitable mixture, properly laid in accordance with these specifications at the Contractor’s expense.

3.4 CLEAN-UP

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

3.5 Remove unused materials and equipment. Leave area clean.

END OF SECTION 32 16 19

SECTION 32 17 23.13 – PAINTED PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

A. Removal of pavement markings.

B. Work consists of installing painted pavement markings were located on the plans.

1.3 RELATED WORKS

A. Other specification sections which directly relate to the work of this section include, but are not limited to, the following:

1. Section 321126.19 – Bituminous Concrete Road Pavement.

1.4 SUBMITTALS

A. The contractor shall submit the following samples, certifications or test results prior to use on the project.

1. Product data for paint.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Paint color for new painted lines be white unless otherwise specified, conforming to Article M.07.20 of the State Specifications

PART 3 - EXECUTION

3.1 Construction methods shall comply with Article 12.09.03 of the State Specifications.

3.2 Curing time of bituminous concrete to be as per paint manufacturer's recommendations.

END OF SECTION 32 17 23.13

SECTION 32 17 26 – TACTILE WARNING SURFACE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Detectable warning surface pavers set in mortar setting bed.

1.3 RELATED SECTIONS

A. Section 01 40 00 – Quality Requirements.

B. Section 32 13 10 – Site Concrete.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. In accordance with the General Requirements, submit copies of materials certificates signed and certified that the material item complies with, or exceed, specified requirements.

C. Product data: submit manufacturer's product data for detectable warning surface pavers.

D. Samples: submit 2 samples of full-size pavers in colors as specified to project site for review and approval.

1.5 QUALITY ASSURANCE

A. Installer qualifications: engage in experienced installer who is familiar with the scope of the required work.

1.6 JOB CONDITIONS

A. Protection: protect materials during storage and construction against wetting by rain, snow or groundwater and against damage or contamination from earth and other materials

B. Weather: do not user frozen materials or materials mixed or coated with ice or frost.

C. Grade control: establish and maintain required lines and elevations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Detectable warning surface pavers: “ADA-2” precast concrete pavers with truncated dome detectable warning surface as manufactured by Wausau Tile Co., Wausau, WI. (Tel. 800-388-8728)

1. Size: 24” (nom.) x 24” (nom.) x 2” thick. (nom.)
2. Compressive strength: 8000 psi.
3. Surface: non-slip texture with in-line pattern of truncated cones conforming to ADA requirements for detectable warning surface.
4. Color: “ADA-80” red.

B. Setting bed mortar: Type N cement mortar consisting of Portland cement, sand and latex additive. Latex additive shall be “Laticrete 3701” latex mortar additive.

C. Grouting mortar: “Laticrete 1500 Sanded Grout” in color to match pavers. “Laticrete 1776 Grout Enhancer” shall be used in lieu of water to prepare the mortar.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the conditions under which the detectable warning surface is to be installed. Installation shall not proceed until unsatisfactory conditions, if any, have been corrected.

3.2 INSTALLATION

A. Site conditions: where site conditions require pavers to be installed along a radius, pavers shall be cut to provide a true radius as required.

B. Layout: shall be set to patterns, finish grades and lines as shown on the drawings. Accurately locate and layout work prior to setting bed installation.

C. Setting bed: mix setting bed materials and place in accordance with manufacturer’s recommendations.

D. Pavers: install as detailed at locations as shown on the drawings. Set pavers by hand in straight course and uniform top surface, being careful not to disturb setting bed. Adjust height pavers to maintain flush condition with adjacent concrete surfaces. Raised cones of pavers shall extend above height of adjacent pavement. Maintain ½” joint between pavers and adjacent concrete surfaces. Place pavers such that in-line cone pattern is parallel to the direction of travel. Maintain line of cones with adjacent pavers. When necessary along radial edge, cut pavers to obtain a true radial layout.

E. Grout joints: fill joints completely with approved grout mix. Strike off top of grouted joint flush with top of paver and adjacent concrete surface.

3.3 REPAIR, CLEAN-UP AND PROTECTION

A. Remove and replace pavers that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units as intended. Provide new pavers to match adjoining units and install in same manner as original units with same joint treatment to eliminate evidence of replacement.

B. Provide final protection and maintain conditions in a manner acceptable to installer, which ensures paver work being without damage or deterioration at time of substantial completion.

END OF SECTION 32 17 26

SECTION 32 92 00 – TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Hydroseeding.

B. Related Sections:

1. Division 31 Section "Site Clearing" for topsoil stripping and stockpiling.
2. Division 31 Section "Earth Moving" for excavation, filling and backfilling, and rough grading.
3. Division 32 Section "Plants" for exterior plantings.
4. Division 31 Section “Earth Moving” for topsoil.

1.3 REFERENCES

A. Form 816: State of CT Dept. of Transportation Standard Specifications for Roads, Bridges and Incidental Construction.

1.4 SUBMITTALS

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

1. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to this Project.

B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name, 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.

C. Material Test Reports: For existing native surface topsoil.

D. Product Certificates: For soil amendments and fertilizers from manufacturers.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.

1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: Five years' experience in turf installation in addition to requirements in Division 1
3. Section "Quality Requirements."
4. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on
5. Project site when work is in progress.
6. Pesticide Applicator: State licensed, commercial.

B. Soil-Testing Laboratory Qualifications: An independent laboratory or university laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

C. Soil Analysis: For each unamended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of the soil.

1. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
2. A minimum of three representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
3. Report suitability of tested soil for turf growth.

   a. Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1000 sq. ft. or volume per cu. yd. for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
   b. Report presence of problem salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.

A. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk fertilizers, lime, and soil amendments with appropriate certificates.

1.7 PROJECT CONDITIONS

B. Planting Restrictions: Plant during one of the following periods, unless otherwise permitted by the Owner’s representative. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

1. April 1st – June 15th.
2. August 15th – October 1st

C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

1.8 MAINTENANCE SERVICE

D. Initial Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:

1. Seeded Turf: 60 days from date of Substantial Completion.

a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; 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;

1. 35% Kentucky Bluegrass
2. 35% Creeping Red Fescue
3. 20% Fiesta 3 Perennial Ryegrass
4. 10% Express Perennial Ryegrass

2.2 INORGANIC SOIL AMENDMENTS

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

1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.

B. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, and with a minimum of 99 percent passing through No. 6 sieve and a maximum of 10 percent passing through No. 40 sieve.

C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

D. Aluminum Sulfate: Commercial grade, unadulterated.

E. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through No. 50 sieve.

2.3 FERTILIZERS

A. Topsoil fertilizer: complete fertilizer containing Nitrogen (N), Phosphate and Potash in ratio as recommended in the topsoil test reports. Fertilizer shall be uniform in composition, dry and free flowing and suitable for application with standard fertilizer equipment. Fertilizer shall be delivered in bags or suitable containers, each fully labeled with manufacturer's guaranteed analysis. Fertilizer which has become damaged or caked will be deemed unsuitable for use, and unacceptable to the Architect.

B. Starter fertilizer: guaranteed analysis of 10 -20-10, 5-10-5, or ration of 1-2-1.

C. Secondary fertilizer: guaranteed analysis of 15-15-15, 10-10-10 or ratio of 1-1-1.

D. Mycorrhizal fungi inoculant – Plant Health Care, PHC Turf Saver 3-4-3.

2.4 MULCH

A. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

2.5 PESTICIDES

A. General: Pesticide, registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

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

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Landscape Architect and replace with new planting soil.

3.2 APPLICATION RATES

Materials	Application Rate
Topsoil Fertilizer, Lime And Topsoil Conditioners	As recommended by the topsoil test reports
Grass Seed	6 lbs. / 1,000 s.f.
Hydromulch	As recommended by manufacturer
Starter Fertilizer	10 lbs. / 1,000 s.f.
Crabgrass Preventative	As recommended by manufacturer
Lawn Pest/Disease Control	As recommended by manufacturer
Soil Insect Control	As recommended by manufacturer
Broad Leaf Weed Control	As recommended by manufacturer
Secondary Fertilizer	6.5 lbs. / 1,000 s.f., Or as required to equal 1 lb.
Water Management Polymer	3 lbs. / 1,000 s.f.

3.3 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
2. Protect grade stakes set by others until directed to remove them.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.4 SEED BED PREPERATION

A. Apply lime, topsoil fertilizer, and other recommended conditioners at the rates recommended by the topsoil tests throughout all topsoiled areas. Cultivate topsoil to a depth of 4” by spring-toothed harrow or other approved 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 are allowed on topsoiled areas. Keep all heavy equipment and trucks off prepared topsoil. Do not prepare while ground is wet or frozen.

B. Remove any weeds, debris, foreign matter and stones having any dimension greater than ½”.

C. Install water management polymer in all non-irrigated lawn areas.

D. Fine grade to a smooth uniform surface. The entire area shall present an even grade with no depressions where water will stand. Grades shall be within ½” of designated elevation. Topsoil shall be smoothly blended to existing finish grades around trees and adjacent existing conditions. Smoothly round-off all top and toe of slopes.

E. Monitor degree of soil compaction during seed bed preparation. Where required, loosen the seed bed to obtain no greater than 85% of the modified optimum density.

3.5 TURF AREA PREPARATION

A. General:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
2. Loosen surface soil to a depth of at least 6 inches. Apply soil amendments and fertilizers according to soil test and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture. Final depth of topsoil shall be 6 inches minimum.
    a. Apply fertilizer directly to surface soil before loosening.
3. Remove stones larger than 1 inch in any dimension and sticks, roots, trash, and other extraneous matter.
4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
5. Apply mycorrhizal inoculant to seed bed at manufacturer’s recommended rate.

B. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.6 HYDROSEEDING

A. Hydroseeding: Mix specified seed, fertilizer, fiber mulch and pre-emergent pesticides in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Seed – 5 lbs/1,000 SF.
2. Starter Fertilizer – 10 lbs/1000 SF.
3. Crabgrass and weed Preventive – as recommended by manufacturer.
4. Insect and disease control - as recommended by manufacturer.
5. Dye – as required to clearly delineate areas that have been sprayed.

B. Apply mulch at a rate of 25 pounds per 1000 SF (40 pounds per 1000 SF on slopes 2:1 or over).

3.7 MAINTENANCE

A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch an anchor as required to prevent displacement.
3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation Is adequate.

C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow to a height of 1-1/2 to 2 inches.

D. Turf Postfertilization: Apply fertilizer after initial mowing and when grass is dry.

1. 6.5 lbs/1000 SF.

3.8 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Landscape Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
2. Provide a turf free of weeds, crabgrass and disease.

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

3.9 HERBICIDE AND PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents in accordance with requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already germinated weeds and in accordance with manufacturer's written recommendations.

3.10 EROSION PREVENTATIVES

A. Install erosion control netting on all seeded slopes sleeper than one foot vertical to three feet horizontal, or any seeded areas which receive concentrated run-off water, and other areas subject to potential erosion. Install as recommended by the manufacturer.

3.11 ESTABLISHMENT

A. Maintain a moist seed bed at all times. Water seed bed so that the topsoil is wet to a depth of 2”. Apply complete coverage to the seeded areas as necessary to ensure proper germination conditions.

B. Protect all lawn areas with barricades or fencing, if necessary, to keep all traffic off the area. Repair all damage to lawn areas including topsoil replacement, at no additional cost to the Owner.

C. Reseed all areas which have failed to show a uniform stand of grass after the initial plants have appeared. All areas disturbed / prepared for reseeding in spring or summer shall receive an organic crabgrass preventative to avoid impact to new turf seed germination.

3.12 CRABGRASS AND BROADLEAF WEED CONTROL

A. Treat any lawn areas infested with crabgrass or broadleaf weeds with approved weed control products in conformance with manufacturer's recommendations, as required after identification of weed / crabgrass presence. Application of herbicides shall conform with all State laws regarding pre- notification, registries, posting and using only 25b exempt products. Timing and rate of application shall conform to manufacturer's recommendations. Applications made in areas where turfgrass is germinating shall not impact the germination of the seed. A long lasting pre-emergent herbicide shall be applied to stave off weed pressure for as long as possible.

B. A thorough clean-up and removal of all grassy and broadleaf weeds shall be performed within one week prior to the occupation of the school building.

3.13 DISEASE CONTROL

A. Treat any diseased lawn areas with proper disease control product in conformance with manufacturer's recommendations, as required after diagnosis of disease organisms. Timing and rate of application shall conform to manufacturer's recommendations.

3.14 INSPECTION AND ACCEPTANCE OF SEEDED AREAS

A. At the end of the required maintenance period, submit written notice requesting inspection at least 10 days prior to the anticipated date.

B. Maintenance responsibilities end with final acceptance which shall be a minimum 90 consecutive calender days from the date of seeding. If lawn areas are seeded in the Fall, and the maintenance period is not completed prior to turf dormancy, or the turf is not ready for final acceptance, continue maintenance operations the following Spring until and acceptable lawn is established. Seeded areas will not be accepted in phases unless specifically completion of this Contract and prior to the completion of a minimum of 5 mowings.

C. A satisfactory stand of acceptable grass is defined as:

1. Consisting of a uniform, dense and consistent stand of established permanent grass, true to grades as shown with no depressions. Lawns shall be free of weeds, crabgrass and other undesirable plats, and with no diseases present. Lawns shall have no bare or eroded areas. The Landscape Architect shall be the sole judge regarding the acceptance of the lawn areas.

D. If final acceptance is not granted, continue maintenance operations as necessary to correct all deficiencies identified during final inspection.

3.15 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

C. Contractor is responsible for protecting new lawn areas until grass is established, by whatever method necessary to ensure a full stand or grass.

D. Remove non-degradable erosion-control measures after grass establishment period.

END OF SECTION 32 92 00

SECTION 33 05 26 – UTILITY LINE SIGNS, MARKERS, AND FLAGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. The work of this section includes, but is not limited to, the furnishing of all labor, material and equipment required for the installation of warning markings for all new, re-laid, or relocated underground utilities including all conduits wires, cables, utility pipes, drainage pipes, underdrains or other facility, in conformance with Section 16-345 of the Regulation of the Department of Public Utility Control.

1.3 RELATED WORK

A. Other specification sections which relate to the work of this section include, but are not limited to, the following:

1. Section 31 23 33 – Trenching and Backfilling
2. 33 30 00 – Sanitary Sewerage Utilities

1.4 QUALITY ASSURANCE

A. Industry Reference Standards:

1. Form 816: "State of Connecticut Department of Transportation Standard Specification Roads, Bridges and Incidental Construction. Form 816, 2004." As amended.

1.5 SUBMITTALS

A. The Contractor shall submit the following samples, certifications or test results prior to use on the project:

1. Product information regarding warning tape.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials used shall conform to the requirements of Section 1.05.15 of Form 816.

B. All tapes, unless otherwise directed by the specific utility company shall be detectable to a depth of at least three (3) feet with a commercial radio-type metal locator.

C. The tape shall be of color assigned to the utility. The assigned colors are:

Green	Storm Drainage Systems and Sanitary Sewers including force mains and other non-hazardous materials.
Blue	Water
Orange	Communication lines or cables, including but not limited to those used in or in connection with telephone, telegraph, fire signals, cable television, civil defense, data systems, electronic controls and other instrumentation.
Red	Electrical power lines, electrical power conduits and other electrical power facilities, traffic signals, and appurtenances and illumination facilities.
Yellow	Gas, oil petroleum products, steam, compressed air, compressed gases and all hazardous material except water.
Brown	Other
Purple	Radioactive materials.

PART 3 - EXECUTION

3.1 GENERAL:

A. Tape installation shall comply with the requirements of Section 1.05.15 of Form 816.

END OF SECTION 33 05 26

SECTION 33 36 00 – UTILITY SEPTIC TANKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. The Work of this section includes, but is not limited to, the furnishing of all labor, materials and equipment required for the completion and development for proper operation of the septic system, from the building, to the proposed leaching system.

B. Related Sections:

1. Section 02 11 50 – Underground Storage Tank Removal
2. Section 02 41 13.23 – Selective Site Demolition – Utility Line Removal
3. Section 31 12 00- Earth Moving
4. Section 31 23 33- Trenching and Backfilling.
5. Section 33 05 26- Utility Line Signs, Markers, and Flags.

1.3 SUBMITTALS:

A. The Contractor shall submit the following samples, certifications or test results prior to use on the project.

1. Product data indicating pipe and pipe fittings.
2. Product data for precast concrete septic tank, distribution boxes and leaching chambers.
3. Product data for cast iron frames and covers.
4. Product data for "Approved Stone Aggregate."

1.4 QUALITY ASSURANCE

A. Comply with the Technical Standards: "The Connecticut Public Health Code, Regulations and Technical Standards for Subsurface Sewage Disposal Systems, January 2015", as amended.

B. Comply with the requirements of the Essex Health Department (EHD).

C. Comply with Form 816: "State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816, 2004".

1.5 JOB CONDITIONS:

A. Existing Conditions: Examine all Work that the Work of this section is contingent upon and report any deficiencies to the Owner's Representative. Commencement of Work will be construed to mean complete

acceptance for the preparatory Work of others. No adjustment will be made for discrepancies brought to the Owner's Representative's attention after Work has begun.

B. Coordination: Coordinate all Work of this section with related Work of other sections. Failure to coordinate properly will not reduce the obligation of the various elements of Work contained herein.

C. General:

1. Coordinate Work with all other Work to avoid interference and to ensure efficient erosion control.
2. Open excavations occurring as part of the Work shall be barricaded and provided with warning signs and lights and additional devices as necessary to provide for the public safety.
3. The area containing the leaching system shall be marked out and protected during construction.
4. Maintain access for emergency vehicles during construction.

D. Rock: If rock is encountered during the performance of the Work, the Contractor shall immediately notify the Owner's Representative so that the extent and method of removal of the rock can be determined.

1.6 SUBSURFACE CONDITIONS:

A. All information given on supplemental drawings, or in the Contract Documents, relating to subsurface conditions and existing pipes and other structures is from the best source at present available to the Owner and is for information only.

B. All such information and drawings of existing construction are furnished only for information and convenience of the Bidders. It is understood and agreed that the Owner does not warrant or guarantee the materials encountered during construction will be the same as those indicated by the information given in the Contract Documents. The Bidder shall satisfy himself regarding character, quantities and condition of various materials and the Work to be done.

C. It is further understood and agreed that the Contractor shall not use any information made available to him, or obtained in any examination made by him, in any manner as a basis or ground of claim or demand of any nature, against the Owner or Owner's Representative arising from or by reason of any variance which may exist between information offered and actual materials or structures encountered during the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Sanitary pipe, from the building to the septic tank shall be Solid PVC ASTM D1785/ASTM D2665, Schedule 40. Pipe joints to be rubber compression gaskets, Harco Mfg., ASTM D3139 or equal, or solvent weld couplings/fittings using proper two-step PVC solvent solution procedure.

B. Sanitary pipe downstream of the septic tank solid PVC ASTM D3034, SDR 35. Pipe joints to be rubber compression gaskets, Harco Mfg., ASTM D3139 or equal, or solvent weld couplings/fittings using proper two-step PVC solvent solution procedure.

C. Septic tanks to be a United Concrete Products Septic Tank; two compartments or equivalent. HS-20 tanks to be used in high traffic areas. Outlet filter to be a Zabel A100-12X36-VC or equivalent. The tank shall be precast to accommodate the 6-inch openings before being delivered to the site.

D. Leaching units to be United Concrete Product 4'x4'x4' Galley and 4'x8'x4' Galley heavy duty precast concrete leaching galleys or equivalent.

E. Distribution boxes to be United Concrete Products 5 Outlet Distribution Box or equivalent.

F. Approved aggregate shall be No. 4 stone aggregate and comply with the Technical Standards.

G. Non-woven filter fabric shall comply with the Technical Standards.

H. Mortar shall comply with Article M.11.04 of the Form 816.

1. Cast iron frames and covers shall be as shown on the detail drawings. All manhole covers to have "Type A-Camlock", locking mechanism or equivalent. Cleanout covers to have "Type A-Camlock", or Type D- Countersunk Bolts locking mechanism or equivalent.

PART 3 - EXECUTION

3.1 SPECIAL REQUIREMENTS

A. Before beginning work, the Contractor shall check, in the field, existing grades and layout as shown on the drawings and report any discrepancies which will affect the work of this contract to the Architect. Commencement of work will be implied to mean acceptance. No adjustment will be made for discrepancies discovered after work has begun.

B. The Contractor shall coordinate with the EHD and the Engineer.

3.2 ORDER OF CONSTRUCTION

A. To assure proper sanitary sewer drainage during construction operations, upon award of contract and prior to commencing any earth moving operations, the Contractor shall submit to the Architect for approval his schedule of operations and proposed working procedures.

3.3 PREPERATION

A. Remove large stones or other had matter which could damage drainage or impede consistent backfilling or compaction.

3.4 INSTALLATION

A. Sanitary Sewer Piping:

1. Installation to conform to the Connecticut Public Health Code, Regulations and Technical Standards for Subsurface Sewage Disposal Systems.
2. Construct in accordance with the pertinent sections of Article 6.51.03 of Form 816, ASTM Specification D-2321, as shown on the plans, and the manufacturer's instructions.

B. Septic Tank:

1. Installation to conform to the Connecticut Public Health Code, Regulations and Technical Standards for Subsurface Sewage Disposal Systems.

C. Distribution Boxes (DB#)

1. Distribution box to be set on six (6) inches of broken stone. The boxes shall be set level.
2. Install inspection ports as noted on the plan.

D. Leaching Systems:

1. Installation to conform to the Technical Standards and the manufacturer's instructions.
2. Install inspection ports as noted on the plan.

E. Existing Septic System:

1. The existing septic tank is to be crushed & filled. The existing leading system is to be abandoned in place except where portions must be removed to install site utilities and structures. Where encountered, remove the existing leaching system for a distance of at least ten (10) feet from the site utility or structure and backfill with common fill.

3.5 AS-BUILT DRAWINGS

A. The Contractor shall coordinate with the EHD and provide them with an "as-built" of the completed septic system

END OF SECTION 33 36 00