CONTRACT CK-EDSP-2014-003

EAST STRAND STREET IMPROVEMENTS – PHASE I

CITY OF KINGSTON, NEW YORK
SHAYNE GALLO, MAYOR

COMMON COUNCIL

JAMES L. NOBLE, JR., PRESIDENT

ALDERMAN

MATTHEW DUNN, FIRST WARD
BRIAN SECHE, SECOND WARD
BRAD WILL, THIRD WARD
NINA DAWSON, FOURTH WARD
WILLIAM CAREY, FIFTH WARD
ELISA BALL, SIXTH WARD
MARYANN MILLS, SEVENTH WARD
STEVEN SCHABOT, EIGHTH WARD
DEBORAH BROWN, NINTH WARD

June 17, 2014

Prepared by:

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Division 2 - Site Work

Division 16 - Electrical

INVITATION FOR BIDS

Sealed bids for Contract No. CK-EDSP-2014-003, East Strand Street Improvements – Phase I, City Hall, City of Kingston, Ulster County, New York, are sought and requested as set forth in specifications prepared by the Office of Economic Development & Strategic Partnerships, City of Kingston, City Hall, 420 Broadway, Kingston, New York 12401.

The proposal will consist of a single contract for General Construction.

The project consists of the removing asphalt pavement and installing accessible concrete sidewalks, colorized and imprinted sidewalks, paver accents, site amenities, landscaping and concrete curbing located in the vicinity of the Cornell Building along East Strand Street, City of Kingston, Ulster County, New York.

Separate sealed proposals completed on forms provided with the Contract documents shall be received by the City of Kingston, Ulster County, New York at the Office of the City Engineer until 10:00 a.m. on Friday, August 1, 2014 at which time they will be publicly opened and read aloud. Bids received after the designated date and time will be considered unresponsive and returned to the bidder unopened.

All of the contract documents, including Instructions to Bidders, Proposal Forms, General Conditions governing the contract, drawings and detailed specifications, may be examined at the Office of Economic Development & Strategic Partnerships, City Hall, 420 Broadway, Kingston, New York 12401. Electronic copies of these documents may be obtained at a no cost to perspective Bidders via electronic mail.

Attention is also directed to the fact that the Contractor will be governed by the Labor Standards Provisions, which are made part of these specifications and contract. The City of Kingston Resolution # 179 of 2012 requires that for any City construction contract over $100,000, the Contractor and Subcontractors must have approved Apprenticeship Agreements pursuant to NYS Labor Law 816.b.

The bidder, by signing his proposal, certifies that he is fully aware of the State Laws regarding the non-collusion bidding certification. No separate forms will be required, but the actual signing of the proposal includes such a statement and is included in the proposal.

The City of Kingston expressly reserves the right to waive any informality in or to accept any bid, or to reject any and all bids, or to award on any or all items, as the interest of the City of Kingston may appear to require.

The City of Kingston is an exempt organization under the Tax Laws and is exempt from payment of Sales and Compensating Use Taxes of the State of New York and Cities and Counties of the State of all materials which are to be incorporated into the pavilion project, pursuant to the provisions of the Contract. These taxes are not to be included in the Bid.

No bidder may withdraw his bid within 45 (forty-five) days after the actual date of the opening thereof.

By order of the City of Kingston Common Council.

Shayne R. Gallo, Mayor

INSTRUCTIONS FOR BIDDERS

Receipt and Opening of Bids

The City of Kingston, Ulster County, New York hereinafter called the Owner, invites bids on the form attached hereto, all blanks in which must be appropriately filled in. Bids will be received by the Owner until 10:00 a.m. o'clock on Friday, August 1, 2014, Office of Economic Development & Strategic Partnerships, City Hall, 420 Broadway, Kingston, New York, and then at said office the bids will be opened and publicly read aloud.

The envelopes, containing the bids must be sealed and addressed to the City of Kingston, New York and designated as Bid for Contract No. CK-EDSP-2014-003 East Strand Street Improvements – Phase I. The Owner may consider as informal any bid not prepared and submitted in accordance with the provisions hereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

Preparation of Proposal

All bids must be submitted in sealed envelopes, bearing on the outside, the name of the bidder, his address, and the name of the project for which the bid is submitted. (If forwarded by mail, the sealed envelopes containing the proposal, and marked as directed above, must be enclosed in another envelope, addressed as specified in the Proposal Form; preferably by Registered Mail).

The work shall be bid as a single contract: General Construction

Each bidder must bid on all items of the work in the Form of Proposal.

Non-Collusion and Bid Certification

The bidder, by signing his proposal, certifies that he is fully aware of the State Laws regarding the non-collusion bidding certification. No separate forms will be required, but the actual signing of the proposal includes such a statement and is included in the proposal.

Qualifications of Bidder

The Owner may make such investigation as he deems necessary to determine the ability of the bidder to perform the work and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request.

The Owner reserves the right to reject any bid if the evidence submitted by, or investigations of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligation of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

Bid Security

Each bid must be accompanied by cash, by a certified check of the bidder payable to the order of the City of Kingston or by a bid bond, duly exercised by the bidder as Principal, and having as surety thereon a surety company licensed to do business in the State of New York, approved by the Owner in the amount of five percent (5%) of the total Proposal submitted. Bid security shall be returned to all except the three lowest bidders within three (3) days after the formal opening of bids. The remaining Bid Security will be returned to the three lowest Bidders within forty-eight (48) hours after the Owner and the accepted Bidder have executed a Contract and the executed Performance Bond and Payment Bonds have been approved by the Owner. If the required contract and bonds have not been executed within forty-five (45) days after the date of opening of Bids, then the Bid Security of any Bidder will be returned upon his request, provided he has not been notified of the acceptance of his Bid prior to the date of such request.

Liquidated Damages

The Owner shall be entitled to receive as liquidated damages the face amount of the certified check or bid bond deposited with the bid if the successful bidder fails to or refuses to execute and deliver the contract and bond required within ten (10) days after he has received notice of the acceptance of his bid.

Conditions of Work

Each bidder must inform himself fully of the conditions relating to the construction and labor under which the work is now or will be performed; failure to do so will not relieve a successful bidder of his obligation to furnish all materials and labor necessary to carry out the provisions of the contract documents and to complete the contemplated work for the consideration set forth in his bid.

Notice of Special Conditions

Attention is particularly called to those parts of the contract documents and specifications which deal with the following:

a. Inspection and testing of materials.
b. Insurance requirements.
c. Wage rates.
d. Time of completion and liquidated damages.
e. Building Permit

Addenda and Interpretations

No interpretation of the meaning of the plans, specifications, or other contract documents will be made to any bidder orally. Every request for such interpretation should be in writing and addressed to the City Engineer, City Hall, 420 Broadway, Kingston, New York 12401 and to be given consideration must be received at least seven days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the

specifications which, if issued, will be mailed or delivered to all prospective bidders (at the respective addresses furnished for such purposes). Failure of any bidder to receive any such addendum or interpretation shall not relieve the bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

Construction Terms and Conditions

The bidder is warned that the construction terms and conditions hereinafter fully set forth in the form of Contract will be rigidly enforced.

Security for Faithful Performance

Simultaneously with his delivery of the executed contract, the successful bidder must deliver to the Owner, executed bonds in the amount of one hundred per centum (100%) of the total amount bid as security for the faithful performance of his contract. He shall also provide a separate bond for payment not less than one hundred per centum (100%) of the contract price. These bonds shall be prepared on forms supplied by the Surety Company or companies, licensed to do business in the State of New York, and currently issued by the American Institute of Architects.

Lowest Qualified Bidder

The comparison of bids on this Contract will be made by comparing the total sums as submitted by each separate contractor. The lowest qualified bidder shall be considered as being the successful bidder for the contract. The contract award will be made to the successful bidder as described above if the project in total is acceptable to the Owner.

Time of Completion and Liquidated Damages

The proposed improvements must be Substantial Completion by November 20, 2014.

The date of completion shall be the date when the work has been substantially completed to such an extent that the sidewalk, site lighting, and landscape improvements are complete.

Minor items which are not completed but which do not interfere with operations or the use of the site by the Owner will not be deemed as a failure to comply with the requirements of the time of completion of the work.

Liquidated damages may be assessed for each and every calendar day that the work is not in substantial completion, after the above stated time at the rate of One Hundred Dollars and 00/100 ($100.00) per day.

Obligation of Bidder

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Plans and Contract Documents (including all addenda).

The failure or omission of any bidder to receive or examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect to his bid.

Tax Exemption

The City of Kingston is an exempt organization under the Tax Law and is exempt from payment of Sales and Compensating Use Taxes of the State of New York and cities and counties of the State on all materials which are to be incorporated into the project, pursuant to the provisions of the contract. Tax exempt certificates will be provided by the Owner for use by the successful bidders. These taxes are not to be included in the bid.

Local and State Laws

The Contractor shall abide by all local and State laws or ordinances to the extent that such requirements do not conflict with Federal laws or regulations.

Labor, Safety and Health Regulations

The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction.

Safety Standards and Accident Prevention

With respect to all work performed under this contract, the Contractor shall:

a. Comply with the latest safety standards provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-956) and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, No. 75, Saturday, April 17, 1971.

b. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.

c. Maintain at his/her office or other well known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site. In no case shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

Experience Clauses

These specifications do have requirements that material installers have specific experience, the Owner or Engineer will appropriate documentation.

Performance and Payment Bond Requirements

The bidder to whom the municipality proposes to award the contract shall, as soon as possible, but not later than ten (10) days from the date of the Notice of Award furnish to the municipality bonds equal to one hundred percent of the amount of the contract, conditioned for the faithful performance of all terms, covenants and conditions of same, with a surety company authorized to do business in the State of New York, as surety. If the bidder fails to furnish said Bonds within ten (10) days of the Notice of Award, said Owner will be entitled to consider all rights arising out of the Owner's acceptance of Bid as abandoned and as a forfeiture of Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

The performance bond shall be maintained in the amount of 100% of the contract price in full force for a period of twelve months after date of final certificate as a guarantee that the Contractor will make good any faults or defects in the work arising from improper or defective workmanship or materials which may appear during that period.

A separate payment bond will be supplied in the amount of 100% of the contract price and shall be kept in force for a period of 12 months after the date of final certificate.

Certificate of Insurance

A certificate of insurance will be required at the time of contract signing, naming the Owner, (the City of Kingston) as additionally insured.

Insurance Requirements

The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them or by anyone whose acts of them may be liable.

Claims under workmen's compensation, disability benefit and other similar employee benefit acts;

Claims for damages because of bodily injury, occupational sickness, or disease or death of his employees;

Claims for damages because of bodily injury, sickness, or disease or death of any person other than his employees.

Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other persons and Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded

under the policies will not be cancelled unless at least fifteen (15) days prior to WRITTEN NOTICE has been given to the OWNER.

The CONTRACTOR shall procure and maintain, at his expense, during the CONTRACT TIME, liability insurance as specified within the General Conditions.

Contract security

The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a PERFORMANCE BOND and a PAYMENT BOND in penal sums equal to the amount of the CONTRACT PRICE conditioned upon the performance of the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a Surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due not shall be made until the new Surety or Sureties shall have furnished an acceptable BOND to the OWNER.

New York State Department of State

These documents were prepared for the New York State Department of State (DOS) with funds provided under Title 11 of the Environmental Protection Fund.

DOS requires the City, as grantee, to include the provisions of subclauses 1 – 5 (inserted below), in every subcontract over $25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon.

Subclauses 1 – 5:

Equal Opportunities for Minorities and Women; Minority and Women Owned Business Enterprises: In accordance with Section 312 of the Executive Law and 5 NYCRR 143, if the Master Contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of $25,000.00, whereby a contracting State Agency is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the contracting State Agency; or (ii) a written agreement in excess of $100,000.00 whereby a contracting State Agency is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; or (iii) a written agreement in excess of $100,000.00 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of

real property and improvements thereon for such project, then the Contractor certifies and affirms that (i) it is subject to Article 15-A of the Executive Law which includes, but is not limited to, those provisions concerning the maximizing of opportunities for the participation of minority and women owned business enterprises and (ii) the following provisions shall apply and it is Contractor's equal employment opportunity policy that:

1. The Contractor shall not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status;

2. The Contractor shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State contracts;

3. The Contractor shall undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;

4. At the request of the State, the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative shall not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative shall affirmatively cooperate in the implementation of the Contractor's obligations herein; and

5. The Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the State contract, all qualified applicants shall be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

BID PROPOSAL FORM

CONTRACT NO. CK-EDSP-2014-003

GENERAL CONSTRUCTION

CONTRACTOR'S NAME AND ADDRESS:

TELEPHONE NO.:

FAX NO.:

FEDERAL I.D./S.S. #:

TO: City of Kingston

City Hall, 420 Broadway

Kingston, New York 12401

Gentlemen:

I hereby submit my Bid for: East Strand Street Improvements – Phase I

1. UNIT PRICE BASIS:

   Having carefully examined:

   a. The Advertisement for Bids, Instructions to Bidders, Bid Form, General Conditions, Specifications, Contract Drawings and Prevailing Wage Rates.

   b. The Specifications & Drawings titled and dated: Contract CK-EDSP-2014-003, East Strand Street Improvements – Phase I

   c. All addenda issued by the Engineer and received by the Undersigned prior to the date of opening of bids, and having visited the site, examined all conditions affecting the work, the Undersigned proposes to furnish all labor, materials and equipment necessary and required by said documents for General Construction Work, as per the Proposal.

   d. The undersigned agrees to start work at the site at the date to be specified on a written notice from the Owner to do so but, in no case, later than ten (10) days after the signing of the Notice to Proceed and that the work will be substantially completed by Thursday, November 20, 2014.

CONTRACT NO. CK-EDSP-2014-003
EAST STRAND STREET IMPROVEMENTS – PHASE I
CITY OF KINGSTON

BASE BID PROPOSAL

The Contractor, having carefully examined the site conditions, offers to perform the work according to the following pricing. Section 01120, Contract Summary, provides a description of each work task. All labor will be provided at prevailing wage rates.

ITEM NO.	APPROXIMATE QUANTITIES	UNIT PRICE IN WORDS	UNIT PRICE	AMOUNT BID
01	1	Site Preparation and Removals _____L.S.		
02	130	Bituminous Pavements _____S.Y.		
03	3075	Concrete Pavements _____S.F.		
04	500	Cast-in-Place Concrete Curbing _____L.F.		
05	260	Clay Brick Paving _____S.F.		
06	1	Ornamental Lighting _____L.S.		
07	1	Site Improvements _____L.S.		
08	1	Topsoil, Seeding, Mulching, Plantings _____L.S.		
09	1	Storm Drainage _____L.S.		
10	1	Traffic Person (Flagger) _____EST.	$ 20,000.00	$ 20,000.00
11	1	Maintenance & Protection of Traffic _____L.S.		

TOTAL AMOUNT BID: **$_____**

TOTAL AMOUNT BID WRITTEN IN WORDS:

_____

Add Alternate No.1 Bid Items

ITEM NO.	APPROXIMATE QUANTITIES	UNIT PRICE IN WORDS	UNIT PRICE	AMOUNT BID
1A	1225	Bluestone Sidewalk _____S.F.		

Add Alternate No.2 Bid Items

ITEM NO.	APPROXIMATE QUANTITIES	UNIT PRICE IN WORDS	UNIT PRICE	AMOUNT BID
2A	1	Wayfinding Signage _____L.S.		

Add Alternate No.3 Bid Items

ITEM NO.	APPROXIMATE QUANTITIES	UNIT PRICE IN WORDS	UNIT PRICE	AMOUNT BID
3A	1	Site Preparation and Removals _____L.S.		
4A	9	Acer rubrum 'Autumn Brillance', 3"-3.5" Cal. _____Ea.		
5A	5	Carpinus betulus 'Frans Fontaine', 2.5"-3" Cal. _____Ea.		
6A	14	Prunus x 'Okame', 2.5"-3" Cal. _____Ea.		
7A	10	Syringa reticulata 'Ivory Silk', 3"-3.5" Cal. _____Ea.		
8A	28	Tilia cordata 'Greenspire', 3"-3.5" Cal. _____Ea.		
9A	10	Ulmus parvifolia 'Allee', 3"-3.5" Cal. _____Ea.		

TOTAL ADDITIONAL BID ALTERNATES: $_____

TOTAL ADDITIONAL BID ALTERNATES AMOUNT WRITTEN IN WORDS:

_____

2. BONDS:

The undersigned agrees, if awarded the Contract, to deliver to the Owner simultaneously with the executed Contract an executed Performance Bond and a Labor and Material Payment Bond both of a corporate surety licensed to do business in the State of New York, in the amount of one hundred percent of the accepted contract sum. This shall guarantee the prompt payment of all indebtedness, incurred by the Contractor, or any subcontractor for supplies, materials or labor furnished, used or consumed directly in furtherance of such construction. The form of both the Performance Bond and the Labor and Material Payment Bond shall be that currently issued by the American Institute of Architects.

Surety Company shall be as approved by the Owner, the Contractor shall pay the premium for such Bonds.

3. INSURANCE:

Two copies of a Certificate of Insurance shall be provided at the contract signing, naming the Owner (City of Kingston) and the State of New York as additional insureds.

4. NON-COLLUSIVE BIDDING CERTIFICATE:

By submission of this Bid, the Bidder certifies that: (a) this Bid has been independently arrived at without collusion with any other Bidder or with any Competitor or Potential Competitor; (b) this Bid has not been knowingly disclosed prior to submission or opening of Bids for this project, to any other Bidder, Competitor or Potential Competitor; (c) no attempt has been or will be made to induce any other person, partnership or corporation to submit or not to submit a Bid; (d) the person signing this Bid certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the Bidder as well as to the person signing in it's behalf; (3) that attached hereto (if a corporate Bidder) is a certified copy of resolution authorizing the execution of this certificate by the signator of this Bid in behalf of the corporate Bidder.

5. ADDENDA:
Receipt of the following Addenda is hereby acknowledged:

	DATE	SIGNATURE
ADDENDUM NO. 1	_____	_____
ADDENDUM NO. 2	_____	_____

DATE: _____ SIGNED: ___`_____

_____
(Name of Firm)

BY:_____
(Designate Officer)

6. I understand that the Owner reserves the right to reject this bid, but that this bid shall remain open and not be withdrawn for a period of forty five days from the date prescribed for its opening.

7. Notice of acceptance, or request for additional information, may be addressed to the undersigned at the address set forth below.

8. The names of all persons interested in the foregoing bid as principals are:

(IMPORTANT NOTICE: If bidder or other interested person is a corporation, give legal name of corporation, state where incorporated, and names of president and secretary; if a partnership, give name of firm and names of all individual co-partners composing the firm; if bidder or other interested person is an individual, give first and last name in full)

SIGN HERE: _____

SIGNATURE OF BIDDER: _____

NOTE: If bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address: _____

_____

_____

Telephone Number: _____

Date of Proposal: _____

TO BE SUBMITTED WITH BID PROPOSAL
STATEMENT OF CONTRACTOR'S QUALIFICATIONS

This statement must be submitted by the Contractor with his proposal. All questions must be answered and the data given must be clear and comprehensive.

1. Name of Bidder _____
PHONE NUMBER _____
2. Permanent main office address _____
_____
3. When organized or began business _____
4. If a corporation, where incorporated _____
5. How many years have you been engaged in the contracting business under your present firm name? _____
6. Have you ever failed to complete any work awarded to you? _____
7. Will you, upon request, submit a detailed financial statement and furnish the following information that may be required by the Owner? _____

- Contracts on hand: (Indicate location, client gross amount of each contract, approximate anticipated dates of completion, A/E name, address and contact person.
- List of contracts of a similar nature performed within the past two years with location, client, gross amount, date of completion, A/E name, address and contact person.
- List of major equipment owned and available within 10 days of award of this contract.
- Background and experience of the principal members of your personnel, including the officers.
- Credit available (written evidence).
- Such statements, if required, shall be notarized and delivered to the Owner within three (3) days of written or verbal request. (Contractor may, at his discretion, elect to submit information as delineated under No. 7 with his Bid Proposal).

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

Dated at _____ this _____ day of _____, 20___.

_____
Name of CONTRACTOR

_____
BY

_____
TITLE

TO BE SUBMITTED WITH BID PROPOSAL
STATEMENT OF CONTRACTOR'S APPRENTICESHIP PROGRAM COMPLIANCE

This statement must be submitted by the Contractor with his proposal. All questions must be answered and the data given must be clear and comprehensive.

1. Name of Bidder_____

2. Phone Number _____

3. Permanent main office address _____

_____

4. When organized or began business _____

5. If a corporation, where incorporated _____

6. How many years have you been engaged in the contracting business under your present firm name? _____

7. Have you ever failed to complete any work awarded to you? _____

8. Please list the Trades expected to be represented on the jobsite under this proposed contract.

_____

_____

_____

_____

_____

9. The undersigned hereby affirms that he/she understands the requirements set forth under Resolution 179 of 2012 wherein the City of Kingston adopts the requirement that contractors and subcontractors on construction contracts exceeding $100,000 have approved apprenticeship agreements pursuant to NYS Labor Law Section 816-b, and shall comply fully.

Dated at _____ this _____ day of _____, 20___.

_____
Name of CONTRACTOR

_____
BY / TITLE

AGREEMENT

THIS AGREEMENT made this _____ day of _____, 2014 by and between the City of Kingston, hereinafter called "OWNER" and _____ doing business as a corporation hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR shall commence and complete the Contract CK-EDSP-2014-003, East Strand Street Improvements – Phase I.

2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor, and other services necessary for the reconstruction and completion of the PROJECT described herein.

3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 10 calendar days after the date of the NOTICE TO PROCEED and will complete the same by November 20, 2014 unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.

4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of $_____.

5. The term "CONTRACT DOCUMENTS" means and includes the following:

INVITATION TO BIDS
INSTRUCTIONS FOR BIDDERS
BID SUBMISSION PACKAGE
GENERAL CONDITIONS
SPECIFICATION SECTIONS
AGREEMENT
NOTICE OF AWARD
NOTICE TO PROCEED
CHANGE ORDER
CERTIFICATE OF SUBSTANTIAL COMPLETION
VERIFIED STATEMENT OF PAYMENT OF PREVAILING WAGES
CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS & CLAIMS
CONTRACTORS RELEASE OF LIENS AND WARRANTY
DRAWINGS prepared by City of Kingston, 1 PAGE

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.

7. The Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their

duly authorized officials, this Agreement in three copies, each of which shall be deemed an original on the date first above written.

OWNER:

Name: City of Kingston

Signature: _____

By: Shayne R. Gallo

Title: Mayor

(SEAL)

ATTEST:

Signature: _____

Name: _____ (Please Print)

Title: _____ (Please Print)

CONTRACTOR:

Name: _____

Signature: _____

By: _____

Title: _____

(SEAL)

ATTEST:

Signature: _____

Name: _____ (Please Print)

Title: _____ (Please Print)

NOTICE OF AWARD

TO: _____

_____

_____

PROJECT Description: Contract CK-EDSP-2014-003, East Strand Street Improvements – Phase I

The OWNER has considered the PROPOSAL submitted by you for the above described WORK in response to its Advertisement for Bids and Invitation to Bidders dated _____.

You are hereby notified that your BID has been accepted for the LUMP SUM in the amount of $_____.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance BOND, Payment BOND and Certificates of Insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID RIGHTS. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER; dated this _____.

City of Kingston
Owner

Gregg Swanzey
By

Director – Economic Development & Strategic Partnerships
Title

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged
By _____ this the _____ day of _____, 2014,

_____
By

_____
Title

NOTICE TO PROCEED

TO: _____

_____

_____

FED I.D. #: _____

DATE: _____

Project : CK-EDSP-2014-003, East Strand Street Improvements – Phase I

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 2014, on or before_____, 2014, and you are to complete the WORK _____ ___, 2014.

_____
City of Kingston
Owner

_____
By

_____
Title

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____ this day of _____, 2014.

_____
By

_____
Title

CHANGE ORDER

CHANGE ORDER NO. _____ DATE: _____

CONTRACT NO. CK-EDSP-2014-003 SHEET 1 OF 1

PROJECT: East Strand Street Improvements – Phase I

OWNER: City of Kingston

OWNER'S ADDRESS: City Hall
420 Broadway
Kingston, N.Y. 12401

OWNER'S PHONE NUMBER: (845) 334-3967

CONTRACTOR: _____

CONTRACTOR'S ADDRESS: _____

_____

CONTRACTOR'S PHONE NUMBER: _____

DESCRIPTION OF CONTRACT MODIFICATIONS:

REASON FOR CONTRACT MODIFICATIONS OR NEED FOR EXTRA WORK:

TIME EXTENSION REQUIRED FOR THIS CHANGE ORDER:

ITEMIZATION OF CONTRACTOR'S PROPOSAL FOR THIS WORK:

AUTHORIZATIONS:

OWNER:	CONTRACTOR:
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

CERTIFICATE OF SUBSTANTIAL COMPLETION

CONTRACT NO. CK-EDSP-2014-003

PROJECT: East Strand Street Improvements – Phase I

OWNER: City of Kingston

OWNER'S ADDRESS: City Hall
420 Broadway
Kingston, N.Y. 12401

OWNER'S PHONE NUMBER: (845) 334-3967

CONTRACTOR: _____

CONTRACTOR'S ADDRESS: _____

_____

CONTRACTOR'S PHONE NUMBER: _____

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that work is hereby declared to be substantially complete in accordance with the Contract Documents on

_____

Date of Substantial Completion

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of the CONTRACTOR to complete all the Work in accordance with the Contract Documents. When this Certificate applies to a specified part of the Work the items in the tentative list shall be completed or corrected by the CONTRACTOR within **10** days of the above date of Substantial Completion.

The date of Substantial Completion is the date upon which all guarantees and warranties begin, except as follows:

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities and insurance shall be as follows:

RESPONSIBILITIES:

OWNER: None

CONTRACTOR: None

The following documents are attached to and made a part of this Certificate:

Executed by ENGINEER on _____, 2014

Gregg Swanzey, Director – Economic Development & Strategic Partnerships

By .....

The CONTRACTOR accepts this Certificate of Substantial Completion on _____, 2014

.....
CONTRACTOR

By .....

VERIFIED STATEMENT OF PAYMENT OF PREVAILING WAGES

PRC_____ ULSTER COUNTY
Date_____ to
BID or QUOTE #_____

Project: East Strand Street Improvements – Phase I, CK-EDSP-2014-003

1. _____
(Name of person making statement),

_____
(Owner or if Corporation, the title of such officer)
of _____
(Full name of Corporation)
files this Verified Statement pursuant to Section 220-a of the Labor Law.

2. This Verified Statement involves _____
(Contract number and description of public work project).

3. Except as stated herein, there are not amounts due and owing to or on behalf of workers employed on the project by the Contractor. (Set forth any unpaid wages and supplements, and if necessary, attach additional sheets. If none, so state).

4. The Contractor hereby files every verified statement required to be obtained by the Contractor from the subcontractor and the same are attached hereto.

5. Upon information and belief, except as stated herein, all workers of subcontractor (exclusive of executive or supervisory employees) employed on the project have been paid the prevailing wages and supplements for their services through _____, the last day worked on the project by their subcontractor: (Set forth any unpaid wages and supplements, and if necessary, attach additional sheets. If none, so state and utilize clause 5A).

_____ _____
(NAME) (AMOUNT)

5A. The Contractor has no knowledge of amounts owing to or on behalf of any workers.

6. In the event it is determined by the Commissioner of Labor that the wages or supplements or both of any such subcontractors have not been paid or provided pursuant to the appropriate schedule of wages and supplements, then the Contractor acknowledges that it shall be responsible for payment of which wages and supplements pursuant to the provision of Section 223 of the Labor Law.

CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

AIA Document G706

To: (Owner) City of Kingston Project No. CK-EDSP-2014-003

Contract For: GENERAL CONSTRUCTION

Project: East Strand Street Improvements – Phase I

Contract Date: _____

State of: New York

County of: Ulster

The undersigned, pursuant to Article 9 of the General Conditions of the Contract for Construction, AIA Document A201, hereby certifies that, except as listed below, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or his property might in any way be held responsible.

EXCEPTIONS: (If none, write "None." If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception).

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose. Indicate attachment: (yes) (no).

2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

3. Contractor's Affidavit of Release of Lines (AIA Document G706A).

CONTRACTOR:

Address:

By:

Subscribed and sworn to before me this
day of 20

Notary Public:

My Commission Expires:

CONTRACTOR'S RELEASE OF LIENS AND WARRANTY

CONTRACT NO. CK-EDSP-2014-003

PROJECT: East Strand Street Improvements – Phase I

OWNER: City of Kingston

OWNER'S ADDRESS: City Hall
420 Broadway
Kingston, N.Y. 12401

OWNER'S PHONE NUMBER: (845) 334-3967

CONTRACTOR: _____

CONTRACTOR'S ADDRESS: _____

_____

CONTRACTOR'S PHONE NUMBER: _____

KNOW ALL MEN BY THESE PRESENTS:

The undersigned certifies that all work required under this contract has been performed in accordance with the terms thereof, and that there are no unpaid claims for materials, supplies or equipment and no claims of laborers or mechanics for unpaid wages arising out of the performance of this contract.

That in consideration of the final payment the undersigned does hereby release the Owner from any and all claims arising under or by virtue of this contract; provided, however, that if for any reason the Owner does not pay in full the amount of the contract, said deduction shall not affect the validity of this release.

The undersigned hereby guarantees the work performed for a period of one year from the date of final acceptance of all the work required by the Contractor, shown on the Certificate of Substantial Completion, as _____ for **CK-EDSP-2014-003.**

He /she also attaches herewith all manufactures and supplies written guarantees and warranties covering materials and equipment furnished under this contract.

Title: _____

Print Name: _____

Signature: _____

Date: _____

GENERAL CONDITIONS

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports and Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services and Facilities
7. Inspection and Testing
8. Substitutions
9. Patents
10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
12. Supervision by Contractor
13. Changes in the Work
14. Changes in Contract Price
15. Time for Completion and Liquidated Damages
16. Correction of Work
17. Subsurface Conditions
18. Suspension of Work Termination and Delays
19. Payments to the Contractor
20. Acceptance of Final Payment as Release
21. Insurance
22. Contract Security
23. Assignments
24. Indemnification
25. Separate Contracts
26. Subcontracting
27. Engineer's Authority
28. Land and Rights-of-Way
29. Guaranty
30. Claims and Disputes
31. Wages
32. Tax Exempt Status

1. DEFINITIONS

1.1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.2 ADDENDA - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications or corrections.

1.3 BID - The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.

1.4 BIDDER - Any person, firm or corporation submitting a BID for the WORK.

1.5 BONDS - Bid, Performance and Payment Bonds and other instruments of security furnished by the CONTRACTOR and his surety in accordance with the CONTRACT DOCUMENTS.

1.6 CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing adjustment in the CONTRACT PRICE or CONTRACT TIME.

1.7 CONTRACT DOCUMENTS - The contract, including Advertisement for Bids, Information for Bidders, BID, Bid Bond, Agreement, Payment Bond, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.

1.8 CONTRACT PRICE - The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

1.9 CONTRACT TIME - The number of calendar days in the CONTRACT DOCUMENTS for the completion of the WORK from the Notice to Proceed.

1.10 CONTRACTOR - The person, firm or corporation with whom the OWNER has executed the Agreement.

1.11 DRAWINGS - The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared by the ENGINEER.

1.12 ENGINEER - The person, firm or corporation named as such in the CONTRACT DOCUMENTS.

1.13 FIELD ORDER - A written order effecting a change in the WORK, not involving an adjustment in the CONTRACT PRICE, or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

1.14 NOTICE OF AWARD - The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

1.15 NOTICE TO PROCEED - Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.

1.16 OWNER - A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the WORK is to be performed.

1.17 PROJECT - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18 RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.

1.19 SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER, or distributor, which illustrate how specific portion of the WORK shall be fabricated or installed.

1.20 SPECIFICATIONS - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 SUBCONTRACTOR - An individual, firm, or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.

1.22 SUBSTANTIAL COMPLETION - That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purpose for which it is intended.

1.23 SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions required by special conditions of the Owner or other agencies that have special requirements.

1.24 SUPPLIER - Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.

1.25 WORK - All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.26 WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the WORK.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2 The additional drawings and instruction thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

3. SCHEDULES, REPORTS AND RECORDS

3.1 The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable for the WORK to be performed.

3.2 Prior to the first partial payment estimate, the CONTRACTOR shall submit construction progress schedules showing the order in which he proposes to carry on the WORK, including dates at which he will start the various parts of the WORK, estimated date of completion of each part and, as applicable:

3.2.1 The dates at which special detail drawings will be required; and

3.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The CONTRACTOR shall also submit a schedule of payments that he anticipates he will earn during the course of the WORK.

4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all, labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

4.2 In case of conflict between the DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.

4.3 Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5. SHOP DRAWINGS

5.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWINGS shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWINGS which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.

5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWINGS or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and such approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

6. MATERIALS, SERVICES AND FACILITIES

6.1 It is understood that except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature whatsoever necessary to execute, complete and deliver the WORK within the specified time.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies and equipment shall be in accordance with samples, submitted by the CONTRACTOR and approved by the ENGINEER.

6.5 Materials, supplies and equipment incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

7. INSPECTION AND TESTING

7.1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.

7.3 The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.

7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.

7.5 Inspections, tests or approvals by the ENGINEER or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6 The ENGINEER and his representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection, or testing thereof.

7.7 If any WORK is covered contrary to the written instructions of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for his observation and replaced at the CONTRACTOR'S expense.

7.8 If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

8. SUBSTITUTIONS AND EQUIVALENCY

8.1 Whenever a material, article or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalogue number, it shall be understood that this is reference for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if in the opinion of the ENGINEER, such material, article or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

9. PATENTS

9.1 The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the OWNER harmless from loss and account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however, if the CONTRACTOR has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the ENGINEER.

10. SURVEYS, PERMITS, REGULATIONS

10.1 The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope, stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

10.2 The CONTRACTOR shall carefully preserve bench marks, reference points, and stakes and in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK, shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the

OWNER unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR observes that the CONTRACT DOCUMENTS are at variance herewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13. CHANGES IN THE WORK.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

11.1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. He will take all necessary precautions for the safety of and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site and other property at the site or adjacent thereto, including trees, scrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.

11.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body, having jurisdiction. He will erect and maintain as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part to the fault or negligence of the CONTRACTOR.

11.3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury, or loss. He will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR

12.1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representatives at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervisor and coordination of the WORK.

13. CHANGES IN THE WORK

13.1 The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for the performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER, also may at any time by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME, or both, in which event he shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

14. CHANGES IN THE CONTRACT PRICE

14.1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:

(a) Unit prices previously approved.
(b) An agreed lump sum.
(c) The actual cost for labor, direct overhead, materials, supplies, equipment and other services necessary to complete the work. In addition, there shall be added an amount to be agreed upon but not to exceed the following percentages:

(1) Contractor’s Overhead Percentage, 10%.
(2) Contractor’s Profit Percentage, 10%.
(3) If work is done by a subcontractor:
--Subcontractor’s Overhead Percentage, 5%
--Subcontractor’s Profit Percentage, 10%
--Contractor’s Combined Overhead and Profit Percentage, 10%
(4) Equipment or material furnished directly to Owner, 10%

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2 The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and

between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages if specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

15.4.1 To any preference, priority or allocation.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and abnormal and unforeseeable weather; and

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. CORRECTIONS OF WORK

16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK, of other CONTRACTORS destroyed or damaged by such removal or replacement.

16.2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

17. SUBSURFACE CONDITIONS

17.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS; or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

17.2 The OWNER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given the required WRITTEN NOTICE; provided that the OWNER may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payments.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

18.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

18.1.1 Should the OWNER be prevented or enjoined from proceeding with work either before or after the start of construction by reason of any litigation or other reason beyond the control of the OWNER, the CONTRACTOR shall not be entitled to make or assert claim for damage by reason of said delay; but time for completion of the work will be extended to such reasonable time as the OWNER may determine will compensate for time lost by such delay with such determination to be set forth in writing.

18.2 If the CONTRACTOR is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to recognize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials, or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if he disregards the authority of the ENGINEER, or if he otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method he may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO

THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

18.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

18.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the CONTRACT. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may, upon ten (10) days written notice to the OWNER and the ENGINEER, stop all WORK until he has been paid all amounts then due in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS or if not time is specified, within a reasonably time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19. PAYMENTS TO CONTRACTOR

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the

WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect his interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR, indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within forty five (45) days of presentation to him of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain five (5) percent of the amount of each payment until final completion and acceptance of all work covered by the CONTRACT DOCUMENTS. The New York State Laws of 1978, Chapter 769, Section 106b, allow retainage only up to five (5%) percent.

When the WORK is substantially complete (operational or beneficial occupancy), the retained amount may be further reduced below five (5) percent to only that amount necessary to assure completion. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS, payment may be made in full, including retained percentages, less authorized deductions.

19.2 The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

19.3 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portion of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

19.4 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK, except such as may be caused by agents or employees of the OWNER.

19.5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by him under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.

19.6 The CONTRACTOR will indemnify and save the OWNER or the OWNERS agents harmless from all claims growing out of the lawful demands of SUBCONTRACTORS, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment,

tools and all supplies incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed, in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

19.7 If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 The acceptance of the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his Sureties from any obligations under the CONTRACT DOCUMENTS or the PERFORMANCE BOND and PAYMENT BONDS.

21. INSURANCE

21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them or by anyone whose acts of them may be liable.

21.1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts;

21.1.2 Claims for damages because of bodily injury, occupational sickness, or disease or death of his employees;

21.1.3 Claims for damages because of bodily injury, sickness, or disease or death of any person other than his employees.

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other persons and

21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2 Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverage afforded under the policies will not be cancelled unless at least fifteen (15) days prior to WRITTEN NOTICE has been given to the OWNER.

21.3 The CONTRACTOR shall procure and maintain, at his expense, during the CONTRACT TIME, liability insurance as hereinafter specified:

City of Kingston Standard Contract Insurance Requirements for all Capital Projects

WORKERS' COMPENSATION AND DISABILITY INSURANCE:*

The VENDOR shall take out and maintain during the life of this Agreement, Workers' Compensation (WC) Insurance and Disability Benefits (DB) Insurance, for all of its employees employed at the site of the project, and shall provide to the CITY'S Insurance Department Certificates of Insurance evidencing this coverage. **If the VENDOR is not required to carry such insurance, the VENDOR must submit form CE-200 attesting to the fact that it is not required to do so.**

WORKERS' COMPENSATION REQUIREMENTS: To assist the State of New York and municipal entities in enforcing WCL Section 57, a business entity (the VENDOR) seeking to enter into contracts with municipalities (the CITY) MUST provide ONE of the following forms to the municipal entity (the CITY) it is entering into a contract with:

- **IF THE VENDOR IS REQUIRED TO CARRY COVERAGE AND HAS AN OUTSIDE CARRIER,** submit Form C-105.2, "Certificate of Workers' Compensation Insurance." The VENDOR'S insurance carrier will send this form to the CITY at the VENDOR'S request. **PLEASE NOTE**: The State Insurance Fund provides its own version of this Form (the U-26.3).

- **IF THE VENDOR IS REQUIRED TO CARRY COVERAGE AND IS SELF INSURED,** submit Form SI-12, "Certificate of Workers' Compensation Self-Insurance." The VENDOR'S Group Self-Insurance Administrator will send this form to the CITY at the VENDOR'S request.

- **IF THE VENDOR IS NOT REQUIRED TO CARRY COVERAGE,** submit Form CE-200, "Certificate of Attestation of Exemption from New York State Workers' Compensation and/or Disability Benefits Insurance Coverage." This form and the instructions for completing it are available from the link below.

DISABILITY BENEFITS REQUIREMENTS: To assist the State of New York and municipal entities (the CITY) in enforcing WCL Section 220(8), business entities (the VENDOR) seeking to enter into contract with municipalities (the CITY) MUST provide ONE of the following forms to the municipal entity (the CITY) it is entering into a contract with:

- **IF THE VENDOR IS REQUIRED TO CARRY COVERAGE AND HAS AN OUTSIDE CARRIER,** submit Form DB-120.1, "Certificate of Disability Benefits Insurance." The VENDOR'S insurance carrier will send this form to the CITY at the VENDOR'S request.

- **IF THE VENDOR IS REQUIRED TO CARRY COVERAGE AND IS SELF INSURED,** submit Form DB-155, "Certificate of Disability Self-insurance." The VENDOR must call the Workers Comp. Board's Self-Insurance Office at (518)402-0247**.**

- **IF THE VENDOR IS NOT REQUIRED TO CARRY COVERAGE,** submit Form CE-200, "Certificate of Attestation of Exemption From New York State Workers' Compensation and/or Disability Benefits Insurance Coverage." This form and the instructions for completing it are available from the link below.

Form CE-200 and the instructions for completing the application and obtaining the form are available on the New York State Workers' Compensation Board's website, **www.wcb.state.ny.us**, under the heading "Common Forms." Business entities without access to a computer may obtain a paper application for the CE-200 by writing or visiting the Customer Service Center at any District Office of the Workers' Compensation Board. However, business entities using the manual process may wait up to four (4) weeks before receiving a CE-200. **Employees of the Workers' Compensation Board cannot assist business entities in answering questions about this form. Please contact an attorney if you have any questions regarding Form CE-200. However, if you have questions regarding workers' compensation coverage requirements, please call the Bureau of Compliance at (866) 546-9322**.

***NOTE: ACORD forms are NOT acceptable proof of New York State Workers' Compensation or Disability Benefits Insurance Coverage. The manner of proof related to Workers' Compensation and Disability Insurance is controlled by New York State Laws, Rules and Regulations.**

COMMERCIAL GENERAL LIABILITY INSURANCE:

The VENDOR shall take out and maintain during the life of this Agreement, such bodily injury liability and property damage liability insurance as shall protect it and the CITY from claims for damages for bodily injury including accidental death, as well as from claims for property damage that may arise from operations under this Agreement, whether such operations be by the VENDOR, by any subcontractor, or by anyone directly or indirectly employed by either of them. It shall be the responsibility of the VENDOR to maintain such insurance in amounts sufficient to

fully protect itself and the CITY, but in no instance shall amounts be less than those set forth below. The amounts set forth below establish the minimum acceptable levels of coverage.

Bodily Injury Liability Insurance in an amount not less than **TWO MILLION AND 00/100 ($2,000,000.00) DOLLARS** for each occurrence and in an amount not less than **TWO MILLION AND 00/100 ($2,000,000.00) DOLLARS** general aggregate.

Property Damage Liability Insurance in an amount not less than **TWO MILLION AND 00/100 ($2,000,000.00) DOLLARS** for each occurrence and in an amount of not less than **TWO MILLION AND 00/100 ($2,000,000.00) DOLLARS** general aggregate.

OTHER CONDITIONS OF COMMERCIAL GENERAL LIABILITY INSURANCE:

1. Coverage shall be written on Commercial General Liability form.
2. Coverage shall include:
    A. Contractual Liability
    B. Independent Contractors
    C. Products and Completed Operations
3. The City of Kingston, located at P.O. Box 1627 in Kingston, New York, 12402, shall be added to the Commercial General Liability policy as an "Additional Insured" and this insurance shall be primary and non-contributory with any other valid and collectable insurance.

AUTOMOBILE LIABILITY INSURANCE:

Automobile Bodily Injury Liability and Property Damage Liability Insurance shall be provided by the VENDOR with a minimum Combined Single Limit (CSL) of **TWO MILLION AND 00/100 ($2,000,000.00) DOLLARS.**

OTHER CONDITIONS OF AUTOMOBILE LIABILITY INSURANCE:

1. Coverage shall include:
    A. All owned vehicles
    B. Hired car and non-ownership liability coverage
    C. Statutory No-Fault coverage

PROFESSIONAL LIABILITY INSURANCE (e.g. MALPRACTICE INSURANCE)

[ ] If this box is checked, Professional Liability Insurance shall be provided by the VENDOR as follows:

Professional Liability Insurance in an amount not less than **TWO MILLION AND 00/100 ($2,000,000.00) DOLLARS.**

ADDITIONAL CONDITIONS OF INSURANCE:

1. The VENDOR shall submit copies of any or all required insurance policies as and when requested by the CITY.

CERTIFICATE OF INSURANCE:

The VENDOR shall file with the CITY CLERK'S OFFICE, prior to commencing work under this Agreement, a Certificate of Insurance.

1. The Certificate of Insurance shall include:
   A. Name and address of Insured
   B. Issue date of certificate
   C. Insurance company name
   D. Type of coverage in effect
   E. Policy number
   F. Inception and expiration dates of policies included on the certificate
   G. Limits of liability for all policies included on the certificate
   H. "Certificate Holder" shall be the City of Kingston, P.O. Box 1627, Kingston, New York 12402.

2. If the VENDOR'S insurance policies should be non-renewed or canceled, or should expire during the life of this Agreement, the CITY shall be provided with a new certificate indicating the replacement policy information as requested above. The CITY requires thirty (30) days prior written notice of cancellation [fifteen (15) days for non-payment of premium] from the Insurer, its agents or representatives.

21.4 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the Contractor or CONTRACTOR'S Surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

21.5 The CONTRACTOR shall secure, if applicable, "All Risk" type Builders Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such

insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightening, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER and the OWNER.

22. CONTRACT SECURITY

22.1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a PERFORMANCE BOND and a PAYMENT BOND in penal sums equal to the amount of the CONTRACT PRICE conditioned upon the performance of the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a Surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due not shall be made until the new Surety or Sureties shall have furnished an acceptable BOND to the OWNER.

23. ASSIGNMENTS

23.1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign, or otherwise dispose of the Contract or any portion thereof or of his right, title or interest therein or his obligations thereunder, without written consent of the other party.

24. INDEMNIFICATION

24.1 The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses, including attorney's fees arising out of or resulting from the performance of the WORK provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death or to injury or to destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly

or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under the Workmen's Compensation acts, disability benefit acts or other employee benefit acts.

24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps. DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

25. SEPARATE CONTRACTS

25.1 The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate his WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER, any defects in such WORK that render it unsuitable for such proper execution and results.

25.2 The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK and shall properly connect and coordinate his WORK with theirs.

25.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, he may make a claim therefor as provided in Sections 14 and 15.

26. SUBCONTRACTING

26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which under normal contracting practices, are performed by specialty SUBCONTRACTORS.

26.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(S) in excess of fifty (50%) percent of the CONTRACT PRICE without prior written approval of the OWNER.

26.3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of person directly employed by him.

26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provisions of the CONTRACT DOCUMENTS.

26.5 Nothing contained in the CONTRACT shall create any contractual relation between the SUBCONTRACTOR and the OWNER.

27. ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed. He shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship and execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material supply.

27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

28. LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS unless otherwise mutually agreed.

28.2 The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

29. GUARANTY

29.1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of SUBSTANTIAL COMPLETION. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such

corrections as be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that such CONTRACTOR should fail to make such repairs, adjustments or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The PERFORMANCE BOND shall remain in full force and effect through the guarantee period.

30. CLAIMS AND DISPUTES

30.1 All claims, disputes and other matters in question arising out of, or relating to the CONTRACT DOCUMENTS or the breach thereof, shall be decided in the courts of the State of New York. Arbitration shall not be a means of resolution unless all parties agree to arbitration as an acceptable alternative.

31. WAGES

31.1 In accordance with requirements of Section 220 of New York State Labor Law, Industrial Commissioner of Department of Labor has ascertained prevailing rates of wages which shall apply to this Project.

31.2 Where rates are not enumerated in following rate schedule in such cases, current wage rates shall apply.

31.3 Prevailing New York State Minimum Wage Requirement, which are minimum hourly rates, will follow as follows:

32. TAX EXEMPT STATUS (Sales Tax)

32.1 The City of Kingston, hereinafter referred to as the Owner, is exempt from payment of sales and compensating use taxes of the State of New York and of cities and counties on all supplies and materials sold to the Owner pursuant to this Contract. This exemption does not, however, apply to tools, machinery, equipment or other property leased by or to the Contractor and his sub-contractors shall be responsible for any and all applicable taxes, on such leased tools, machinery, equipment, other property or such incorporated supplies and materials and the provisions set forth below will not be applicable to such tools, machinery, equipment, property, supplies and materials.

32.2. The purchase by the Contractor of the supplies and materials sold hereunder will be a purchase or procurement for resale and therefore not subject to the New York State Sale or Compensating Use Taxes for any such taxes of cities and counties. The sale of such supplies and materials by the Contractor to the Owner, which is a government agency, will not be subject to aforesaid sales or compensating use taxes. With respect to such supplies and materials sold hereunder, the Contractor, at the request of the Owner, shall furnish to the Owner such bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, assuring to it title to such supplies and materials free of encumbrances and the

Contractor shall mark or otherwise identify all such supplies and materials as the property of the Owner.

32.3 The purchase by sub-contractor of supplies and materials to be sold hereunder will also be a purchase or procurement for resale to the Contractor (either directly or through other sub-contractors) and therefore not subject to the aforesaid sales or compensating use taxes, provided that the sub-contractor agreements provide for the resale of such supplies and materials prior to and separate and apart from the incorporation of such supplies and materials into the permanent construction and that such subcontract agreements are in a form similar to this Contract with respect to the separation of the sale of supplies and materials from the work and labor to be provided.

32.4 If as a result of such sales of supplies and materials (1) any claim is made against the Contractor by the State of New York or any City or County for sales and compensating use taxes on the aforementioned supplies and materials, or (2) any claim is made against the Contractor by a materialman or subcontractor by the State of New York or any City of County for Sales or Compensating Use Taxes on the aforesaid supplies and materials, then if the Contractor and subcontractors have complied with the provisions of the Contract relating thereto, the Owner will reimburse the Contractor for an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that:

32.4.1 The subcontract agreements in connection with this Contract provide for the resale of such supplies and materials prior to and separate and apart from the incorporation of such supplies and materials into the permanent construction; such subcontract agreements are in a form similar to this Contract with respect to the separation of the sales of supplies and materials from the other work and labor to be provided; and such separation is actually followed in practice, including the separation of payments for supplies and materials from the payment for other work and labor.

32.4.2 The Contractor and his subcontractors and materialmen obtain any and all necessary resale exemption certification from the appropriate governmental agency or agencies and furnish a resale certificate to all persons, firms or corporations from which they purchase supplies and materials for the performance of the work covered by this Contract.

32.4.3 The Contractor and all subcontractors maintain and keep for a period of six (6) years after the date of final payment for the sale, or if a claim for sales or compensating use tax is pending or threatened, at the end of such six (6) year period, until such claim is finally settled, records which in the judgment of the Department of Taxation and Finance adequately show (1) all materials and supplies purchased by them for resale pursuant to the provisions of this Contract and (2) all materials and supplies sold to the Owner pursuant to the provisions of this Contract.

32.4.4 The Owner is afforded the opportunity, before any payment is made, to contest said claim in the manner and to the extent that the Owner may choose and to settle or satisfy said claim and such attorney as the Owner may designate is authorized to act for the purpose of contesting, settling and satisfying said claim and;

32.4.5 The Contractor and the sub-contractor give immediate notice to the Owner of any such claim, cooperate with the Owner and it's designated attorney in contesting said claim and furnish promptly to the Owner and said attorney all information and documents to be preserved for six (6) years after the date of final payment for the sale or, of such a claim pending or threatened at end of such six (6) years, until such claim is finally settled. If the Owner elects to contest any such claim, it will bear the expense of such contest.

32.4.6 Nothing in this Section is intended or shall be construed as relieving the Contractor from his obligations under the General Conditions or any other provisions of the Contract, and the Contractor shall have the full continuing responsibility to install the materials and supplies purchased in accordance with the provisions of this Contract, to protect the same, to maintain them in proper condition and to forthwith repair, replace and make good any damage thereto without cost to the Owner until such time as the work covered by the Contract is fully accepted by the Owner.

4766-02-3-3-jn1714-specs-General Conditions

INTRODUCTION TO THE TECHNICAL SPECIFICATIONS
CONTRACT CK-EDSP-2014-003

The following Technical Specifications shall apply to the various items of work which constitute the construction contemplated under this Contract.

Within the Technical Specifications of this Contract, the following definitions shall apply:

1. Standard Specifications: shall mean the State of New York, Department of Transportation, "Standard Specifications" dated January 9, 2014. Only those portions of the Standard Specifications that are referred to in the "MATERIALS" and/or "CONSTRUCTION METHODS" section of this Contract's Technical Specifications, not supplemented and/or amended therein, shall apply. Within the referred to portions of the Standard Specifications, wherein the following terms are used, they shall mean, respectively:

   State, Department, Commissioner, Engineer, Local Agency: Town of Kingston, or their designated representative

   Inspector: Representative of the City of Kingston, the Local Public Agency, or other duly authorized representative.

   Laboratory: Laboratory designated by the City of Kingston or Local Public Agency.

2. Applicable Safety Code: shall mean the latest edition including any and all amendments, revisions, and additions thereto of the Federal Department of Labor, Occupational Safety and Health Administration's "Occupational Safety and Health Standards" and "Safety and Health Regulations for Construction," the State of New York, Labor Department, "Construction Safety Code," or State of New York "Building Code," whichever is the more stringent for the applicable requirement.

3. Items: Reference within the text of these Specifications to Items without a number but title only are Technical Specification Items within this Contract. Sections or Articles referred to with a number refer to the State of New York Department of Transportation, Standard Specifications.

4. Local Regulatory Agency(ies): Local Regulatory Agency(ies) shall be defined as the governing body or authority having jurisdiction over or responsibility for a particular activity within the scope of this Contract. They may be as specifically defined within the Special Conditions, otherwise, the Contractor shall be responsible to determine same in the local area of the Contract.

5. These Specifications: where used in the text of the Technical Specifications Items shall mean the Technical Specifications of this Contract.

SECTION 01120 – CONTRACT SUMMARY
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

A. MAINTENANCE AND PROTECTION OF CONSTRUCTION SITE

The Contractor is placed on notice that maintenance and protection of the site during construction is considered as important as the construction itself. The Contractor shall, therefore, at all times conduct his operations in a manner to insure the safety of the public and his own employees.

The Contractor shall provide notification to the Superintendent of Public Works of the work and of his intent to limit access to the work area and shall maintain these limitations in effect for the minimum length of time necessary to complete the repairs.

The work involves construction of new sidewalks, curbing, landscaping, lighting, and site amenities.

B. COORDINATION WITH UTILITIES

All known public and private utilities within or adjacent to the site of the work, shall be protected from damage. The Contractor is directed to familiarize himself with the locations of all utilities prior to starting the work. The Contractor shall conduct his operations as to prevent damage to such facilities. He shall make such explorations as may be necessary to determine the dimensions and locations of lines that may be subject to damage. Notification to the owner of the Cornell building shall be given in accordance with New York State Industrial Code 53.

The Contractor shall satisfy himself as to the exact location of utility lines and shall protect and support in a suitable manner at his own expense all underground utilities encountered in his excavating and trenching operations. The Contractor shall make good any damage to those utilities caused by his operations. If the nature of the damage is such as to endanger the satisfactory operations of the utilities and the Contractor does not immediately make the necessary repairs, the work may be done by the respective owning companies and the cost thereof charged against the Contractor.

C. APPRENTICESHIP PROGRAM REQUIREMENTS

On October 3, 2012 the City of Kingston adopted the requirement that all contractors and subcontractors on construction contracts over $100,000 have approved apprenticeship agreements pursuant to NYS Labor Law Section 816-b.

SECTION 01120 – CONTRACT SUMMARY
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Location of work

B. Sequence of work

C. Contractor's use of the site

D. Notices to Owners and Authorities of Property adjacent to the work

E. Related construction contracts and work

F. Scope of Work under Contract CK-EDSP-2014-003

G. Other construction contracts

H. Inspection before bidding

I. Datum plane

J. Maintenance of Operations during Construction

K. Payment

1.2 LOCATION OF WORK

A. The work to be performed under Contract CK-EDSP-2014-003 is located in the City of Kingston on East Strand Street, in Ulster County, New York.

B. The City of Kingston is located approximately 90 miles north of New York City, N.Y. bounded by the Esopus Creek, the Rondout Creek and the Hudson River.

C. Identified gutter and sidewalk improvements within the City of Kingston are located along the south side of East Strand Street.

1.3 SEQUENCE OF WORK

A. CONTRACTOR shall perform the Work with minimal disruption to the pedestrian public and street function.

1.4 CONTRACTOR'S USE OF SITE

A. CONTRACTOR'S work shall be confined to the areas designated on the plans. Use due care in placing construction tools, equipment, materials and supplies in order to avoid damage to property.

B. CONTRACTOR shall:

1. Assume full responsibility for protection and safekeeping of products stored on or off the Site.

2. Move stored products that interfere with the Owner's use of their property or operations of the OWNER.

1.5 NOTICES TO OWNERS AND AUTHORITIES OF PROPERTIES ADJACENT TO THE WORK

A. Notify owners of adjacent property and utilities when prosecution of the Work may affect them.

B. When it is necessary to temporarily obstruct access to property, or when any utility service connection must be interrupted, give notices sufficiently in advance to enable the affected persons to provide for their needs. Conform notices to any applicable local ordinance and, whether delivered orally or in writing, include appropriate information concerning the interruption and instructions on how to limit inconvenience caused thereby.

C. CONTRACTOR shall notify utilities and other concerned agencies prior to the project pre-construction meeting, in the manner as may be required, for the purposes of identifying the location and quantity of buried utilities. CONTRACTOR shall report on the status of utility stake out at the pre-construction meeting.

D. CONTRACTOR shall notify ENGINEER immediately after utility and interceptor stake out if the location of buried utilities appears to interfere with the proposed work.

1.6 RELATED CONSTRUCTION CONTRACTS AND WORK

A. The Contractor is advised that the work for this project is described and incorporated in the following contract:

Contract No.	**Contract Title**
CK-EDSP-2014-003	**2014 East Strand Street Improvements – Phase I**

B. All work shall be done in accordance with the Contract Documents for Contract CK-EDSP-2014-003.

1.7 CONTRACT CK-EDSP-2014-003: SCOPE OF WORK

A. The work under Contract CK-EDSP-2014-003 includes Mobilization, Asphalt Pavement Removal, Excavation, New Concrete Sidewalk, New Concrete Curbing, Ornamental Street Lighting, Clay Brick and Bluestone Sidewalks, Landscaping, Site Amenities, Clean-Up and Demobilization. The following is a general description only, and shall not be construed as a complete description of the work to be performed.

B. The principle items of work are:

1. Mobilization: Provide all insurance and bonding documents, traffic control, general conditions and preparation of the site to receive the other elements of the project.

2. Removals: Remove existing pavement to the lines and grades established by the construction drawings.

3. Concrete Sidewalk: Furnish, supply and install all steel reinforcing, concrete formwork, readi-mix concrete, imprinting and scoring patterns, and truncated dome warning panel embedments to construct new accessible sidewalk elements as detailed in the construction documents.

4. Concrete Curb: Furnish, supply and install all steel reinforcing, concrete formwork, readi-mix concrete to construct new concrete curb as detailed in the construction documents.

5. Ornamental Street Lighting: Furnish, supply, and install three ornamental street lights including all concrete foundation, conduits, wiring, service connections, and testing.

6. Landscaping: Furnish, supply, and install all topsoil and turf establishment, landscape plantings, and mulching as detailed in the construction documents.

7. Site Amenities: Furnish, supply, and install all site amenities as detailed in the construction documents.

8. Clay Brick Sidewalks: Furnish, supply and install all unit pavers, concrete formwork, readi-mix concrete and base materials to construct new clay brick paver sidewalks as detailed in the construction documents.

9. Bluestone Sidewalks: If selected as a bid add alternate; furnish, supply and install all unit pavers, concrete formwork, readi-mix concrete and base materials to construct bluestone paver sidewalks as detailed in the construction documents.

10. Clean-Up and Demobilization: Remove all equipment, clean up, restoration of surfaces and project close-out.

1.8 OTHER CONSTRUCTION CONTRACTS

A. Contracts in Progress: None

1.9 INSPECTION BEFORE BIDDING

A. Before bidding, the Contractors shall visit the Site of the Work. The Contractors shall obtain all necessary information, and make their own determinations of any and all conditions, which may affect in any way the performance of their work and their bid prices under their Contracts. The Contractor shall verify all pertinent data and dimensions with regard to existing construction.

1.10 MAINTENANCE OF OPERATIONS DURING CONSTRUCTION

A. Sidewalks in the vicinity of the proposed work shall remain in continuous use by pedestrians during the entire construction period of this Contract. Work under this Contract shall be so scheduled and conducted by the Contractor that such work will not excessively impede the use of sidewalks to pedestrians of the City of Kingston, or cause other nuisances. In performing the work shown and specified in these Contract Documents, the Contractor shall plan and schedule his work to comply with certain restrictions as outlined herein and/or as directed by the Engineer and avoid conflicts with other unrelated work in the area.

1.11 PAYMENT

A. Payments to the CONTRACTOR shall be made as described under Article 19 of the General Conditions.

END OF SECTION – 01120

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SECTION 01140 – WORK RESTRICTIONS
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Working hours

1.2 RELATED DOCUMENTS

A. Agreement.

B. General Conditions.

C. Specification Section 01321 - Progress Schedule

1.3 WORKING HOURS

A. The Contractor shall execute the work Monday through Friday inclusive, working one (1) shift per day between the hours of 8:00 a.m. to 6:00 p.m. (normal working hours), unless otherwise approved by the Engineer. Work on Saturdays, Sundays and holidays will not be permitted without prior written approval from the Engineer.

B. It is understood that the Contractors have reviewed the schedules and have included in their bid sufficient monies to meet the schedules and will make no claim for extra compensation solely because of additional costs to meet the scheduled dates.

END OF SECTION – 01140

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SECTION 01270 – UNIT PRICES
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Payment for work within these Contract Documents will only be made under the Bid Items listed on the Bid Form. The cost for other items of work included in the Contract Documents and/or on the Contract Drawings and not listed below in Part 3 shall be included in the cost of the various Items bid.

B. Unit prices include all necessary materials, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. All work for this project shall be performed under the various Bid Items listed on the Bid Form. It is the intent of this provision that the value of all the Bid Items when added together shall equal the Total Bid Price.

E. All Unit Prices shall include the cost for all utility coordination, permits, materials, equipment, tools, labor and work incidental hereto.

F. The Owner reserves the right to increase or decrease the bid item quantities, and/or omit any work that he deems necessary to complete the work with two weeks written notice.

G. Should the Contractor have any question(s) regarding the scope of the work to be included within each Bid Item, said question(s) shall be directed to the Engineer or the Owner in writing no later than two weeks prior to bid opening date in order to allow for a proper response.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 LIST OF UNIT PRICES – BASE BID ITEMS

A. Unit Price No. 1 – Site Preparation – Lump Sum (L.S.)

This item includes but is not limited to mobilization; construction staking; test pits; construction signs; temporary construction fencing; furnishing, installing and maintaining all sediment and erosion control measures; saw cutting and removal of bituminous and concrete pavements; all in accordance with the contract documents.

There will be no measurement for this work. This work will be paid for at the contract lump sum price bid.

B. Unit Price No. 2 – Bituminous Pavements – Square Yards (S.Y.)

This item includes but is not limited to construction of bituminous concrete pavement repairs and driveways as shown on the construction documents, including excavation, the placement of subbase, base, and bituminous materials in accordance with the contract documents.

C. Unit Price No. 3 – Concrete Pavements – Square Yards (S.Y.)

This item includes but is not limited construction of concrete sidewalks, colored and imprinted concrete sidewalks, and cast-in place concrete curbs as shown on the construction documents, including excavation, the placement of subbase, base, and concrete materials in accordance with the contract documents.

D. Unit Price No. 4 – Concrete Curbing– Linear Foot (L.F.)

This item includes but is not limited construction of cast-in place concrete curbs as shown on the construction documents, including excavation, the placement of subbase, base, and concrete materials in accordance with the contract documents.

E. Unit Price No. 5 – Clay Brick Paving – Square Foot (S.F.)

This item includes but is not limited to construction of clay brick paving sidewalks, as shown on the construction documents, including excavation, the placement of subbase, base, and clay brick materials in accordance with the contract documents.

F. Unit Price No. 6 – Ornamental Lighting – Lump Sum (L.S.)

This item includes but is not limited to the installation of ornamental light poles, light fixtures conduits, and handholes as shown on the construction documents, including excavation and trenching in accordance with the contract documents.

There will be no measurement for this work. This work will be paid for at the contract lump sum price bid.

G. Unit Price No. 7 – Site Improvements – Lump Sum (L.S.)

This item includes but is not limited to the installation of ornamental bollards, site benches, bike racks, litter receptacles, and sloped stone paving as shown on the construction documents, including all hardware, in accordance with the contract documents.

There will be no measurement for this work. This work will be paid for at the contract lump sum price bid.

H. Unit Price No. 8 – Topsoil, Seeding, Mulching, Planting – Lump Sum (L.S.)

This item consists of furnishing and placement of topsoil to finish grade elevations; tree, shrub, and perennial plantings, including mulching, post-planting care, and excavation as shown on the construction documents, in accordance with the contract documents.

There will be no measurement for this work. This work will be paid for at the contract lump sum price bid.

I. Unit Price No. 9 – Storm Drainage – Lump Sum (L.S.)

This item includes but is not limited to the installation of roof leaders, storm leaching chambers, and storm drain pipes, as shown on the construction documents, including excavation and trenching in accordance with the contract documents.

There will be no measurement for this work. This work will be paid for at the contract lump sum price bid.

J. Unit Price No. 10 – Traffic Person (Municipal Officer) – Estimate (EST.)

This item includes, but is not limited to, providing municipal officer(s) or flagger(s) to conduct traffic control along East Strand Street and adjacent streets if necessary.
This work will be paid for by the actual cost for "Traffic Person" plus an additional 5% as reimbursement to the Contractor's administrative expense in connection with the services provided.

Payment not to exceed 80%, will be made to the Contractor based on an approved invoice for services provided. Remaining payment and the 5% administrative expense will be paid once the receipted bill or cancelled check is submitted to the Engineer.

K. Unit Price No. 11 – Maintenance and Protection of Traffic – Lump Sum (L.S.)

This item includes, but is not limited to, maintenance and protection of traffic on East Strand Street and adjacent streets if necessary.

There will be no measurement for this work. This work will be paid for at the contract lump sum price bid.

3.2 LIST OF UNIT PRICES - ADD ALTERNATE NO. 1

A. Unit Price No. 1A – Bluestone Sidewalk – Square yards (S.F.)
This item includes but is not limited to construction of bluestone paver sidewalks, as shown on the construction documents, including excavation, the placement of subbase, base, and bluestone materials in accordance with the contract documents.

Bluestone sidewalk items may be selected in lieu of the integrally colored and imprinted concrete sidewalks included under the Base Bid Item "Concrete Pavements", removing that item and associated cost from the contract price.

3.3 LIST OF UNIT PRICES - ADD ALTERNATE NO. 2

A. Unit Price No. 2A – Wayfinding Signage – Lump Sum (L.S.)

This item includes but is not limited to furnishing and placing graphic sign panel, steel supports, mounting hardware and construction of bluestone pedestal base, as shown on the construction documents, and in accordance with the contract documents.

There will be no measurement for this work. This work will be paid for at the contract lump sum price bid.

3.4 LIST OF UNIT PRICES - ADD ALTERNATE NO. 3

A. Unit Price No. 3A – Site Preparation – Lump Sum (L.S.)

This item includes but is not limited to mobilization; construction staking; construction signs; temporary construction fencing; clearing and grubbing; and earth excavation, all in accordance with the contract documents and associated with Add Alternate No. 3 tree plantings.

There will be no measurement for this work. This work will be paid for at the contract lump sum price bid.

B. Unit Price No. 4A – Tree (Topsoil, Seeding, Mulching, & Planting) – Each (EA.)

This item consists of furnishing and placement of each specified tree species including, topsoil to finish grade elevations; seeding disturbed areas to lawn; fertilization of seeded areas; mulching; post-planting care and excavation as shown on the construction documents, in accordance with the contract documents and associated with Add Alternate No. 3 tree plantings.

This work will be measured per each tree species installed and accepted. This work will be paid for at the unit price bid for each specified tree species.

END OF SECTION – 01270

SECTION 01271 – LIQUIDATED DAMAGES
CONTRACT CK-EDSP-2014-003

PART ONE – GENERAL

1.1 SECTION INCLUDES

A. Stipulated Indemnity for Contractor's Non-Compliance with Milestones

B. Milestones

C. Assessment of Liquidated Damages

D. Daily Amounts of Liquidated Damages

1.2 STIPULATED INDEMNITY FOR CONTRACTOR'S NON-COMPLIANCE WITH MILESTONES

A. For the timely completion of the work under Contract CK-EDSP-2014-003, the Contractor's Time for Completion for the Functional Completion Milestone M1 is the number of consecutive calendar days (CCD) specified below. To ensure timely completion, the City is providing for Liquidated Damages for the Milestone.

B. Liquidated Damages will be assessed against the Contractor in the event that the Milestone is not completed by the Time for Completion specified for that Milestone. Anything herein to the contrary notwithstanding (unless specifically agreed to in writing by the City) no granting of an extension of time for performance hereunder pursuant to the Standard Construction Contract shall release or relieve the Contractor from any liability for Liquidated Damages on account of failing to timely meet the Milestone Date.

C. Timely completion of the Milestone and the completion of all Work within the Period of Performance set forth herein, is material. In view of the difficulty of adequately ascertaining the losses or damages which the City would suffer by reason of Contractor's delay, or failure to so perform the Work hereunder, it is further agreed that liquidated damages shall be due and payable to the City by the Contractor as set forth in this section and in General Conditions. Such liquidated damages shall not be deemed a penalty.

D. The liquidated damages for the Contractor's delay or failure may be assessed by the City even in the event of ensuing termination by the City of, or abandonment by, a Contractor; and in any such event said liquidated damages may continue to accrue until (but not beyond) such time as the work is completed by successor or a replacement contractor including any which may be engaged through a surety or otherwise. Liquidated damages received by the City hereunder are not intended to be, nor shall they be treated as, either a partial or full waiver or discharge of the City's rights to indemnification or of the Contractor's obligation to indemnify the City, or to any other remedy provided for by the Contract or by law.

E. The Comptroller will deduct and retain out of the moneys which may become due to Contractor hereunder, the amount of such liquidated damages; and in case the amount which may become due hereunder shall be less than the amount of liquidated damages assessed by the City, the Contractor shall be liable to pay the difference upon demand by the Comptroller.

1.3 MILESTONES

A. The Milestone for which Liquidated Damages may be assessed is as follows:

1. Milestone M1: Functional Completion of the City of Kingston 2014 East Strand Street Improvements – Phase I shall be within 90 consecutive calendar days from the date of the Notice to Proceed. The Design Engineer defines functional Completion as the point when the Resident Engineer determines through inspection and testing, that the Sidewalks and Curbing are functioning as intended.

1.4 ASSESSMENT OF LIQUIDATED DAMAGES

A. In view of the foregoing and inasmuch as time is of the essence for Contract CK-EDSP-2014-003, the City is providing for, and the Contractor expressly agrees to liquidated damages as set forth below:

1. Liquidated Damages for failure to timely complete of **Milestone M1 [Functional Completion]** as defined above, and in the General Conditions.

2. The City Engineer may assess liquidated damages, if in the exercise of his/her sole and absolute discretion; he/she determines that Milestone M1 has not been achieved by the date specified in this section. The amount of liquidated damages will be determined as follows: the value stated below, multiplied by the number of calendar days that Milestone M1 is not achieved beyond the Time for Completion specified below. In the event liquidated damages are assessed, the City will deduct and retain out of the monies that may become due under Contract CK-EDSP-2014-003, the amount of such liquidated damages. If such amount due from the Contractor shall be less than the liquidated damages, the Contractor shall be liable to pay the difference upon demand by the City.

3. The City Engineer shall assess liquidated damages, and his/her decision with respect thereto shall be accepted as final, binding, and conclusive.

4. For the purpose of calculating the number of calendar days for liquidated damages under Milestone M1, such calculation shall include the day on which the Contractor has successfully completed the Milestone.

5. There shall be no limit to the total amount of liquidated damages assessed for Milestone M1, except that damages shall not accrue beyond the date that the remainder of the project work is completed by a successor or replacement contractor, including any which may be engaged through a surety or otherwise.

1.5 DAILY AMOUNTS OF LIQUIDATED DAMAGES

A. Liquidated damage values for each of the Milestones M1 shall be:

Milestone	**Time for Functional Completion (CCD)**	**Liquidated Damages (Dollars per calendar day)**
M1 for CK-EDSP-2014-003	**90**	**$100.00**

END OF SECTION – 01271

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SECTION 01310 – PROJECT COORDINATION
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Contractor cooperation

1.2 RELATED specifications

A. Specification Section 01120 - Contract Summary

B. Specification Section 01331 - Submittal Procedures for Working Drawings and Correspondence

C. Specification Section 01781 - Project Closeout

1.3 CONTRACTOR COOPERATION

A. The Contractor shall cooperate fully with the City, the Engineer, and any other contractors employed on the work, to effect proper coordination and progress to complete the project on schedule and in proper sequence. Insofar as possible, decisions of all kinds required from the Engineer shall be anticipated by the Contractor to provide ample time for inspection, or the preparation of instructions

END OF SECTION – 01310

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SECTION 01331 – SUBMITTAL PROCEDURES FOR WORKING DRAWINGS AND CORRESPONDENCE CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Definition of Working Drawings

B. General requirements for submittals

C. Letter of transmittal

D. Working Drawings submittal

E. Contractor responsibilities

F. Approval of Working Drawings not a waiver

1.2 RELATED DOCUMENTS

A. General Conditions

1.3 DEFINITION OF WORKING DRAWINGS

A. Working Drawings shall mean drawings, prints, sepias, descriptive literature, test reports, calculations, schedules, materials lists and information such as special drawings, schedules, calculations and curves.

1.4 GENERAL REQUIREMENTS FOR SUBMITTALS

A. The submittal of Working Drawings and inquiries pertaining to engineering features or specification and Contract Drawing interpretations shall conform to procedures described in the General Conditions and as detailed or modified in this Section.

B. Working Drawings shall be provided when specifically required in the Specifications. Performance curves and detailed information on materials shall be provided when requested by the Engineer.

C. Submittal shall be made to the City Engineer.

1.5 LETTER OF TRANSMITTAL

A. A letter of transmittal shall accompany each submittal(s)

B. All letters of transmittal shall be sent to the City Engineer.

D. If submittals show variation from the requirements of the Contract, the Contractor shall make specific mention of such variation in his letter of transmittal.

1.6 WORKING DRAWINGS SUBMITTAL

SECTION 01331 – SUBMITTAL PROCEDURES FOR WORKING DRAWINGS AND CORRESPONDENCE CONTRACT CK-EDSP-2014-003

A. All Working Drawings and other data submitted for approval shall have an identifying title.

B. All Working Drawings and other data submitted shall bear the stamp of approval and signature of the Contractor as evidence that they have been reviewed and approved by the Contractor and that they conform to the requirements of the Contract Documents. Submittals without this stamp of approval will not be reviewed by the Engineer and will be returned to the Contractor. The stamp shall contain the following minimum information completed in ink:

Contractor's Name: _____

Date: _____

Drawing Reference: _____

Contract Number: _____

Item: _____

Specifications Reference: _____

Submittal Number: _____

Approved By: _____

C. A number, containing the prefix CK-EDSP-2014-003, shall be assigned to each submittal by the Contractor starting with No. 1 and thence numbered consecutively. Resubmittals shall be identified by the same number followed by the suffix "A" for the first resubmittal, the suffix "B" for the second resubmittal, etc.

D. In addition to the requirements of the General Conditions, working drawings shall include appropriate references to applicable Contract Drawing numbers and Specification Sections and Article numbers.

E. The Contractor shall initially submit to the Engineer submittals that are on 8-1/2-inch by 11-inch sheets or folded so as no larger than 8-1/2-inch by 11-inch.

F. In submitting Working Drawings for approval, all associated drawings relating to a complete assembly of various parts necessary for a unit shall be included. Working Drawings shall not be submitted until the assembly of drawings is complete, so that they may be checked in relation to the assembly proposed.

G. All items of electrical equipment constituting an operating system and any mechanical units involved therein or necessary for the functioning of such system shall be submitted at the same

time and shall include clear diagrams showing circuit functioning and necessary details for field construction.

H. Partial, incomplete, or illegible submissions will be returned to the Contractor without review, for resubmission.

I. After the Engineer completes his review, the Working Drawings will be marked with one of the following notations:

- Approved
- Approved – Subject to Corrections Marked
- Examined and Returned for Corrections
- Rejected

1. If a submittal is acceptable, it will be marked "Approved" or "Approved – Subject to Corrections Marked." If a submittal is unacceptable, it will be marked "Examined and Returned for Corrections" or "Rejected."

2. Upon return of a submittal marked "Approved" or "Approved – Subject to Corrections Marked," the Contractor may order, ship or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated. In addition, for submittals returned "Approved – Subject to Corrections Marked," the Contractor shall make the corrections indicated thereon and resubmit for the record.

3. Upon return of a submittal marked "Examined and Returned for Corrections," the Contractor shall make the corrections indicated, clearly noting any revisions and repeat the initial approval procedure. The "Rejected" notation is used to indicate material or equipment that is not acceptable. Upon return of a submittal so marked, the Contractor shall repeat the initial approval procedure utilizing acceptable material or equipment.

4. Working Drawings or other submittals not bearing the Engineer's "Approved" or "Approved – Subject to the Corrections Marked" notation shall not be issued to subcontractors nor utilized for construction purposes. No work shall be performed or equipment installed without an "Approved" or "Approved – Subject to the Corrections Marked" drawing or submittal.

J. In the event the Contractor obtains the Engineer's approval for the use of equipment other than that which is shown or specified, the Contractor shall, at his own expense and using methods approved by the Engineer, make all changes to the Work, including structures, piping, and electrical equipment and controls that may be necessary to accommodate this equipment.

K. Working Drawings shall be submitted well in advance of the need for the material or equipment for construction and with ample allowance for time required to make delivery of material or equipment after data covering such is approved. The Contractor shall assume the risk for all materials or equipment that are fabricated or delivered prior to the approval of Working

Drawings. No materials or equipment will be permitted to be incorporated into the Work nor will such be included in monthly payment estimates until approval thereof has been obtained in the specified manner.

L. The Engineer will review and process all submittals promptly, but a reasonable time should be allowed for this, for the drawings being revised and resubmitted, and for time required to return the approved drawings to the Contractor.

1.7 CONTRACTOR RESPONSIBILITIES

A. It is the responsibility of the Contractor to review submittals made by his suppliers and subcontractors before transmitting them to the Engineer to assure proper coordination of the Work and to determine that each submittal is in accordance with his desires and that there is sufficient information about materials and equipment for the Engineer to determine compliance with the drawings and specifications. Incomplete or inadequate submittals will be returned for revision without review.

B. Approval of Working Drawings shall not relieve the Contractor from the responsibility of furnishing materials and equipment of proper dimension, size, quality, quantity, and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Approval shall not relieve the Contractor from responsibility for errors of any sort on the Working Drawings. Approval is intended only to determine conformance with the information given in the Contract Documents. The Contractor is also responsible for information that pertains solely to the fabrication processes or to the technique of construction and for the coordination of the Work of all trades and contracts.

1.8 APPROVAL OF WORKING DRAWINGS NOT A WAIVER

A. The approval of Working Drawings submitted by the Contractor shall not constitute a waiver of any of the requirements of this Contract. Nor shall the City be compelled to accept any structure or apparatus unless it passes all the tests and requirements of the Contract Documents.

B. All deviations made during construction from final working drawings previously annotated by the Engineer "Approved" shall be corrected on the working drawings, and resubmitted to the Engineer showing conditions as constructed.

END OF SECTON – 01331

SECTION 01351 – HAZARDOUS LOCATIONS AND HAZARDOUS AREA MONITORING
CONTRACT CK-EDSP-2014-003

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Hazardous Locations

B. Working in Hazardous Locations

C. Hazardous Area Monitoring

D. Contractor's Gas Detection Service

E. Notices and Reports

1.2 RELATED SPECIFICATIONS

A. Specification Section 01410 – Regulatory Requirements.

1.3 INTENT AND LIMITATION OF SPECIFICATION

A. Intent of Specification: This specification section defines certain requirements the Contractor shall administer and conduct during the performance of the Work for the purposes of safeguarding the health and welfare of personnel working within the areas described below.

B. Limitation of Specification: The City and Engineer do not purport that this specification includes all of the requirements necessary for the purposes described in Article 1.03.A of this specification. The Contractor shall supplement the requirements of this specification as may be required for conformance to Contractor's safety practices and the rules and regulation of governing authorities having jurisdiction over the Work.

1.4 SAFETY COORDINATION MEETING

A. Prior to beginning any Work on site, the Contractor shall arrange for and conduct a safety meeting with the site Safety Coordinator and safety team members. The meeting shall be conducted to establish minimum requirements for administering and conducting construction operations on site.

1.5 HAZARDOUS LOCATIONS

A. The Contractor's attention is directed to the fact that all work shall be conducted within the highway right-of-way, in close proximity to vehicular traffic, presenting potential vehicular conflicts and other physical hazards.

B. The following areas are designated as hazardous:

1. Locations within the City of Kingston street right-of-ways, or any space exposed to vehicular traffic.

All construction work shall comply with all Regulatory Requirements for the maintenance of a healthy and safe workplace.

1.6 PAYMENT

A. The work specified under this Section shall be paid under the General Conditions on a lump sum basis and in accordance with the Standard Construction Contract.

1.7 GENERAL REQUIREMENTS

A. Burning, use of open flames, smoking, or the carrying of matches or lighters shall be prohibited within hazardous areas.

B. When working within the hazardous areas, the Contractor shall take suitable precautions to ensure safe working conditions.

C. The Contractor shall take all necessary protective measures to ensure the safe completion of the work.

1.8 REFERENCES

A. All work performed in connection with accessibility improvements shall meet the applicable requirements of the following:

1. NYSDOT Design Specifications.

2. MUTCD requirements.

3. ADA Guidelines.

4. The Occupational Safety and Health Act of 1970, OSHA.

5. Industrial Code Rule 23, 57 and 801 (or approved variances), NYSDOL.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 WORKING IN HAZARDOUS LOCATIONS

A. When working in or near hazardous locations, the Contractor shall ensure the use of all applicable personal protective equipment such as: steel toed shoes, safety vest, hard hat, safety glasses and hearing protection.

B. The Contractor shall also instruct and caution his employees and employees of his subcontractors that traffic control devices employed shall comply with NYSDOT and MUTCD requirements.

END OF SECTION 01351

SECTION 01410 – REGULATORY REQUIREMENTS
CONTRACT CK-EDSP-2014-003

PART ONE – GENERAL

1.1 SECTION INCLUDES

A. Specification Sections

B. Inspection by City, State and Federal Government

C. Work permits

D. Bureau of Electrical Control

E. Existing utilities

F. Existing flows

G. Disposal of water

H. Conformance to Industrial Code

I. Examination, Maintenance and Restoration of Roadways

J. Conformance to other codes and standards

1.2 SPECIFICATION SECTIONS

A. Unless otherwise specified in the Specification Sections, all work, materials, and equipment shall conform to the applicable sections of the appropriate Specification Sections.

B. All materials and each part or detail of the work shall be subject to inspection by the Engineer. The Engineer or his representative shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

C. Upon the Engineer's request, the Contractor, shall remove or uncover such portions of his finished work as may be directed, at any time before acceptance of the work. After said examination, the Contractor shall restore said portions of his work to the standards required by the Specifications.

D. The Contractor shall notify the Engineer at least 24 hours in advance of operations requiring field inspection and seven (7) consecutive calendar days in advance of operations requiring shop inspection.

E. The Contractor shall provide the Engineer or any of his agents with every reasonable facility for the purpose of inspection, including ladders, steps, scaffolds or platforms, even to the extent of stopping a portion of his work temporarily or of uncovering or taking down a portion of his finished work.

F. No claims shall be made by the Contractor for loss of time, for inconvenience, or for any expense for temporarily discontinuing his work under this Contract for the purpose of inspection.

G. The Contractor shall, when directed, remove all water that may accumulate in or about his work during construction, or prior to the final acceptance of the same, in order that proper inspection may be made.

H. It is not the function of the Engineer to supervise or direct the manner in which the work under this Contract is carried on or conducted. The Engineer is not responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, and the Engineer will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents.

1.3 INSPECTION BY THE CITY, STATE AND FEDERAL GOVERNMENT

A. The Contractor shall provide proper facilities for inspection and access to the work at all times, whenever it is in preparation and progress, for authorized representatives of the Engineer.

1.4 WORK PERMITS

A. The Contractor shall obtain and pay for all necessary permits, licenses, certificates of inspection, controlled inspection reports, city water connection permits and shall give all notices and pay all legal fees to Local agencies in connection with the work of his Contract.

B. All work performed under the Contract shall conform to the rules and regulations of all local, State and Federal Departments having jurisdiction.

C. Upon completion of the various stages of construction, the Contractor shall schedule inspections and obtain certificates of approval and/or acceptance from the various agencies and Departments having jurisdiction and shall deliver these certificates to the Engineer.

1.5 EXISTING UTILITIES

A. All subsurface utility and structure information shown on the Contract Drawings were obtained from various plans and maps and field investigations; however they are not guaranteed to be complete or accurate. It shall be the Contractor's responsibility to locate all such necessary utilities or structures prior to the start of construction.

B. During the progress of the work, the Contractor shall protect from damage any existing utilities or services within the work areas until, they have been re-routed, disconnected or capped off.

1.6 EXISTING FLOWS

A. The Contractor shall, as approved by the Engineer, provide for the continuous operation of all facilities without interruption.

1.7 DISPOSAL OF WATER

A. Water from construction activities shall be disposed of strictly in accordance with methods approved by the Engineer.

B. When required by the Engineer, such water shall be passed through a settling basin of acceptable size and shape and equipped with an overflow. Each settling basin shall be cleaned as required and as ordered by the Engineer.

C. If any sewer, drain, catch basin, inlet or gutter, that receives dirty water attributable to the Work, should become filled or partially filled with sediment or debris, the Contractor shall promptly and satisfactorily remove such deposits.

1.8 CONFORMANCE TO INDUSTRIAL CODE

A. The Contractor's attention is directed to requirements of the Industrial Code of the State of New York, Department of Labor, Board of Standard and Appeals, latest edition and amendments or supplements thereto. All mechanical equipment with respect to manufacture, fabrication, and safety devices for protection of personnel from electrical parts and mechanically moving parts such as belts, shafts, couplings, and other apparatus, appliances or equipment, all floors, stair surfaces, ladders, equipment, access stairs and platforms, all exit enclosures, vertical openings and stairs, shall comply with this code; and all provisions therein shall be deemed included in and required by these specifications and shall be detailed for approval and furnished without additional cost; the price thereof considered to be included in the applicable prices bid for the various Contract Items in the Contracts.

1.9 CONFORMANCE TO OTHER CODES AND STANDARDS

A. All devices, materials and installations shall conform with the current applicable requirements of the National Electrical Code (NFPA-70), ANSI, ASTM, IEEE, NEMA, OSHA, UL, the Contract Documents and the documents specified elsewhere in the specifications.

B. The City of Kingston codes shall be followed in case of conflict. Latest edition of all codes shall apply.

END OF SECTION – 01410

SECTION 01421 – REFERENCE STANDARDS
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Definition

B. Quality Assurance

C. Schedule of References

1.2 DEFINITION

A. Within these Contract Specifications, "provide" shall be defined as "furnish and install."

1.3 QUALITY ASSURANCE

A. Products or workmanship specified by the referenced standards shall comply with the requirements of those standards, except where more rigid requirements are specified or required by applicable codes.

B. Referenced standards shall be current as of the time of bidding the Contract Documents.

C. Contractor shall obtain copies of the referenced standards when required by the Contract Documents. These references, in other sections of the Specifications, are identified by document number and title.

1.4 SCHEDULE OF REFERENCES

A. The following list includes, but is not limited to, organizations and their acronyms whose publications may be referenced in the Specifications.

AMERICAN CONCRETE INSTITUTE (ACI)

P. O. Box 9094

Farmington Hills, Michigan 48333-9094

Phone: 810-848-3800

Fax: 810-848-3801

Internet: http://www.aci-int.inter.net

ALUMINUM ASSOCIATION (AA)

Publications Department

P. O. Box 753

Waldorf, Maryland 20601

Phone: 301-645-0756

Fax: 301-843-0159

AMERICAN CONCRETE PIPE ASSOCIATION (ACPA)

222 West Las Colinas Boulevard, Suite 691

Irving, Texas 75039-5423

Phone: 800-290-2272 or 214-506-7216

Fax: 214-506-7682

AMERICAN ASSOCIATION OF NURSERYMEN (AAN)

1250 I Street, NW, Suite 500

Washington, D.C. 20005

Phone: 888-227-4860 or 202-789-2900

Fax: 202-789-1893

AMERICAN GAS ASSOCIATION (AGA)

1515 Wilson Boulevard

Arlington, Virginia 22209

Phone: 703-841-8556

Fax: 703-841-8406

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIAL (AASHTO)

444 North Capital Street, NW, Suite 249

Washington, D.C. 20001

Phone: 888-227-4860 or 202-624-5800

Fax: 202-624-5806

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

One East Wacker Drive, Suite 3100

Chicago, Illinois 60601-2001

Phone: 312-670-2400 or 800-644-2400

Fax: 312-670-2400

Internet: www.aiscweb.com

AMERICAN IRON AND STEEL INSTITUTE (AISI)

Attention: Publication Orders

P. O. Box 4321

Chestertown, Maryland 21690

Phone: 800-277-3850

Fax: 410-810-0910

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

11 West 42nd Street

New York, New York 10036

Phone: 212-642-4900

Fax: 212-398-0023

Internet: www.ansi.org/

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

221 Law Drive, Box 2300

Fairfield, New Jersey 07007-2900

Phone: 800-843-2763

Fax: 201-882-1717

Internet: www.asme.org

AMERICAN PETROLEUM INSTITUTE (API)

1220 L Street, NW

Washington, D.C. 20005

Phone: 202-682-8375

Fax: 202-962-4776

Internet: www.api.org

AMERICAN SOCIETY OF SANITARY ENGINEERS (ASSE)

P. O. Box 40362

Bay Village, Ohio 44140

Phone: 216-835-3040

Fax: 216-835-3488

E-mail: asse@ix.netcom.com

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

100 Barr Harbor Drive

West Conshohocken, Pennsylvania 19428-2959

Phone: 610-832-9500

Fax: 610-832-9555

E-mail: cservice@astm.org

AMERICAN WATER WORKS ASSOCIATION (AWWA)

6666 West Quincy

Denver, Colorado 80235

Phone: 800-926-7337

Fax: 303-795-1989

Internet: www.awwa.org

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

1801 Alexander Bell Drive

Reston, Virginia 20190-4400

Phone: 800-548-2723

AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA)

3246 Fall Creek Highway, Suite 1900

Grandbury, Texas 76049-7979

Phone: 817-326-6300

ASPHALT INSTITUTE (AI)

Research Park Drive

P. O. Box 14052

Lexington, Kentucky 40512-4052

Phone: 606-288-4960

Fax: 606-288-4999

CHLORINE INSTITUTE (CI)

2001 L Street, NW

Washington, D.C. 20036

Phone: 202-775-2790

Fax: 202-223-7225

BRICK INSTITUTE OF AMERICA (BIA)

11490 Commerce Park Drive, Suite 308

Reston, Virginia 22091

Phone: 703-620-0010

Fax: 703-620-3928

CODE OF FEDERAL REGULATIONS (CFR)

Order from: Government Printing Office

Washington, D.C. 20402

Phone: 202-512-1800

Fax: 202-275-7703

Internet: http://www.pls.com:8001/his/cfr.htm1

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)

933 No. Plum Grove Road

Schaumburg, Illinois 60173-4758

Phone: 847-517-1200

Fax: 847-517-1206

Internet: www.crsi.org

CORPS OF ENGINEERS (COE)

Order from: U.S. Army Engineer Waterways Experiment Station

Attn: Technical Report Distribution Section, Services Branch, TIC

3909 Halls Ferry Road

Vicksburg, Mississippi 39180-6199

Phone: 601-634-2355

Fax: 601-634-2506

DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA)

245 Riverchase Parkway East, Suite 0

Birmingham, Alabama 35244-1856

Phone: 205-988-9870

Fax: 205-988-9822

Internet: www.diprn.org

ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA)

120 Wall Street, 17th Floor

New York, New York 10005-4001

Phone: 212-248-5000

Fax: 212-248-5017

Internet: www.iesna.org

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

445 Hoes Lane, P. O. Box 1331

Piscataway, New Jersey 08855-1331

Phone: 800-678-4333

Fax: 908-981-9667

Internet: http//stdbbs.ieee.org

E-mail: Stds-mailst@ieee.org

FEDERAL SPECIFICATIONS (FS)

Order from: General Services Administration, Federal Supply Service Bureau

470 L'Enfant Plaza, SW

Washington, D.C. 20407

Phone: 202-619-8925

Internet: http://pub.fss.gsa.gov/h1-pub.html

FEDERAL STANDARDS (FED-STD)

Order from: General Services Administration, Federal Supply Service Bureau

470 L'Enfant Plaza, SW

Washington, D.C. 20407

Phone: 202-619-8925

Internet: http://pub.fss.gsa.gov/h1-pub.html

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAM)

8 S. Michigan Avenue, Suite 100

Chicago, Illinois 60603

Phone: 312-782-4951

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

1300 N. 17th Street, Suite 1847

Rosslyn, Virginia 22209

Phone: 703-841-3200

Fax: 202-457-8473

Internet: http//www.nema.org/

NATIONAL READY-MIXED CONCRETE ASSOCIATION (NRMCA)

900 Spring Street

Silver Spring, Maryland 20910

Phone: 301-587-1400

Fax: 301-585-4219

NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)

P. O. Box 809261

Chicago, Illinois 60680-9261

Phone: 800-323-9545

Fax: 708-299-1183

UNDERWRITERS LABORATORIES (UL)

333 Pfingstem Road

Northbrook, Illinois 60062-2096

Phone: 800-704-4050

Fax: 847-509-6249

Internet: http://www.ul.com/

Order from: Global Engineering Documents

15 Inverness Way East

Englewood, Colorado 80112-5776

Phone: 800-569-7128

Fax: 303-397-7945

E-mail: global@ihs.com or http://global.ihs.com

END OF SECTION – 01421

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PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Experience and qualifications of supply and service companies

B. Imperfect work, equipment or materials

C. Welding and welding inspection

D. Inspection and testing of concrete

E. Field Measurements

1.2 RELATED DOCUMENTS

A. General Conditions

1.3 EXPERIENCE AND QUALIFICATIONS OF SUPPLY AND SERVICE COMPANIES

A. The General Conditions require the Contractor to submit certain data to the Engineer for approval. In addition to these requirements and within thirty days (unless otherwise stated in the progress schedule) after the date upon which the Contractor is notified to Commence Work, but prior to his entering into any supply or service subcontracts, he shall submit the following information:

1. Contract number, supplies or services to be provided and a general description of the proposed item(s), such as trade name, type, etc.

2. The name and address of the manufacturer or service company and the location of the plant at which supplies will be manufactured and tested as required, or at which the services will be performed.

3. Experimental and test data required to support the claimed performance of the supplies.

4. The approximate dates of the manufacturing period.

5. A description of the testing plant, including the hydraulic, electrical and other facilities, in sufficient detail to show that the plant is adequately equipped for making the tests, if such testing is required.

6. A list of installations (minimum of five (5)) in which materials proposed have been installed in comparable location and situation. A contact name, contact number, project name, etc. will be provided on the list.

7. Any additional information that the Engineer may deem necessary in order to determine the applicability of the material to be supplied and installed as called for by the Specifications.

1.4 IMPERFECT WORK, EQUIPMENT OR MATERIALS

A. Any defective or imperfect work, equipment, or materials furnished by the Contractor which is discovered before the final acceptance of the work, as established by the Certificate of Substantial Completion, or during the subsequent guarantee period, shall be removed immediately even though it may have been overlooked by the Engineer and estimated for payment. Any equipment or materials condemned or rejected by the Engineer shall be tagged as such and shall be immediately removed from the site. Satisfactory work or materials shall be substituted for that rejected.

B. The Engineer may order tests of imperfect or damaged work, equipment, or materials to determine the required functional capability for possible acceptance, if there is no other reason for rejection. The cost of such tests shall be borne by the Contractor, and the nature, tester, extent and supervision of the tests will be as determined by the Engineer. If the results of the tests indicate that the required functional capability of the work, equipment, or material was not impaired, consistent with the final general appearance of same, the work, equipment or materials may be deemed acceptable. If the results of such tests reveal that the required functional capability of the questionable work, equipment or materials has been impaired, then such work, equipment or materials shall be deemed imperfect and shall be replaced. The Contractor may elect to replace the imperfect work, equipment or material in lieu of performing the tests.

1.5 INSPECTION AND TESTING OF CONCRETE

A. All work shall be in accordance with the requirements of Division 3 of the Specification Sections - Concrete except as modified in the Specification Sections.

1.6 FIELD MEASUREMENTS

A. The Contractor shall take all necessary measurements in the field to determine the exact dimensions for all work and verify all pertinent data and dimensions shown on the Contract Drawings prior to fabrication of elements and erection.

END OF SECTION – 01451

SECTION 01520 – TEMPORARY CONSTRUCTION FACILITIES
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Land for Contractor's Use

1.2 LAND FOR CONTRACTOR'S USE

A. The Contractor is advised that only limited space is available within the City of Kingston Street ROW for a Contractor's trailer, stockpiling of demolition debris, and storage of material and equipment. The Contractor will be responsible for arranging additional staging areas for his work.

B. Engineer will approve limited staging for the siting of containers for demolition debris.

C. The available area is limited. Should the Contractor require additional space, he shall provide the space off-site and all such costs and arrangements shall be at his expense.

D. The City reserves the option to require a Contractor to vacate his assigned areas within thirty (30) days after notice by the City.

E. Following the completion of a Contract or as indicated on the Contract Documents or directed by the Engineer, the Contractor shall remove his plant, materials, equipment, etc., from the allocated site and restore the site to its original condition, satisfactory to the Engineer.

END OF SECTION – 01520

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SECTION 01550 – VEHICULAR ACCESS AND PARKING
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Maintenance of traffic

B. Site Access

C. Truck routes

D. Truck identification signs

E. Liquidated damages (vehicle protocols)

F. Construction staff parking area

1.2 MAINTENANCE OF TRAFFIC

A. During working hours, the Contractor shall be responsible for maintenance and control of traffic in and out of the site at all points of vehicular ingress and egress and shall provide flagmen to warn vehicles on state highways and local streets of vehicles approaching from the site. Flagmen shall be properly attired and equipped according to the regulations of the State of New York. A minimum of one lane of traffic shall be maintained on highways and streets at all times, unless approved otherwise by the Superintendent of Public Works. Refer to Sections 01000 and 01570 for additional information regarding maintenance and protection of traffic.

B. If equipment delivered under this Contract is transported as an "oversized load" the Contractor shall maintain traffic in accordance with the requirements of the various City agencies having jurisdiction.

C. During the progress of the work, the Contractor shall provide all temporary construction roads and walkways as required, and shall make ample provisions to prevent interference with the continued maintenance of vehicular traffic on roadways and shall indemnify and save harmless the City, and the Engineer from any expense whatsoever due to his operations over said roadways. Any roadways damaged by a Contractor or the Resident Engineer that such repairs are required and such restoration of the roadway shall be at the responsible Contractor's expense shall restore his subcontractors to their original condition upon notification. Temporary walkways shall be removed, at the Contractor's expense, prior to acceptance of the Contract.

PART TWO - PRODUCTS (NOT USED)

PART THREE - EXECUTION

3.1 SITE ACCESS

A. The Contractor shall provide and maintain the temporary access to the site of the work. Access to the site of the work performed under the contract shall be closely coordinated and

scheduled with the owner of the Cornell building and all other Contractors at the site during the life of this Contract.

3.2 CONTRACTOR EMPLOYEES PARKING AREA

A. It is a material provision of this Contract that all personal vehicles of the Contractors' and any subcontractors' employees shall be parked in designated Contractor Employees Parking Area(s) located off-site and at off-street locations. Such Contractor Employees Parking Area(s) shall be adequately sized, and shall be provided for and maintained by the Contractor at its sole expense. The Contractor agrees that the City shall have no obligation to assist in obtaining nor to make available publicly-owned property for such purposes. It is a contractual requirement that the Contractor implement and enforce this policy, and that the Contractor take any necessary or appropriate actions to ensure compliance with such parking policy by its and its subcontractors' employees. The Contractor agrees to make appropriate efforts to encourage the use of public transportation and the practice of car-pooling by all such employees.

B. The Contractor shall issue parking badges or stickers to such employees for their personal vehicles, in such form and with such associated documentation as the Resident Engineer may approve, require or modify.

C. The parking badges or stickers shall be displayed in a prominent location upon each employee's vehicle, as may be approved, required or modified by the Resident Engineer.

D. The Contractor Employees Parking Area(s) shall be of a size and situated in location(s) acceptable to the Resident Engineer, and unless otherwise authorized by the Resident Engineer, within 0.5 miles of the site.

E. Each Contractor shall be responsible for the safe and efficient movement of employees between the Contractor Employees Parking Area(s) and the Contractor's work area.

END OF SECTION – 01550

4766-02-3-3-jn1714-specs-Specifications

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Prohibited construction procedures

B. Stockpiling of materials

C. Dust, soil erosion and sedimentation control

D. Noise Control

E. Pollution Control

1.2 RELATED SPECIFICATIONS

A. Specification Section 02371 - Dust, Soil Erosion and Sedimentation Control

B. Specification Section 01331- Submittal Procedures for Working Drawings and Correspondence

C. Specification Section 01560 -Temporary Barriers and Enclosures

1.3 GENERAL REQUIREMENTS

A. The Contractor shall furnish all labor, materials, equipment and incidentals required to assure adequate environmental protection including implementation of all erosion and sediment control measures as directed by the Engineer and specified herein.

B. In the performance of the Contract, the Contractors shall comply with all applicable Federal, State and Local laws and regulations concerning environmental protection, restoration and erosion and sediment control.

C. The Contractor shall remove all physical evidence of temporary facilities at completion of construction work.

1.4 SUBMITTALS

A. Submit working drawings as specified in Specification Section 01331. The data submitted shall include the manufacturer's descriptive literature and installation instructions.

B. Submit Environmental Plan describing proposed methods, schedules and materials for implementing the environmental protection requirements.

1.5 PROHIBITED CONSTRUCTION PROCEDURES

A. The following construction procedures are prohibited:

1. Dumping or wasting of spoil material into any stream corridor, any surface waters or at unspecified locations adjacent to the work area or at locations not approved by the Engineer.

2. Indiscriminate, arbitrary or capricious operation of equipment in any stream corridor or surface waters.

3. Dumping of silt-laden water directly into any stream corridor or surface waters without provision for treatment as noted herein.

4. Damaging vegetation adjacent to or outside of access roads or limited rights-of-way for the work. All construction operations must be confined within the Contractor's work limits as shown and/or specified.

5. Disposal of trees, bush and other debris into any stream corridor, any wetlands or at unspecified locations.

6. Open burning of materials.

PART TWO - PRODUCTS (NOT USED)

PART THREE - EXECUTION

3.1 STOCKPILING OF MATERIAL

A. No unauthorized stockpiling of excavated materials will be allowed.

B. The Contractor shall cover all authorized temporary stockpiles of non-hazardous excavated soil with an impermeable, woven polyethylene fabric. The fabric shall be a composite structure of woven polyethylene fabric and 1.5 mils of polyethylene film laminated on both sides to form a monolithic sheet. The fabric shall be inert to biological degradation and naturally encountered chemicals, alkalies, and acids. Its permeability coefficient shall be less than 10^{-3} cm/sec. The terminal edges of the fabric panels shall be secured to prevent uplift by wind. The fabric shall be MCF-1212 as manufactured by Mirafi or equal. Stockpiles shall be covered during non-working hours and during periods of no construction activity.

3.2 DUST, SOIL EROSION AND SEDIMENTATION CONTROL

A. All Contractors shall comply with the requirements of Specification Section 02371 - Dust, Soil Erosion and Sedimentation Control.

3.3 NOISE CONTROL

A. All reasonable measures shall be utilized to attenuate sounds generated by cutting, grinding and pneumatic equipment.

B. Contractor's vehicles and equipment shall be operated and maintained so as to minimize noise to the greatest degree practicable. Noise levels shall conform to the latest regulatory

standards and in no case will noise levels be permitted which interfere with the work of the on-site personnel.

1. All construction equipment powered by an internal combustion engine shall be equipped with a properly maintained muffler.

2. Air-powered equipment shall be fitted with pneumatic exhaust silencers.

3.4 POLLUTION CONTROL

A. The Contractor shall provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.

B. The Contractor shall provide equipment and personnel to perform emergency measures required to contain any spillage, and to remove contaminated soils or liquids.

C. All equipment used during construction shall conform to all current Federal, State and Local laws and regulations.

3.5 NOTIFICATION OF NON-COMPLIANCE

A. The Engineer will notify the Contractor in writing of any non-compliance with the provisions of this Section and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose.

1. If the Contractor fails or refuses to comply promptly, an order stopping all or part of the work may be issued by the City until satisfactory corrective action has been taken.

2. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor, unless it is later determined that the Contractor was in compliance with the provisions of this Section.

B. Compliance with the provisions of this Section by Subcontractors shall be the responsibility of the Contractor.

END OF SECTION – 01555

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Barricades

B. Fencing

C. Pollution control

D. Protection of work, personnel and materials

E. Dust-proof partitions

F. Tree and plant protection

G. Site security

1.2 RELATED DOCUMENTS

A. General Conditions

B. Specification Section 01570 – Maintenance and Protection of Traffic

1.3 BARRICADES

A. Roads, Parking Areas and Sidewalks:

1. The Contractor shall provide, erect and maintain as necessary for his work, strong and suitable barricades, danger signs and warning lights along all roads, parking areas and sidewalks, accessible to the public, City personnel.

2. All barricades and obstructions shall be illuminated at night and all lights for this purpose shall be kept burning from sunset to sunrise.

3. Sufficient barricades shall be erected to keep vehicles from being driven on or into work under construction.

B. Excavations:

1. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property.

2. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required.

3. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the City and Engineer. If the excavation

becomes a hazard, or if it excessively restricts traffic at any point, the City and Engineer may require special construction procedures such as limiting the length of the open trench, prohibiting stacking excavated material in the street, and requiring that the trench shall not remain open overnight.

4. The Contractor shall take precautions to prevent injury to the public or City personnel due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public or City personnel shall be well lighted from sunset to sunrise.

C. The Contractor's responsibility for the maintenance of barricades, signs and lights shall continue until the City accepts the Project. Each Contractor shall provide and maintain such other warning signs and barricades in other areas and around their respective work as may be required for the safety of all those employed in the work, the public, or those visiting the site or plant.

1.4 POLLUTION CONTROL

A. The Contractor shall provide the methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.

B. Equipment and personnel shall be provided by the Contractor to perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids for off-site disposal.

B. The Contractors' equipment used during construction shall conform to all current federal, state and local laws and regulations.

1.5 PROTECTION OF WORK, PERSONNEL AND MATERIALS

A. During the progress of the work and up to the date of final payment, the Contractor shall be solely responsible for the care and protection of all work, personnel, and materials covered by the Contract.

B. In order to prevent damage, injury or loss, actions taken by the Contractor shall include, but not be limited to, the following:

1. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that will not interfere with the progress of the work or the work of any other Contractor or utility service company.

2. Provide suitable storage facilities for all materials which are subject to injury by exposure to weather, theft or breakage.

3. Place upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work.

4. Clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the work shall present a safe, orderly and workmanlike appearance.

C. The Contractor shall protect the Cornell building and its associated infrastructure from damage by his workmen and shall be responsible for repairing any such damage at no additional cost to the City.

END OF SECTION – 01560

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SECTION 01570 – MAINTENANCE AND PROTECTION OF TRAFFIC
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 Provide all labor, materials, tools and equipment, as and when required to perform the work specified herein or as shown on the plan, including but not limited to the following:

1.3 DESCRIPTION

A. The work to be done under this Item shall conform to the New York State Department of Transportation (NYSDOT) Standard Specifications for Work Zone Traffic Control and with any requirement specified by the local authority.

B. Contractor to install temporary traffic control signs on East Strand Street in both directions from the work site to warn motorists of the construction site.

C. The Contractor shall restore any damage done during construction, upon completion of the work.

D. The Contractor will be responsible for removing all temporary traffic controls at the completion of the project.

PART 2 – PRODUCTS

2.1 All construction signing shall conform to the standards in the Manual on Uniform Traffic Control Devices (MUTCD), the Standard Specifications and as detailed on the Contract Drawings.

2.2 Contractor shall provide flagmen and/or police officers depending on the city requirements.

PART 3 – EXECUTION

3.1 Maintain all lanes of traffic on all public and private streets throughout the area.

3.2 Provide flagmen and/or local police traffic person as required when construction equipment and trucks enter and exit the site.

3.3 Temporary signs and other temporary traffic protective devices shall remain in place throughout the full duration of the project.

3.4 Traffic signs shall be mounted on posts when feasible.

3.5 The Contractor shall notify the City of Kingston, and adjacent property owners at least 14 days in advance of proposed implementation of the Traffic Control Plan.

3.6 The Contractor shall implement the Maintenance and Protection of Traffic Plan before the start of construction.

PART 4 – MEASUREMENT AND PAYMENT

4.1 See Section 01270 – Unit Prices.

END OF SECTION – 01550

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SECTION 01631 – EQUIVALENT MATERIALS AND EQUIPMENT
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. General requirements for substitution

B. Changes resulting from substitution

C. Special performance guarantee

D. Engineer shall be the judge

1.2 RELATED DOCUMENTS

A. General Conditions

1.3 GENERAL REQUIREMENTS FOR SUBSTITUTION

A. Whenever materials or equipment are specified or described in the Contract Drawings by using the name of a particular manufacturer, fabricator, supplier or distributor, the naming of the item is intended to establish the type, function and quality required. An equivalent item may be submitted for approval where so indicated in the Specifications.

B. Where the Contractor proposes to supply a substitution for a particular manufacturer equipment or material named in the Specification, he shall conform to Article 5 - Materials and Equipment of the General Conditions and the requirements of this Section.

C. Requests for review of the substitute items of material and equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall make written application to the Engineer for acceptance thereof, certifying that the proposed substitute will satisfactorily perform the functions and achieve the results called for by the Contract Documents, be similar and of equal substance to that specified and be suited to the same use as that specified.

1. The application shall state the evaluation and acceptance of the proposed substitute will not prejudice the Contractor's timely achievement of Substantial Completion, whether or not acceptance of the substitute for use in the Work will require a change in the Contract Documents to adapt the design to the substitute and whether or not the substitute is subject to payment of any license fee or royalty.

2. All variations of the proposed substitute from that specified shall be identified in the application. Available maintenance, repair and replacement service shall be indicated. The application shall also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and impact on other contractors affected by the change, all of which shall be considered by the Engineer in evaluating the proposed substitute.

3. Engineer may require the Contractor to furnish at the Contractor's expense additional data concerning the proposed substitute. The Engineer will be allowed a reasonable time within

which to evaluate the proposed substitute. The Engineer will be the sole judge of acceptability and no substitute will be ordered or installed without the Engineer's prior written acceptance.

D. The Engineer will record time required by the Engineer to evaluate substitutions proposed by the Contractor and in making changes in the Contract Documents occasioned thereby. Whether or not the Engineer accepts a proposed substitute, the Contractor shall reimburse the City for the additional charges of the Engineer to evaluate any proposed substitute.

1.4 CHANGES RESULTING FROM SUBSTITUTION

A. The Contract Documents were prepared to accommodate the equipment furnished by the manufacturers named and all motor horsepower, connecting pipe sizes, equipment dimensions, etc., shown are based on the best information available at the time of design.

B. If the substitute equipment to be furnished is different in dimensions, pipe connection sizes or other material characteristic, from that provided for on the Contract Documents, and the difference in the equipment dimensions, pipe connection sizes, or other material characteristic is not the result of changes in design conditions or concept ordered by the Engineer, then the Contractor shall be responsible for the furnishing of all properly sized connecting piping, and electrical wiring and connections, and all other work required to properly install the equipment in complete operating condition.

C. The cost of all such revisions shall be considered to be included in the total price bid for the Contract. The Contractor shall pay all costs for changes required to related Contracts resulting from the substitution.

1.5 SPECIAL PERFORMANCE GUARANTEE

A. The Engineer may require the Contractor to furnish, at the Contractor's expense, a special performance guarantee or other surety with respect to any substitutions.

1.06 ENGINEER SHALL BE THE JUDGE

A. In all cases, the Engineer shall be the judge as to whether a proposed substitution is to be approved. The Contractor shall abide by the Engineer's decision when proposed substitute items are judged to be unacceptable and shall in such instances furnish the item specified or indicated. No substitute items shall be used in the work without written approval of the Engineer.

B. The Contractor shall have and make no claim for an extension of time or for damages by reason of the time taken by the Engineer in considering a substitution proposed by the Contractor or by reason of the failure of the Engineer to approve a substitution proposed by the Contractor.

C. Acceptance of any proposed substitution shall in no way release the Contractor from any of the provisions of the Contract Documents.

END OF SECTION – 01631

SECTION 01651 – TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Delivery and handling of products

B. Inspection of items

C. Supporting heavy loads

D. Replacement

1.2 RELATED SPECIFICATIONS

A. Specification Section 01661 - Protection of Materials and Equipment

1.3 GENERAL REQUIREMENTS

A. Contractor shall make all arrangements for transportation, delivery and handling of equipment and materials required for prosecution and completion of the work.

B. Working space within the work site is limited. Equipment shall not be delivered to the site until it can be moved directly to its concrete foundation pad and placed thereon, or to the area where it will be utilized.

C. If necessary to move stored materials and equipment during construction, the Contractor shall move materials and equipment without any additional compensation.

1.4 DELIVERY OF PRODUCTS

A. The Contractor shall arrange deliveries of products in accordance with construction schedules and in ample time to facilitate inspection prior to installation.

B. Coordinate deliveries to avoid conflict with work and conditions at the site and to accommodate the following:

1. Work of other Contractors

2. Limitations of storage space

3. Availability of equipment and personnel for handling products

C. Products shall not be delivered to project site until the Engineer has approved related Working Drawings, including the manufacturer's recommended storage instructions.

D. Products shall not be delivered to site until required storage facilities have been provided.

E. Products shall be delivered to site in manufacturer's original, unopened, labeled containers. Engineer shall be informed of delivery of all equipment to be incorporated in the work.

F. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.

G. Immediately on delivery, inspect shipments to assure:

1. Product complies with requirements of Contract Documents and approved submittals.

2. Quantities are correct

3. Containers and packages are intact and labels are legible.

4. Products are properly protected and undamaged.

5. Provide the Engineer with three (3) copies of all daily delivery invoices.

1.5 HANDLING OF PRODUCTS

A. The Contractor shall provide equipment and personnel necessary to handle products by methods to prevent soiling or damage to products or packaging.

B. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.

C. Transport and handle products in accordance with manufacturer's instructions.

D. Handle products by methods to prevent bending or overstressing.

E. Lift heavy components only at designated lifting points.

F. Materials and equipment shall at all times be handled in a safe manner and as recommended by manufacturer or supplier so that no damage will occur to them. Do not drop, roll or skid products off delivery vehicles. Hand-carry or use suitable materials handling equipment.

1.6 INSPECTION OF ITEMS

A. The Contractor shall inspect all items, including all boxes, crates and packages, containing equipment and materials for damage that may have occurred during shipment prior to its removal from the truck or other conveyance. Any damage shall be reported immediately to the Engineer.

B. The Contractor shall then carefully remove the equipment and materials from the truck or trucks on which it is shipped. The equipment and materials shall then be transported to the place of installation at the job site. The Contractor shall be liable for loss or damage to the equipment and materials that may occur while being unloaded, transported, stored or installed.

C. All equipment that arrives at the job site during normal working hours shall be unloaded as soon as practicable.

1.7 REPLACEMENT

A. In the event of damage to a product during transportation, handling or storage, the Contractor shall immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the City.

END OF SECTION – 01651

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SECTION 01661 – PROTECTION OF MATERIALS AND EQUIPMENT
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Storage of product

B. Protection of materials and equipment

C. Protection of installed equipment

1.2 RELATED SPECIFICATIONS

A. Specification Section 01651 - Transportation and Handling of Materials and Equipment

PART TWO - PRODUCTS (Not Used)

PART THREE - EXECUTION

3.1 STORAGE OF PRODUCT

A. Provide equipment and personnel to store products by methods to prevent soiling, disfiguration, or damage.

B. Store products on shelves, in bins, or in neat groups of like items, with seals and labels intact and legible, and in a manner to provide access for maintenance and inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

C. Store loose granular materials on clean, solid, flat surfaces and prevent mixing with foreign matter. Store fabricated products supported above the ground on skids or blocking. Provide surface drainage to prevent erosion and ponding of water.

D. Cover products subject to discoloration or deterioration with impervious sheet covering, and protect products from soiling and staining.

E. Store all products in strict accordance with the manufacturer's recommendation, as approved by the Engineer, with all labels and seals intact and legible. Attach applicable manufacturer's service instructions labeled "STORAGE SERVICE INSTRUCTIONS ENCLOSED" to exterior of each stored product.

F. Store and protect products which are subject to damage by the elements in weather-tight, climate controlled enclosures and according to manufacturer's instructions. Maintain temperature, ventilation, and humidity within ranges stated in manufacturer's instructions.

G. Inspect, maintain and service stored products on a regularly scheduled basis, consistent with manufacturer's instructions.

H. Record inspection, maintenance and services performed and keep log available for review.

3.2 PROTECTION OF MATERIALS AND EQUIPMENT

A. The Contractor shall make every effort to minimize extended storage periods of materials and equipment at the Site by scheduling deliveries to coincide with construction needs.

B. Storage of any or electrical equipment out of doors at any time is absolutely prohibited regardless of the protection furnished.

C. All electrical equipment shall be coated, wrapped and otherwise protected from snow, rain, drippings of any sort, dust, mud, condensed water vapor, etc., during shipment, storage, and installation and until placed in service.

D. Materials may be stored out of doors if supported above ground surface on wood runners and protected with approved, effective and durable covers.

E. All storage and protection of materials and equipment at the Site shall be subject to the approval of the Engineer.

3.3 PROTECTION OF INSTALLED EQUIPMENT

A. The Contractor shall provide protection of installed products, as required, to prevent damage and remove protection devices/facilities, when no longer needed, prior to completion of work.

B. All machinery, equipment, piping, electric conduit, wiring and accessories, and appurtenances shall be adequately supported and safeguarded against all damage or injury in performance of work under this Contract. Each Contractor will be held responsible for any such damage or injury resulting from his operations and shall repair such damage immediately and to the satisfaction of the Engineer.

C. Projections such as wall corners, jambs, sills and soffits of openings, shall be covered in areas used for traffic and for passage of products in subsequent work.

D. Equipment for which shop finish paint is required shall be protected in the shop and during transportation and installation to prevent injury and abrasion

1. Shop finished work shall be protected during and after installation by waterproof wrappings sealed to prevent condensation on surfaces. Wrappings shall be sufficient to protect surfaces from damage by drippings from masonry and painting work, and additional covering or sheeting shall be provided to protect equipment from damage which might result from work in progress in adjacent areas.

2. Prior to final completion, wrappings and coverings shall be removed, equipment shall be cleaned and all scratches and abrasions shall be refinished.

END OF SECTION – 01661

SECTION 01721 – PROTECTION AND RESTORATION OF STRUCTURES
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Protection of existing structures and utilities

B. Underground structures

C. Surface structures

D. Notice to utility companies to remove structures

E. Notice to utility companies to support, protect, temporarily remove and replace structures within limits of work

F. Restoration of structures and pavements

1.2 RELATED SPECIFICATIONS

A. Specification Section 01651 - Transportation and Handling of Materials and Equipment

B. Specification Section 01661 - Protection of Materials and Equipment

1.3 GENERAL REQUIREMENTS

A. The Contractor shall execute the Work to prevent damage or injury to the Cornell building and any other property impacted by the work of the contractor.

B. The Contractor shall erect and maintain barriers, lights, fences, and other required protective devices in accordance with the Contract Documents and the local Building Code and the NYS Department of Transportation.

C. The Contractor shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage, injury, loss or vandalism.

D. The Contractor shall assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site. If the Contractor does by or on account of any act, omission, neglect or misconduct in the execution of the Work any direct or indirect damage, it shall be restored by the Contractor, at his expense, to a condition equal to that existing before the damage was done. Where necessary to protect the Work or materials from damage, the Contractor shall at his expense, provide suitable drainage and erect such temporary structures as are necessary to protect the Work or materials from damage. The suspension of the Work or the granting of an extension of time from any cause whatever shall not relieve the Contractor of his responsibility for the Work and materials.

E. Whenever any notice is required to be given by the City or the Contractor to any adjacent or adjoining landowner or other party before commencement of any Work, such notice shall be given by the Contractor within the time limitations required for such notices.

F. All structures and appurtenances shall be adequately supported and safeguarded against all damage or injury in performance of work under this Contract. Work under this Contract includes, but is not limited to excavation, backfilling, dewatering and other subsurface activities. The Contractor will be held responsible for any such damage or injury resulting from his operations and shall repair such damage immediately and to the satisfaction of the Engineer.

G. The Contractor shall ascertain the location of underground pipelines, conduits and other subsurface structures in those locations where the operation of his heavy construction equipment might damage such structures. The Contractor shall either avoid such locations or provide the necessary safeguards and repair any damage quickly at his own expense.

H. The Contractor shall comply promptly with such safety regulations as may be prescribed by the Engineer or the local authorities having jurisdiction and shall, when so directed, properly correct any unsafe conditions created by, or unsafe practices on the part of his employees. In the event of the Contractor's failure to comply, the Engineer may take the necessary measures to correct the conditions or practices complained of, and all costs thereof will be deducted from any monies due the Contractor. Failure of the Engineer to direct the correction of unsafe conditions or practices shall not relieve the Contractor of his responsibility hereunder.

I. In the event of any claims for damage or alleged damage to property as a result of work under this Contract, the Contractor shall be responsible for all costs in connection with the settlement of or defense against such claims. Prior to commencement of work in the vicinity of property adjacent to the work site, the Contractor, at his own expense, shall take such surveys as may be necessary to establish the existing condition of the property. Before final payment can be made, the Contractor shall furnish satisfactory evidence that all claims for damage have been legally settled or sufficient funds to cover such claims have been placed in escrow, or that an adequate bond to cover such claims has been obtained.

1.4 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

A. The term existing utilities shall be deemed to refer to both publicly-owned and privately-owned utilities such as electric power and lighting, telephone, water, gas, storm drains, sanitary sewers, pumping stations and all appurtenant structures.

B. Where existing utilities and structures are indicated on the Contract Drawings, it shall be understood that all of the existing utilities and structures affecting the work may not be shown and that the locations of those shown are approximate only. It shall be the responsibility of the Contractor to ascertain the actual extent and exact location of existing utilities and structures. In every instance, the Contractor shall notify the proper authority having jurisdiction and obtain all necessary directions and approvals before performing any work in the vicinity of existing utilities.

C. The work shall be carried out in a manner to prevent disruption of existing services and to avoid damage to the existing utilities. Temporary connections shall be provided, as required, to insure continuation of existing services. Any damage resulting from the work of this Contract shall be promptly repaired by the Contractor at his own expense in a manner approved by the Engineer and further subject to the requirements of any authority having jurisdiction. Where it is

required by the authority having jurisdiction that they perform their own repairs or have them done by others, the Contractor shall be responsible for all costs thereof.

D. Where excavations by the Contractor require any utility lines or appurtenant structures to be temporarily supported and otherwise protected during the construction work, such support and protection shall be provided by the Contractor. All such work shall be performed in a manner satisfactory to the Engineer and the respective authority having jurisdiction over such work. In the event the Contractor fails to provide proper support or protection to any existing utility, the Engineer may, at this discretion, have the respective authority to provide such support or protection as may be necessary to ensure the safety of such utility, and the costs of such measures shall be paid by the Contractor.

E. During the progress of the Work, the Contractor shall protect from injury any existing utilities or services within the work area. Protection shall conform to standards established by the utilities, agencies and governing codes.

1. Existing Sewer Structures:

a. In accordance with Article 11 of the General Conditions, the Contractor shall furnish all labor, materials and equipment and shall protect, support, maintain and repair or relocate stormwater and/or sanitary sewerage structures and appurtenances encountered or disturbed in his operations of performing the work under his Contract.

2. Existing Water Mains:

a. In accordance with Article 11 of the General Conditions, the Contractor shall furnish all labor, materials and equipment and shall protect, support, maintain and repair or relocate water mains, hydrants, valves and water service connections encountered or disturbed in his operations of performing the work under his Contract.

b. All work must be performed under the inspection of the Kingston Water Department and shall conform to their design standards.

3. Existing Street Lights and Electric Lines:

a. Street lighting facilities, electric lines and fire alarms affected by work under this Contract shall be protected, supported, maintained, relocated, replaced, and restored by the Contractor as required under Article 11 of the General Conditions.

b. Fire alarm and traffic signal facilities, both underground and aerial, affected by work under this Contract, shall be protected, maintained, rerouted and restored by the Contractor.

1.5 UNDERGROUND STRUCTURES

A. Underground structures are defined to include, but not be limited to, all sewer, water, gas, and other piping, and manholes, chambers, pumping stations, electrical and signal conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.

B. All underground structures known to the Engineer are shown for the assistance of the Contractor in accordance with the best information available, but are not guaranteed to be correct or complete.

C. If the Contractor discovers utility facilities not identified in the Contract Documents or in a position different from that shown in the Contract Documents, he shall immediately notify in writing the Engineer and the owner of the utility facility.

1.6 SURFACE STRUCTURES

A. Surface structures are defined as all existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface.

B. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

1.7 PROTECTION OF UNDERGROUND AND SURFACE STRUCTURES

A. The Contractor shall sustain in their places and protect from direct or indirect injury all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure. Before proceeding with the Work of sustaining and supporting such structure, the Contractor shall satisfy the Engineer that the methods and procedures to be used have been approved by the party owning same.

B. The Contractor shall assume all risks attending the presence or proximity of all underground and surface structures within or adjacent to the limits of the Work. The Contractor shall be responsible for all damage and expense for direct or indirect injury caused by his Work to any structure. The Contractor shall repair immediately all damage caused by his Work, to the satisfaction of the owner of the damaged structure.

C. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables signs, poles, markers, and curbs which are temporarily removed to facilitate installation of the Work shall be replaced and restored to their original condition at the Contractor's expense.

END OF SECTION – 01721

SECTION 01731 – SEQUENCE OF CONSTRUCTION
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Construction sequencing and constraints

1.2 RELATED SPECIFICATION

A. Specification Section 01321 - Progress Schedule

1.3 GENERAL REQUIREMENTS

A. All Contractors shall follow the construction sequence presented herein and as shown on the Contract Drawings.

PART TWO - PRODUCTS (Not Used)

PART THREE - EXECUTION

3.1 CONSTRUCTION SEQUENCE

A. The construction sequence specified and shown in the Contract Documents are to provide the Contractor with a general overview of the required sequence of construction, the related areas, the constraints and the schedule for substantial completion of various activities. This construction sequence only represents the major work items and does not include all the work items or constraints in the Contract.

END OF SECTION – 01731

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PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Requirements of regulatory agencies

B. Scheduling of cleaning operations

C. Cleaning materials

D. Requirements during construction

E. Disposal of waste materials

F. Snow and ice removal

G. Site maintenance

H. Final cleaning

1.2 RELATED SPECIFICATIONS

A. Specification section 01733 – Construction Waste Management

1.3 PAYMENT

A. No separate payment will be made to the Contractor for cleaning work; the cost thereof shall be included in the lump sum price bid for the Contract.

B. In the event the Contractor fails to perform the work directed by the Engineer as covered by this Section, payment will be withheld for any and all work performed under the Contract until the work is performed to the Engineer's satisfaction.

1.4 GENERAL REQUIREMENTS

A. During construction, the Contractor shall remove and dispose of all debris and rubbish resulting from the work under the Contract, including the work of his subcontractors. Cleaning shall be performed daily and trash removal shall be performed weekly, or more frequently, as directed by the Engineer.

1.5 REQUIREMENTS OF REGULATORY AGENCIES

A. In addition to the requirements herein, the Contractor shall maintain the cleanliness of the work areas and surrounding premises within the work limits so as to comply with federal, state, and local fire and safety laws, ordinances, codes and regulations.

B. The Contractor shall comply with all federal, state and local anti-pollution laws, ordinances, codes and regulations when disposing of waste materials, debris, rubbish, snow and ice.

1.6 SCHEDULING OF CLEANING OPERATIONS

A. The Contractor shall schedule trash removal and cleaning operations at intervals as directed by the Engineer:

1. So that dust, wash water or other contaminants generated during construction operations do not damage or mar painted or finished surfaces.

2. To prevent accumulation of dust, dirt, debris, rubbish and waste materials on or within the work or on the premises surrounding the work.

PART TWO - PRODUCTS

2.1 CLEANING MATERIALS

A. The Contractor shall use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Each type of cleaning material shall be used on only those surfaces recommended by the cleaning material manufacturer.

C. Use only cleaning materials, which will not create hazards to health or property.

PART THREE - EXECUTION

3.1 REQUIREMENTS DURING CONSTRUCTION

A. Keep the work and surrounding premises within work limits free of accumulations of dirt, dust, waste materials, debris and rubbish.

B. Keep dust generating areas wetted-down.

C. Provide suitable containers in sufficient quantity for storage of waste materials, debris and rubbish.

D. Dispose of waste materials, surplus materials, debris and rubbish off site at a regulatory-approved disposal site at intervals as needed.

E. Keep the travel way free of foreign objects such as rocks, timber and other items that may fall from transporting vehicles. Spillage of material carried by or dropped from the under-carriage of any carrying vehicle, resulting from the Contractor's hauling operations along or across any public travel way, shall be removed immediately. The Contractor shall keep such travel ways, both within and outside of the work limits, free of such spillage.

F. Pick up and remove all miscellaneous litter, incidental debris, etc., from the project site.

G. Keep the project sites dust free.

3.2 DISPOSAL OF WASTE MATERIALS

A. Do not burn or bury rubbish and waste materials on the plant site.

B. Do not dispose of volatile or hazardous wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains or on the ground.

C. Do not discharge wastes into waterways.

3.3 FINAL CLEANING

A. At the completion of the work, the Contractor shall remove all rubbish from and about the site of the work, and all temporary structures, construction signs, tools, scaffolding, materials, supplies and equipment which he or any of his subcontractors may have used in the performance of the work. Contractor shall broom clean paved surfaces and rake clean other surfaces of grounds.

B. The Contractor shall thoroughly clean in his respective work areas all materials, equipment and structures; all marred surfaces shall be touched up to match adjacent surfaces; dirty filters and burned-out lights replaced as required; all glass surfaces cleaned and floors cleaned and polished so as to leave work in a clean and new appearing condition.

C. The Contractor shall remove spatter, grease, stains, fingerprints, dirt, dust, labels, tags, packing materials and other foreign items or substances from interior and exterior surfaces, equipment, signs and lettering in his respective work area.

D. The Contractor shall remove paint from, clean and restore all equipment and material nameplates, labels and other identification markings in his respective work area.

END OF SECTION – 01740

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SECTION 01781 – PROJECT CLOSEOUT
CONTRACT CK-EDSP-2014-003

PART ONE - GENERAL

1.1 SECTION INCLUDES

A. Items to be completed

B. Final copies - working drawings and as-built drawings

C. Special tools and appliances

D. Spare parts

E. Maintenance and guaranty

1.2 RELATED DOCUMENTS

A. General Conditions

B. Agreement

1.3 ITEMS TO BE COMPLETED

A. Before the Certificate of Substantial Completion will be issued, the Contractor shall submit to the Engineer certain records, certifications, etc., specified in the Contract Documents. A partial list of such items appears below, but it shall be the Contractor's responsibility to submit all items which are required by the Contract Documents:

1. Certification of equipment or materials in compliance with Contract Documents.

2. One set of neatly marked-up record drawings showing as-built changes and additions to the work under his Contract.

3. Any special guarantees or bonds.

1.4 MAINTENANCE AND GUARANTY

A. The Contractor must promptly repair, replace, restore or rebuild, as the City Engineer may determine, any work provided under this Contract in which defects of equipment, materials or workmanship may appear or to which damage may occur because of such defects, during a 1-year maintenance and guaranty period subsequent to the date of final acceptance, except where longer periods of maintenance and guaranty are provided for in the Specification Sections.

END OF SECTION – 01781

SECTION 02220 – SITE REMOVALS
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes the removal of:

1. Bituminous concrete, concrete pavements and curbing

B. Related Sections:

1. Section 02230 – Site Preparation:

2. Section 02300 – Earthwork.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Conform to applicable local code for demolition, dust control and runoff control.

2. Obtain required permits and licenses from authorities having jurisdiction. Pay associated fees including disposal charges.

3. Notify affected utility companies before starting work and comply with utility company requirements.

1.3 PROJECT CONDITIONS

A. Existing Conditions:

1. Conditions existing at time of inspection for bidding purposes will be maintained by the property owner.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 EXAMINATION

A. Report in writing to the Engineer prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

B. By beginning work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 PREPARATION

A. Provide, erect, and maintain erosion control devices, dust control measures, temporary barriers, and security devices at locations indicated on Drawings and as specified in Section 31 10 00 – Site Preparation.

B. Protect appurtenances and structures which are not indicated to be demolished. Repair damage caused by demolition operations at no additional cost to Owner.

C. Mark location of utilities. Protect and maintain, in safe and operable condition, utilities to remain. Provide temporary services during interruptions to existing utilities acceptable to governing authorities.

3.2 CONSTRUCTION

A. Removal Requirements:

1. Conduct removals to minimize interference with adjacent structures or pavements.

2. Stop operations immediately if adjacent structures appear to be in danger. Notify the Engineer immediately. Do not resume operations until directed by the Engineer.

3. Conduct operations with minimum interference to public or private access. Maintain access and egress at all times or as shown on plans.

4. Comply with governing regulations pertaining to environmental protection.

B. Demolition:

1. Identify and protect any utilities within demolition areas.

2. Locate demolition equipment and remove materials using procedures to prevent excessive compaction to the surrounding lawn area.

C. Filling Voids:

1. Completely fill below grade areas and voids existing or resulting from demolition or removal of fence posts using approved select fill materials.

D. Disposal of Demolished Materials:

1. Remove debris, rubbish, and other materials resulting from demolition operations, from site.

2. No burning, burying, of demolished materials shall be allowed.

END OF SECTION – 02220

SECTION 02230 – SITE PREPARATION
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 The General Conditions and Supplementary Conditions apply to this section of the Specifications.

1.2 WORK INCLUDED

A. All materials, equipment, and services necessary to furnish and deliver work of this Section as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:

1. Construction staking.

2. Protection of existing trees, vegetation, landscaping materials, and site improvements not scheduled for clearing, which might be damaged by construction activities.

3. Clearing and grubbing of stumps, vegetation, debris, rubbish, designated trees, and site improvements.

4. Topsoil stripping and stockpiling.

5. Installation and maintenance of temporary erosion and sedimentation control measures, and dust control.

6. Temporary protection of adjacent property, structures, benchmarks, and monuments.

7. Removal and legal disposal of cleared materials.

8. Temporary protection of existing utilities to remain.

9. Removal of above- and below-grade site improvements.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

A. Section 02300 – Earthwork

B. Section 02900 – Site Restoration

1.4 DEFINITIONS

A. Best Management Practices: Physical, structural, and/or managerial practices that, when used singly or in combination, prevent or reduce pollution of water, and have been approved by the State of New York Department of Environmental Protection (DEP) or other accepted certified agency.

B. Clearing: Clearing is the removal from the ground surface and disposal, within the designated areas, of trees, brush, shrubs, down timber, decayed wood, other vegetation, rubbish, trash, scrap metal, debris and miscellaneous other structures not covered under other Sections as

shown on the Contract Drawings, specified or otherwise required to permit construction of the new Work.

C. Commencement of Construction: The initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices

D. Erosion: The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as geological creep, detachment, movement of soil or rock fragments by water, wind, ice, or gravity.

E. Erosion/Sediment Control: Any temporary or permanent measures taken to reduce erosion, control siltation and sedimentation, and ensure that sediment-laden water does not leave the site.

F. Final Stabilization: All soil-disturbing activities at the site have been completed and uniform, perennial vegetative cover with the density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geo-textiles) have been employed on all unpaved areas and areas not covered by permanent structures, concrete or pavement.

G. Grubbing: Grubbing is the removal and disposal of all stumps, buried logs, roots larger than 2 inches, matted roots and organic materials.

H. Receiving Waters: Bodies of water or surface water systems receiving water from upstream manmade (or natural) streams.

I. Sediment: Fragmented material that originates from weathering and erosion of rocks and unsolicited deposits, and is transported by, suspended in, or deposited in water.

1.5 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.

1.6 QUALITY ASSURANCE

A. Codes and Standards: NYSDOT Standard Specifications, State and local laws and code requirements shall govern the hauling and disposal of trees, shrubs, stumps, roots, rubbish, debris and other matter.

All materials and construction methods shall conform to the State of New York Department of Transportation "Standard Specification" 2014 edition, unless otherwise specified herein.

B. Workmen: All workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

C. Permits and Regulations:

1. The Contractor shall obtain all necessary permits and be responsible for implementing the terms and requirements of these permits as needed and for payment of all fees.

2. The Contractor shall handle all material in compliance with applicable requirements of OSHA and other governing authorities having jurisdiction.

1.7 SUBMITTALS

A. Sediment and Erosion Control Plan (S&ECP): The Contractor shall implement the S&ECP included in the Plans. The S&ECP shall address schedules and measures that will be taken to prevent migration of contaminated stormwater/sediment, and to prevent erosion of features of the Work. If the Contractor would like to change the S&ECP, the Contractor shall develop and submit to the Engineer for approval, prior to commencement of construction activities, a S&ECP. The S&ECP shall include the following at a minimum**:**

1. Measures to capture and mitigate stormwater runoff from active, disturbed areas.

2. Provisions for silt fences and other measures to limit migration of sediments.

3. Provisions for straw bale berms and silt fences or other measures to prevent contaminant and sediment migration.

4. Diversion of stormwater: The Contractor shall include provisions for controlling stormwater runoff in and around excavation areas.

5. Soil Storage Area: All details of temporary soil storage to be implemented as specified in this section.

6. Soil Stabilization practices: All details of soil stabilization practices to be implemented, as specified in this section.

7. Provisions for all other applicable Best Management Practices.

1.8 JOB CONDITIONS

A. Traffic: Conduct site clearing operations to ensure minimum interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close or obstruct streets, walks or other 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. Protection of Existing Improvements:

1. Provide protections necessary to prevent damage to existing improvements indicated to remain in place.

2. Protect improvements on adjoining properties and on Owner's property. Restore damaged improvements to their original condition, as acceptable to property owners.

C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

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

E. Contractor is responsible for establishing staging and disposal areas, as defined by the Owner.

F. Existing Work: All BMPS (e.g., silt fences, straw bales, swales, sumps, pumps, piping) and other sediment/stormwater controls shall be installed such that other aspects of the Work are not adversely impacted or endangered. All installations shall be subject to the approval of the Engineer.

G. Dust Control: The Contractor shall be responsible for controlling visible dust caused by Work operations and the moving of vehicles and equipment. Dust control shall be implemented when soils are exposed, before, during and after Work activity ceases. Dust control will also be required on the weekends. The Contractor shall utilize the application of water or other methods, subject to the Engineer's approval, when visible dust is present on-site, in accordance with the Health and Safety Plan. The use of chemicals for dust control, including calcium chloride, will not be permitted.

1. All excavation, loading and transport of materials shall minimize the formation of dust and shall conform to General Specification 31 20 00 – "Earthwork." To prevent dust generation, application of water to roadways and active work areas shall be utilized as required.

H. Silt and Sediment Disposal: All silt and sediment which accumulates behind any BMPs used on the site (i.e., straw bale berms or silt fences) shall be removed and used as fill on site in accordance with all applicable Federal, State and local regulations.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Erosion and Sediment Control: Erosion and Sediment control Best Management Practices (BMPs) shall be operational at all times during the Work, specifically during excavation, backfilling and restoration, and decontamination operations. The sediment and erosion control system shall be capable of handling stormwater during construction. Damage to excavation slopes and the migration of contaminated soil to downstream areas resulting from storm events shall be repaired or remediated by the Contractor, at the Contractor's expense.

B. Stormwater: At no time shall the Contractor allow stormwater runoff from soil excavation/stockpiling operations to migrate off to contaminate soils in other areas or percolate into the groundwater. The Engineer will monitor any overflow or leakage that occurs, and may

at his discretion require the Contractor to perform soil sampling within all areas affected by such overflow. Any soils that have been contaminated by such overflow shall be removed, treated and disposed of by the Contractor at no additional cost to the Owner.

1.10 STORAGE, HANDLING AND REMOVAL

A. The Contractor shall store, handle, and remove material and equipment consistent with requirements of the Sediment and Erosion Control Plan.

1.11 REFERENCES

A. Comply with applicable provisions and recommendations of the following except as otherwise shown or specified.

1. NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001, or latest version)

2. New York City *Watershed Regulations* (April 4, 2010, or latest version)

3. New York State Standards and Specifications for Erosion and Sediment Control (aka "Blue Book") (NYSDEC, Aug 2005, or latest version)

4. New York State Stormwater Management Design Manual (August 2010, or latest version)

PART 2 – PRODUCTS

2.1 MATERIALS

All components/controls must be designed in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, and the New York State Stormwater Management Design Manual. Where erosion and sediment control practices are not designed in conformance with these technical standards, the Contractor must demonstrate equivalence to the technical standard.

A. Tree Protection – Conform to the Drawings and Standard Specifications.

B. Construction Fencing - Conform to the Drawings and Standard Specifications.

C. Where laser grade control is used for construction staking, a reference stake for verifying height of laser shall be required from the Contractor.

D. Silt Fence – Conform to the Drawings and Standard Specifications.

2.2 TEST AND CONTROL METHODS

A. All tests shall be performed by laboratories accredited under the AASHTO accreditation program. Materials tests and quality control methods pertaining to the work of this section will be performed in conformance with the procedures contained in the appropriate NYSDOT and/or

American Association of State Highway and Transportation Officials (AASHTO) publications which are current on the date of advertisement of bids.

2.3 STOCKPILING

A. Stockpile all material, except that material furnished under Type C will not be required to be stockpiled if the total project quantity is more than 500 tons, unless otherwise stated in the contract documents. Follow stockpile construction requirements, sampling, testing and acceptance/rejection procedures as stipulated by applicable NYSDOT procedures.

PART 3 – EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated, as directed by Owner representative.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

D. All installation of erosion and sediment control BMPs must be consistent with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, and the New York State Stormwater Management Design Manual. Where erosion and sediment control practices are not designed in conformance with these technical standards, the Contractor must demonstrate equivalence to the technical standard.

E. Maintenance: The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition at all times consistent with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, and the New York State Stormwater Management Design Manual.

3.2 CONSTRUCTION STAKING

A. The Owner will furnish the Contractor such control points, bench marks, and other data as may be necessary for the construction staking and layout by qualified engineering or surveying personnel as noted elsewhere herein.

B. The Contractor shall be responsible for the placement and preservation of adequate ties to all control points, whether established by him or found on the project, necessary for the accurate re-establishment of all base lines or center lines shown on the plans.

C. All stakes, references, and batter boards including original, additional or replacement, which may be required for the construction operations, signing and traffic control shall be furnished set

and properly referenced by the Contractor. He shall be solely and completely responsible for the accuracy of the line and grade of all features of the work. Any errors or apparent discrepancies found in previous surveys, plans, specifications or special provisions shall be called to the Engineer's attention by the Contractor for correction or interpretation prior to proceeding with the work.

D. Upon request of the Engineer, the Contractor shall furnish copies of all data used in setting and referencing all stakes and other layout markings used by the Contractor.

E. When requested by the Engineer, the Contractor shall provide safe facilities for convenient access to control points, batter boards, and references.

F. All staking shall be performed by qualified engineering or surveying personnel who are trained, experienced and skilled in construction layout and staking of the type required under the contract and who are acceptable to the Engineer. The personnel shall perform this staking under the direct supervision of a person, or persons, of engineering background experienced in the direction of such work and acceptable to the Engineer.

G. The Engineer may check the control of the work, as established by the Contractor, at any time as the work progresses. The Engineer will inform the Contractor of any deficiencies identified; however, said notification does not relieve the Contractor of any responsibility for the accuracy of the layout work. Further, the Contractor shall, at his expense, correct or replace as required any deficient layout and construction work which may be the result of inaccuracies in his staking operations or of his failure to report inaccuracies in his staking operations or of his failure to report inaccuracies found in work done by the Engineer or by others. If, as a result of these inaccuracies, the Engineer is required to make further studies, redesign, or both, all expenses incurred by the Owner due to such inaccuracies will be deducted from any monies due the Contractor.

H. The Contractor shall furnish all necessary personnel, engineering equipment and supplies, materials, transportation, and work incidental to the accurate and satisfactory completion of this work.

3.3 UTILITIES

A. Existing Utilities: Do no interrupt utilities serving facilities occupied by owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner/Engineer and Utility not less than two days (exclusive of Saturdays, Sundays and legal holidays) in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Owner/Engineer/Utility's written permission.

3. When necessary, the Contractor shall cooperate with representatives of public service companies in order to avoid damage to their structures by furnishing and erecting suitable supports, props, shoring or other means of protection. Fire hydrants adjacent to the work at all

times shall be readily accessible to fire apparatus and no material or other obstructions shall be placed within a radius of 10 feet of a fire hydrant.

4. If the Contractor wishes to have any utilities temporarily relocated for his/her convenience other than contemplated by the Owner, the Contractor shall make the necessary arrangement with the Owner and make reimbursement for the cost thereof at his/her own expense.

3.4 CLEARING AND GRUBBING

A. Clearing: The Contractor shall clear all items specified to the Contract limit lines shown on the Contract Drawings and shall remove cleared and grubbed materials from the site to an authorized disposal site.

1. Do not start earthwork operations in areas where clearing and grubbing is not complete, except that stumps and large roots may be removed concurrent with excavation.

2. Comply with erosion, sediment control and storm management measures as specified.

B. Grubbing: The Contractor shall clear and grub areas to be excavated, areas receiving less than 3 feet of fill and areas upon which structures are to be constructed.

1. Stumps and root mats in these areas shall be removed to a depth of not less than 1 foot below the subgrade of sloped surfaces.

2. All depressions made by the removal of stumps or roots shall be filled with material suitable for backfill as specified in General Specification 02300 - Earthwork.

C. Tree and Shrub Removal: Remove trees, shrubs and stumps within the work area as necessary to perform the proposed site improvements.

1. Only those trees designated on the Contract Drawings for removal shall be removed.

2. Tree and shrub removal shall be conducted in a manner so as to avoid damage to those trees and shrubs which will remain.

3. Do not cut or damage trees or shrubs outside of the Contract limit lines. Damage outside the Contract limit lines caused by the Contractor's operations shall be corrected at the Contractor's expense.

4. In areas of major construction, the stumps and roots of all trees designated for removal shall be grubbed and excavated to a depth of three (3) feet below the ground surface except in areas of fill greater than three (3) feet, where such trees may be cut flush with the ground surface.

D. Remove and dispose of all debris and trash in a legal manner off site. Burning of cleared and grubbed materials is not allowed within the project limits.

E. Cleared and grubbed items shall be removed from the site and satisfactorily disposed of as specified in Detailed Specification 01524 - Construction Waste Management and Disposal (other than those items reused on site).

F. 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.

3.5 TOPSOIL STRIPPING

A. Topsoil is defined as a friable clay loam surface soil found in a depth of not less than four inches (4"). Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over two inches (2") in diameter, without weeds, roots, and other objectionable manner. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water, place silt fence/hay bales at base of stockpile to trap all sediment and prevent any erosion from entering existing water courses, swales, streams, etc. Cover to prevent windblown dust.

3.6 CLEANING

A. The Contractor shall clean the site and equipment consistent with requirements of the S&ECP and the current New York State Standards and Specifications for Erosion and Sediment Control. Where appropriate, truck washes/decontamination stations should be installed to minimize the migration of sediment off-site as specified in the Detailed Specifications.

3.7 FIELD QUALITY CONTROL

A. Inspections: Site Inspections shall be conducted consistent with the requirements of S&ECP. The Qualified Inspector shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, areas where vehicles exit the site daily and all other requirements listed S&ECP.

PART 4 – MEASUREMENT AND PAYMENT

4.1 See Section 01270 – Unit Prices.

END OF SECTION – 02230

SECTION 02300 – EARTHWORK
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 WORK INCLUDES

A. All materials, labor, equipment, and services necessary to perform the work of this section as shown on the Drawings, as specified, and as required by job conditions, including, but not limited to, the following:

B General excavation and backfill for site improvements.

C. Borrow as necessary from off-site sources.

D. Preparing of subgrade for walks, pavements, etc.

E. Trench excavation and backfill for utilities, conduits, and structures.

F. Rock excavation, mass, and trench.

G. Soil compaction control.

H. Site grading.

I. Removal of excess materials off-site, if required.

J. Removal and legal disposal of unsuitable materials off site, if required.

K. Topsoil from off-site sources, if required.

1.2 RELATED WORK

A. Section 16120 – Grounding and Bonding for Electrical Systems

B. Section 02760 – Colorized and Imprinted Concrete

C. Section 02780 – Unit Pavers

D. Section 02600 – Storm Drainage

1.3 DEFINITIONS

A. Excavation: Removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.

In areas where rock is encountered, continuous and individual footing excavation shall consist of over-excavating a minimum of 8" below bottom of footings, and a minimum of 1'-0" horizontally around perimeter of footings.

B. Unauthorized Excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer. Unauthorized excavation shall be at the Contractor's expense.

Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to the Engineer.

In locations other than those above, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the Engineer.

C. Subgrade: The undisturbed soil or compacted soil layer at footing bearing elevations or immediately below the subbase at slabs, walks, and paving.

D. Structure: Buildings, foundations, slabs, curbs, or other man-made stationary features occurring above or below ground surface.

E. Unsuitable Material: On-site materials which are of improper gradation to allow adequate compaction, are organically contaminated or have been identified as improper for the intended use by the Engineer.

1.4 SUBMITTALS

A. Test Reports: Submit the following reports directly to the City of Kingston from the testing services, with copy to Engineer:

1. Gradation test reports on borrowed material.

2. Field reports; in-place soil density tests.

3. One optimum moisture-maximum density curve for each type of soil compacted.

B. The Contractor shall submit samples of all materials from off-site sources to the testing laboratory at least ten (10) calendar days prior to use in the work. The Contractor shall not deliver or use any materials for off-site sources until written approval is received from the Engineer based upon test results showing compliance with these specifications.

C. On-site excavated material, including fill and topsoil, if available, may be submitted for testing.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Perform earthwork in compliance with applicable requirements of authorities having jurisdiction.

NYSDOT Standard Specifications.

B. Compaction:

1. Under structures, building slabs, steps, pavements, and walkways, 95 percent maximum density, ASTM D 1557. Under lawns or unpaved areas, 90 percent maximum density, ASTM D 1557.

C. Grading Tolerances Outside Building Lines:

1. Lawns, unpaved areas, and walks, plus or minus 1 inch (25 mm).

2. Pavements, plus or minus 1/4 inch.

1.6 PROJECT CONDITIONS

A. Notify Owner if unexpected subsurface conditions are encountered and discontinue work in area until Owner provides notification to resume work.

B. Examine the substrata of the areas and ascertain the conditions under which earthwork is to be performed/installed. Do not proceed until all unsatisfactory conditions, if any, have been corrected to the satisfaction of the owner.

C. Inform Dig Safely, New York (1-800-962-7962) before beginning excavations. Do not proceed until clearance is received.

D. Existing Utilities: Locate existing underground utilities in areas of excavation work. Provide adequate means of support and protection during earthwork operations.

E. Should uncharted or incorrectly charted piping or other utilities be encountered , consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

F. Do not interrupt existing utilities serving facilities occupied by Owner or others during occupied hours except when permitted and then only after acceptable temporary utility services have been provided.

G. Provide adequate notice to the Owner, and receive written notice to proceed before interrupting utility.

H. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.

I. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

J Protect benchmarks and existing structures, roads, sidewalks, paving, and curbs against damage from equipment and vehicular or foot traffic.

K. Provide necessary safeguards to prevent accidents, to avoid all necessary hazards, and to protect the public, the work, and the property at all times, including Saturdays, Sundays, and holidays.

L. Contractor shall be responsible for any and all damages, which may arise or occur to any party whatsoever by reason of the neglect in providing proper lights, guards, barriers, or any other safeguards to prevent damage to property, life, and limb.

PART 2 – PRODUCTS

A. Borrow: Select excavated material obtained from the construction site or imported, free from roots, wood, trash, broken rocks or stones in excess of 5" and other organic material, and approved suitable for use as Borrow and meets the requirements of Section 733-09 of NYSDOT Standard Specifications for Borrow.

B. Granular Structural Fill: Select excavated gravel or stone materials free of organic material, loam, trash, snow, ice, frozen soil, and other objectionable material, conforming to the Section 733-13 of NYSDOT Standard Specifications.

C. Crushed Gravel: Broken stone or gravel conforming to the requirements of Section 623 and 703-02 of NYSDOT Standard Specifications.

PART 3 – EXECUTION

3.1 EXCAVATION - GENERAL:

A. Earth Excavation: Excavation of all materials of any kind, except as classified as rock excavation, trench rock excavation, and trench earth excavation.

B. Trench Earth Excavation: Excavation of individual piers, footings, catch basins, pits, manholes, and including the excavation of all trench materials of any kind except as classified as trench rock excavation. No tunneling will be allowed.

C. Mass Rock Excavation: shall include the excavation of hard and solid ledge, boulders in excess of one cubic yard in volume and rock hard cementitious deposits, the removal of which requires the use of drilling, barring, wedging, and/or blasting.

D. Trench and Rock Excavation: shall include the removal of solid rock, ledge, shale, or boulders in excess of one-half cubic yard in volume encountered in excavating trenches or pits which cannot be removed by power equipment without wedging, drilling, and/or blasting.

E. Rock Removal: Rock shall be removed to the limits as follows:

1. One foot six inches outside of concrete work for which forms are required, except footings.

2. One foot outside the perimeter of footings.

3. Near outside dimensions of concrete work where no forms are required.

4. The maximum rock slope shall be six units vertical to one unit horizontal.

5. Under footings: 8" below bottom of footing bearing.

6. Under proposed pavements, 6" below top of subgrade elevations.

F. Unsuitable Material: If unsuitable materials as defined by the Engineer are encountered at required subgrade elevations, carry excavations deeper and replace excavated material with other material as directed by the Engineer. Remove unsuitable materials from the site and legally dispose of them.

G. Removal of unsuitable material and its replacement as directed, provided it is not due to fault or neglect of the Contractor, will be paid on a cubic yard basis of measured volumes. Where the removal of unsuitable soil material is due to the fault or negligence of the Contractor in his performance of earthwork and site grading operations, excavate the resulting unsuitable material and replace with compacted satisfactory material as required, at no additional cost to the Contract Sum.

H. Stability of Excavations: General - Comply with local codes, ordinances, and requirements of agencies having jurisdiction.

1. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

2. Slope the sides of excavations over 5' deep to the angle of repose of the material excavated, but not steeper than 1½ horizontal to 1 vertical. Where sloping is not possible, either because of space restrictions or stability of material excavated, shore and brace in accordance with requirements of authorities having jurisdiction. In addition, provide 5' high snow fence around these areas as protection. Temporary slopes should be covered with plastic sheeting or other suitable cover where necessary to prevent the surface from drying or eroding.

3. Maintain sides and slopes of excavation in a safe condition until completion of backfilling, by scaling, benching, shelving, or bracing.

4. Take precautions to prevent slides or cave-ins when excavations are made in locations adjacent to backfilled excavations, and when sides or excavations are subject to vibrations from vehicular traffic or the operation of machinery, or from any other source.

5. Provide minimum requirements for trench shoring and bracing to comply with ANSI A10.1 "Safety for Building Construction", and with local codes and authorities having jurisdiction.

I. Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

1. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavation limits to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.

J. Excavation for Pavements: Where rock is encountered at required elevations, remove rock so as to provide six inches of stone fill over the surface of the rock.

K. Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35ºF. Protect bottom of excavations and soil around and beneath foundations from frost.

L. Backfill and Fill: General - place acceptable soil material in layers to required.

1. Under footings, pits, trenches, and other structures, use granular fill.

2. Under footings in rock excavations, use stone fill..

3. Behind wall structures, use stone fill with a 6" surface layer of topsoil.

4. Backfill excavations as promptly as work permits, but not until completion of the following:

a. Acceptance of construction below finish grade including, where applicable, damp-proofing, waterproofing, and perimeter insulation.

5. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.

6. Removal of trash and debris from excavation.

M. Placing and Compaction: Ground surface preparation - remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified in this section for particular area classification, break up ground surface, pulverize, moisture condition as required to achieve optimum moisture content, and compact to required depth and percentage of density. For slab on grade, proof roll existing ground surface with a ten-ton roller.

Place backfill and fill materials in layers not more than eight inches in loose depth for material compacted by heavy compaction equipment, and not more than four inches in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to foundations or other structures to required elevations. Prevent wedging action of backfill against structures by carrying material uniformly around structures to approximately same elevation in each lift.

Control soil and fill compaction, providing minimum percentage of density specified for each area classification indicated below. Correct improperly compacted areas or lifts as directed by Engineer if soil density tests indicate inadequate compaction.

Percentage of maximum density requirements: Compact soil to not less than the following percentages of maximum density, in accordance with ASTM D 1557: Under structures, building slabs, steps, and pavements, compact top 12 inches of sub-grade and each layer of backfill or fill material to 95% maximum density.

Under and to five feet outside of site pavements: Compact top 12" of subgrade and each layer of backfill or fill material to 95% of maximum density.

In trenches and pits: Compact top 12" of subgrade and each layer of backfill or fill material to 95% of maximum density.

Behind wall structures, compact each layer of backfill or fill material to a minimum of 95%, but not more than 98% of maximum density.

In landscaped areas: Compact top six inches of subgrade and each layer of backfill or fill material to 90% of maximum density.

N. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

Grading: General - the Drawings indicate finished elevations. The grading to be performed consists of establishing finished grade elevations as shown on the Drawings. The Contractor shall import additional materials if on-site quantities are insufficient and/or shall dispose of excess materials off-site as required at no additional cost to the Contract Sum.

Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are indicted, or between such points and existing grades.

Finish surfaces free from irregular surface changes, and as follows:

Landscaped areas: Finish areas to receive topsoil to within not more than 0.10' above or below required subgrade elevations.

Walks: Shape surface of areas under walks to line, grade, and cross section, with finish surface not more than 1/2" above or below required subgrade elevation.

Pavements: Shape surface of areas under the pavement to line, grade, and cross-section, with finish surface not more than 1/2" above or below required subgrade elevation.

Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum density for each area classification.

END OF SECTION – 02300

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SECTION 02600 – STORM DRAINAGE
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 SUMMARY

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

1. Aluminum roof leaders.

2. Roof leader adapter.

3. Storm drain pipe.

4. Dry well or Leaching chamber.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

A. Section 02230 – Site Preparation

B. Section 02300 – Earthwork

1.3 SUBMITTALS

A. In accordance with the General Requirements, submit samples, materials certifications, manufacturer's product data and test reports as hereinafter required.

B. Product data for drainage pipe, gasket material, and any of the miscellaneous drainage items.

C. Shop drawings for storm drainage roof leaders, pipe, and leaching chambers including any frames, covers, grates, outlet control structure, inspection ports, brackets or mounting hardware.

D. Sieve analysis of filtering material.

E. Product data and sample of filter fabric.

1.4 QUALITY ASSURANCE

A. Codes and Standards: All materials and construction methods shall conform to NYSDOT Standard Specifications unless otherwise specified herein.

B. Workmen: all workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.5 JOB CONDITIONS

A. Perform site survey, research public utility records, and verify existing utility locations. Verify that storm drainage system may be installed in compliance with original design and referenced standards.

B. Locate existing storm sewerage system piping and structures that are to be abandoned and closed or removed.

PART 2 – PRODUCTS

2.1 MATERIALS

A. General: Provide pipe and pipe fitting materials compatible with each other. Refer to plans for specific material to be used.

B. Smooth lined corrugated polyethylene pipe (SLCPP/HDPE) and flared end section shall conform to AASHTO M252 or M294, ADS-N12, Hancor Hi-Q, or approved equal.

C. Filter Fabric - Will be a non-woven geotextile fabric of polypropylene or polyester fibers, or a combination thereof, Miradrain 6000 by Mirafi, Inc. or an approved equal, Mirafini N140NF or approved equal for infiltration system.

D. Filtering Material - Shall be an evenly graded mixture of natural or crushed gravel or crushed stone, and natural sand, with 100 percent passing a 1-1/2" sieve and 0-5 percent passing a No. 50 sieve.

E. One inch and a quarter (1-1/4") broken stone or one inch screened gravel: shall conform to 1¼" stone (100% passes 2" square mesh sieve down to less than 5% passing ½" sieve) and standard of hardness of three or greater, according to Mohr's hardness scale, and free of silt, dirt, or debris.

PART 3 – EXECUTION

3.1 PREPARATION OF FOUNDATION FOR BURIED STORM DRAINAGE SYSTEMS

A. Grade trench bottom to provide a smooth, firm, stable, and rock-free foundation, throughout the length of the pipe.

B. Remove unstable, soft, and unsuitable materials at the surface upon which pipes are to be laid, and backfill with suitable material to indicated level.
C. Shape bottom of trench to fit bottom of pipe. Fill unevenness with tamped sand backfill. Dig bell holes at each pipe joint to relieve the bells of all loads and to ensure continuous bearing of the pipe barrel on the foundation.

3.2 INSTALLATION, GENERAL

A. Drawings (plans and details) indicate the general location and arrangement of the underground storm sewerage system piping. Install the piping as indicated, to the extent practical.

B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends facing upstream. Install gaskets, seals, sleeves, and couplings in accordance with manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.

C. Install piping pitched down in direction of flow, at minimum slope of 1 percent, except where indicated otherwise.

D. Extend storm sewerage system piping to connect to storm drains, of sizes and in locations indicated.

3.3 CONNECTIONS

A. Make connections to existing piping and underground structures so that finished work will conform as nearly as practicable to the requirement specified for new work.

B. Soil compaction must be a minimum of 98% of standard Proctor density (95% in single-grain sands). Compaction of stone shall be outlined in the manufacturer's current installation guidelines.

C. The Contractor shall excavate an extra two feet around the base of the chamber bed excavation to provide working space for setting chambers and to facilitate compaction of backfill.

END OF SECTION – 02600

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SECTION 02700 – ASPHALT PAVING
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 WORK INCLUDED

A. Work under this section shall include the production, delivery and placement of a non-segregated, smooth and dense bituminous concrete mixture brought to proper grade and cross section. The Contractor shall provide the necessary labor, materials, tools, and equipment to install and repair asphalt pavements which are new, damaged or removed during the course of construction.

B. The Work under this Section shall also include the preparation of subgrade, placement of gravel subbase, processed aggregate base, and any other materials as may be required for installation of the asphalt paving and permanent asphalt paving Work under this section shall include the production, delivery and placement of a non-segregated, smooth and dense bituminous concrete mixture brought to proper grade and cross section. repairs in accordance with the Contract Drawings and these Specifications.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

A. Section 02230 – Site Preparation

B. Section 02300 – Earthwork

C. Section 02630 – Storm Drainage

1.4 SUBMITTALS

A. In accordance with the General Requirements and NYSDOT Standard Specifications, submit samples, materials certifications, manufacturer's product data and test reports as hereinafter required.

1. Bituminous concrete design mix

2. Sieve analysis on subbase and base material.

1.5 JOB CONDITIONS

A. Weather limitations: Apply prime and tack coats when ambient temperature is above 50°F (10°C) and when temperature has not been below 35°F (1°C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

B. Construct hot-mixed asphalt surface course when atmospheric temperature is above 40°F (4°C) and when base is dry. Base course may be placed when air temperature is above 30°F (minimum 1°C) and rising.
C. Grade control: Establish and maintain required lines and elevations.

PART 2 – PRODUCTS

2.1 MATERIALS

A. General: Use locally available materials and graduations that exhibit a satisfactory record or previous installations.

B. Gravel Subbase shall conform to Article 304-2.02 of the Standard Specifications.

C. Hot Mix Asphalt True and Leveling shall conform to Articles 401 and 402 of the Standard Specifications.

D. Hot Mix Asphalt Shim shall conform to Article 401 of the Standard Specifications.

E. Asphalt Filler shall conform to Article 702-0700 (Table 702-2, Miscellaneous Asphalt Cements).

F. Asphalt Emulsions shall conform to Tables 702-5 and 702-6.

G. Fine Aggregate shall conform to Article 703-01 of the Standard Specifications.

PART 3 – EXECUTION

3.1 SURFACE PREPARATION

A. General: Remove loose material from compacted subbase surface immediately before applying herbicide treatment or prime coat.

B. Proof-roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.

C. Notify owner of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.

D. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

E. Prime Coat: Apply uniformly over surface of compacted-aggregate base at a rate of 0.15 to 0.50 gal/sq.yd. (0.7 to 2.3 L/sq.m). Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure for 72 hours minimum.

3.2 PLACING MIX

A. General: Place hot-mixed asphalt mixture on prepared surface, spread, and strike off. Spread mixture at minimum temperature of 225°F (107°C). Place areas inaccessible to equipment by hand. Place each course to required grade, cross-section, and compacted thickness.

B. Tack Coat: Apply uniformly to existing surfaces of previously constructed asphalt or Portland cement concrete paving and to surfaces abutting or projecting into new, hot-mix asphalt pavement. Apply at a uniform rate of 0.05 to 0.15 gal/sq.yd. (0.2 to 0.7 L/sq.m) of surface.

C. Paver Placing: Place in strips not less than 10 feet wide, unless otherwise acceptable to Engineer. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.

D. Immediately correct surface irregularities in finish course behind paver. Remove excess material forming high spots with shovel or lute.

E. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density, and smoothness as other sections of hot-mixed asphalt course. Clean contact surfaces and apply tack coat.

F. Curbs: Construct curbs, if specified, over compacted pavement surfaces. Apply a light tack coat unless pavement surface is still tacky and free from dust.

G. Place curb materials to cross-section indicated using curb paving machine.

3.3 ROLLING

A. General: Begin rolling when mixture will bear roller weight without excessive displacement.

B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

C. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling and repair displaced areas by loosening and filling, if required, with hot material.

D. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been evenly compacted.

E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained 95 percent laboratory density.

F. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot hot-mixed asphalt. Compact by rolling to specified surface density and smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.4 FIELD QUALITY CONTROL

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

B. Thickness: In-place compacted thickness tested in accordance with ASTM D 3549 will not be acceptable if exceeding following allowable variations:

1. Base Course: Plus or minus 1/2 inch.

2. Surface Course: Plus or minus 1/4 inch.

C. Surface Smoothness: Test finished surface of each hot-mixed asphalt course for smoothness, using 10-foot straightedge applied parallel with and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness:

1. Base Course Surface: 1/4 inch.

2. Wearing Course Surface: 3/16 inch

D. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

END OF SECTION – 02700

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SECTION 02750 – CONCRETE SIDEWALKS AND CURBING
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 SUMMARY

A. Work under this Section includes exterior cement concrete pavement for the following:

1. Walkways.

2. Cast-in-place curbing.

3. Mountable curbing.

4. Detectable Warning Strip.

1.2 SUBMITTALS

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

B. Design Mixtures: For each concrete mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. The material shall comply with, but not be limited to, the requirements of the following Standard Specifications Sections: 203-2, 204-2, 304-2, 401-2, 402-2 and 609-2.

C. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

PART 2 – PRODUCTS

2.1 DETECTABLE WARNING STRIPS

A. The Detectable Warning Strip shall be a prefabricated detectable warning surface tile for the application designated as manufactured from Wausau Tile, Inc. P.O. Box 1520, Wausau, WI 54402, telephone number (800) 388-8728, or an approved equivalent.

B. The tile shall conform to the following and as indicated on the Contract Drawings:

Product shape(s): 24" x 24" x 2-3/4" (12" x 12" x 2-3/4" acceptable for radial installations)
Product option(s): Pattern ADA-1
Product color(s): A-30

2.2 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Plain Steel Wire: ASTM A 82, as drawn.

E. Deformed-Steel Wire: ASTM A 496.

2.3 CONCRETE MATERIALS

A. Concrete shall conform to Section 502 and 701-01 of the NYSDOT Standard Specifications.

B. Water: Potable

C. Air-Entraining Admixture shall conform to Section 711-08 of the Standard Specifications.

2.4 DETECTABLE WARNING STRIP

A. See detail sheet for manufacturer and product information.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

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 Section 608 and 709-02 of the NYSDOT Standard Specifications.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

C. Expansion Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

D. 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 to match jointing of existing adjacent concrete pavement.

3.5 CONCRETE PLACEMENT

A. Comply with Sections: 202-3, 203-3, 204-3, 304-3, 401-3, 402-3, 608, and 609-3of the Standard Specifications.

B. 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.

3.6 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

3.7 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

C. 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 – 02750

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SECTION 02760 – COLORIZED AND IMPRINTED CONCRETE
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 SECTION INCLUDES:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to Work of this Section.

B. Section Includes:

1. Integrally colored concrete slabs-on-grade, sidewalks, and other exterior concrete pavements.

2. Scoring or Imprinting colored concrete to specified patterns.

3. Curing of integrally colored concrete.

C. Related Sections:

1. Concrete Sidewalks and Curbing

2. Earthwork

1.2 REFERENCES

A. NYSDOT Standard Specifications.

B. American Concrete Institute (ACI):

ACI 301 "Specification for Structural Concrete for Buildings."
ACI 302 IR "Recommended Practice for Concrete Floor and Slab Construction."
ACI 303.1 "Standard Specification for Cast-In-Place Architectural Concrete."
ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing of Concrete."
ACI 305R "Recommended Practice for Hot Weather Concreting."
ACI 306R "Recommended Practice for Cold Weather Concreting."

C. American Society for Testing and Materials (ASTM):

ASTM C309 "Liquid Membrane-Forming Compounds for Curing Concrete."
ASTM C494 "Standard Specification for Chemical Admixtures for Concrete."
ASTM C979 "Standard Specification for Pigments for Integrally Colored Concrete."

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

AASHTO M194 "Chemical Admixtures."
PCA PA124 Finishing Concrete Slabs with Color and Texture.
PCA SP021 Color and Texture in Architectural Concrete.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's complete technical data sheets for the following:

1. Colored admixture.

2. Color hardener.

3. Flashing.

4. Release Agent.

5. Curing and Sealing compound.

6. Embossing Skin.

7. Imprinting Pattern.

B. Design Mixes: For each type of integrally colored concrete.

C. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available.

D. Qualification Data: For firms indicated in "Quality Assurance" Article, including list of completed projects.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer with 10-years' experience in the production of specified products.

B. Installer Qualifications: An installer with a minimum of 5 years' experience with work of similar scope and quality.

C. Comply with the requirements of ACI 301.

D. Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout Project.

E. Notification of manufacturer's authorized representative shall be given at least 1-week before start of Work.

F. Integrally Colored Concrete Mockups and Field Samples:

1. Provide under provisions of Division 1 Section "Quality Control."

2. At location on Project selected by the Landscape Architect, place and finish a 6 feet by 6 feet mock up panel for approval.

3. For accurate color, the quantity of concrete mixed to produce the sample should not be less than 3 cubic yards (or not less than 1/3 the capacity of the mixing drum on the ready-mix truck) and should always be in full cubic yard increments.

4. Excess material shall be discarded according to local regulations.

5. Construct mockup panel using processes and techniques intended for use on permanent work, including imprinting, flashing and curing procedures.

6. Include samples of control, construction, and expansion joints in sample panels.

7. Mockup shall be produced by the individual workers who will perform the work for the Project.

8. Retain samples of cements, sands, aggregates and color additives used in mockup for comparison with materials used in remaining work.

9. Accepted mockup provides visual standard for work of Section.

10. Mockup shall remain through completion of work for use as a quality standard for finished work. Remove mockup when directed.

1.5 DELIVERY, STORAGE AND HANDLING

A. Colored Admixture: Comply with manufacturer's instructions. Deliver colored admixtures in original, unopened packaging. Store in dry conditions.

1.6 PROJECT CONDITIONS

A. Integrally Colored Concrete Environmental Requirements:

1. Schedule placement to minimize exposure to wind and hot sun before curing materials are applied.

2. Avoid placing concrete if rain, snow, or frost is forecast within 24-hours. Protect fresh concrete from moisture and freezing.

3. Comply with professional practices described in ACI 305R and ACI 306R.

B. Schedule delivery of concrete to provide consistent mix times from batching until discharge. Mix times shall meet manufacturer's written recommendations.

1.7 PRE-JOB CONFERENCE

A. One week prior to placement of integrally colored concrete a meeting will be held to discuss the Project and application materials.

B. It is suggested that the Landscape Architect, Engineer, General Contractor, City of Kingston representative, Subcontractor, Ready-Mix Concrete Representative, and a Manufacturer's Representative be present.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

A. L.M. Scofield Company, Douglasville, Georgia (800) 800-9900. Local Contact: Northeast Regional Sales and Service Representative John D Glover (508) 353 0709.

2.2 MATERIALS

A. Colored Admixture for Integrally Colored Concrete: CHROMIX P® Admixture and CHROMIX L®; L.M. SCOFIELD COMPANY.

Admixture shall be a colored, water-reducing, admixture containing no calcium chloride with coloring agents that are limeproof and ultra-violet resistant.

Colored admixture shall conform to the requirements of ACI 303.1, ASTM C979, ASTM C494 and ASSHTO M194.

B. Curing and Sealing Compound: Cureseal™ S (Matte) L.M. SCOFIELD COMPANY. Curing and sealing compound shall comply with ASTM C309 and be of same manufacturer as colored admixture, for use with integrally colored concrete.

C. SUBSTITUTIONS: The use of products other than those specified will be considered providing that the Contractor requests its use in writing within 14-days prior to bid date. This request shall be accompanied by the following:

1. A certificate of compliance from material manufacturer stating that proposed products meet or exceed requirements of this Section, including standards ACI 303.1, ASTM C979, ASTM C494 and AASHTO M194.

2. Documented proof that proposed materials have a 10-year proven record of performance, confirmed by at least 5 local projects that the Landscape Architect can examine.

2.3 COLORS

A. Concrete Color[s]:

1. Cement: Color shall be beige or tan.

2. Sand: Color shall be locally available natural sand.

3. Aggregate: Concrete producer's standard aggregate complying with State of Connecticut, Department of Transportation, Standard Specifications, Form 816, 2004 Edition.

4. The following will be as selected by the Landscape Architect and specified on the contract drawings. Refer to details.

a. Colored Admixture

b. Color Hardener

c. Flashing

d. Texture and Imprinting patterns

e. Sealer

2.4 CONCRETE MIX DESIGN

A. Minimum Cement Content: 5 sacks per cubic yard of concrete.

B. Slump of concrete shall be consistent throughout Project at 4-inches or less. At no time shall slump exceed 5-inches. If super plasticizers or mid-range water reducers are allowed, slump shall not exceed 8-inches.

C. Do not add calcium chloride to mix as it causes mottling and surface discoloration.

D. Supplemental admixtures shall not be used unless approved by manufacturer.

E. Do not add water to the mix in the field.

F. Add colored admixture to concrete mix according to manufacturer's written instructions.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install concrete according to requirements of Section 32 16 23 "Concrete Sidewalks and Curbing"

B. Do not add water to concrete mix in the field.

C. Surfaces shall be finished uniformly with the following finish,

1. Broomed: Pull broom across freshly floated and troweled concrete to produce medium coarse texture in straight lines perpendicular to main line of traffic. Do not dampen brooms.

2. Swirl: Float concrete. Work float flat on surface using pressure in swirling manner to produce series of uniform arcs and twists. Use aluminum or magnesium float to produce medium texture.

3. Trowel: Precautions should be taken to ensure that the surface is uniformly troweled so that it will not be slippery. Do not over-trowel or burnish the surface.

3.2 CURING

A. Integrally Colored Concrete: Apply curing or curing and sealing compound for integrally colored concrete according to manufacturer's instructions using manufacturer's recommended application techniques. Apply curing or curing and sealing compound at consistent time for each pour to maintain close color consistency.

B. Curing compound shall be same color as the colored concrete and supplied by same manufacturer of the colored admixture.

C. Precautions shall be taken in hot weather to prevent plastic cracking resulting from excessively rapid drying at surface as described in CIP 5 Plastic Shrinkage Cracking published by the National Ready Mixed Concrete Association.

D. Do not cover concrete with plastic sheeting.

3.3 TOLERANCES

A. Minor variations in appearance of integrally colored concrete, which are similar to natural variations in color and appearance of uncolored concrete, are acceptable.

END OF SECTION – 02760

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SECTION 02780 – UNIT PAVER
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes

1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 and Division 3 Specification sections, apply to Work of this Section.

2. Clay brick unit pavers.

3. Bluestone pavers.

B. Related Sections:

1. Division 2 Section "Earthwork"

2. Division 2 Sections "Cast-In-Place Concrete" and "Concrete Sidewalks and Curbing" for general applications of concrete and coordination of sample submittal and color selection.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. Clay brick pavers: ASTM C902, Class SX, Type I, Application PX

2. Bluestone pavers: Absorption – ASTM C97, 1.5% maximum after 48 hours Compressive Strength – ASTM C170, Minimum 4500 psi Abrasion Index – ASTM C241, 28.84

1.3 SUBMITTALS

A. Unit Pavers:

1. Submit manufacturer's technical data for concrete unit pavers, including certification that the product complies with specified requirements.

2. Submit quarry location and supplier for bluestone pavers.

3. Following preliminary selection of colors and textures, submit samples consisting of five (5) individual concrete units and three (3) individual bluestone units for each color and texture under consideration. Include in each set the maximum variation to be expected in finished work

B. Bedding sand: (1) 16 oz. container

C. Joint material: (1) 16 oz. container

1.4 QUALITY ASSURANCE

A. The installer must have at least five (5) years of successful experience in the required type of paving application.

B. Prior to installation of clay brick unit paving work, fabricate sample panel using materials, pattern and joint treatment indicated on the Contract Drawings, including special features for expansion joints and contiguous work. Contact Landscape Architect approximately one week prior to construction of sample panels. Build (1) panels at the site as directed:

1. Panel A: 6' x 6' completed with subgrade, processed aggregate base, concrete base, and clay brick paver sidewalk.

2. Panel B: 6' x 6' completed with subgrade, processed aggregate base, concrete base, bluestone paver sidewalk, and mortar joints.

3. Do not change source or brands for paving units, setting materials, or expansion of joint material during progress of paving work.

C. Installation of project pavers shall not proceed until sample panels are accepted by Landscape Architect.

1.5 PRE-JOB CONFERENCE

A. One week prior to placement of concrete base for pavers, but after the installation of the sample panel, a meeting will be held to discuss the Project and application materials.

B. It is suggested that the Architect, Landscape Architect, Engineer, General Contractor, Construction Manager, Subcontractor, and a Manufacturer's Representative be present.

PART 2 – PRODUCTS

2.1 CLAY BRICK UNIT PAVER

A. Solid paving units complying with ASTM C902 – PX and as detailed on the contract drawings**.**

2.2 BLUESTONE PAVER

A. Bluestone Pavers: The stone shall be New York State bluestone. The bluestone stone shall be a "free" stone meaning solid, no black lines showing with grain. Color shall range from green-gray to blue; natural color variations that are characteristic of the deposit shall be permitted. Red or lilac stone shall not be acceptable. Any sidewalk panel containing discoloration other than cleanable surface stains shall be approved by the Engineer prior to their use.

B. Bluestone pavers shall be a minimum of 1 foot wide and a minimum of 1 foot long. The thickness shall be 2 inches ± ¼ inch. All bluestone pavers shall be free of open seams. Pieces should be cut to size, full dimension ± ¼ inch in length and width and be square. Thermal finish

on the top face, smooth sawn side faces, and a rubbed finish on the bottom face. Individual stone dimensions shall be as indicated on the plans.

2.3 SAND SETTING BED – complying with ASTM C33 or ASTM C136

2.4 SAND JOINT MATERIAL – polymeric sand

2.5 CONCRETE BASE – shall conform to Section 500 of NYSDOT Standard Specifications as amended and revised per Section 02700 "Concrete Sidewalks and Curbing."

2.6 MORTAR BEDDING - Mortar used to bond the bluestone to the concrete sidewalk shall meet Subsection 705-21, Type M.

PART 3 – EXECUTION

3.1 INSTALLATION – CLAY BRICK PAVERS

A. Base - Install concrete per Section 02750 "Concrete Sidewalks and Curbing"

1. Do not add water to concrete mix in the field.

2. Surfaces shall be finished uniformly with the following finish;

a. Trowel: Precautions should be taken to ensure that the surface is uniformly troweled so that it will not be slippery. Do not over-trowel or burnish the surface.

B. Setting Bed - Place bedding course of sand to a loose uniform depth as detailed, leveled to grade, taking care to ensure it remains loose until paving units are set and compacted.

C. Set concrete unit pavers hand tight, being careful not to disturb sand bedding course. Use string lines to keep straight lines and grades.

D. Where required, cut paving units with an approved cutter to fit accurately, neatly and without damaged edges. Use full units without cutting, wherever possible. Select units from several cubes of pavers to blend color and texture variation as required.

E. Tamp paving stones with hand tamper until uniformly level, true to grade and free of movement. Perform this operation on installed areas of paving at end of each day or before any rain.

F. Sweep joints after vibration with polymeric sand, continue this process until sand is flush with top of pavers and sweep excess sand from surface. No sand shall remain on paver surface. Use of mechanical blower on low setting is suggested.

G. Apply water spray over pavers to set up firmness of polymeric sand. Let dry and repeat this process several times in accordance with manufacturer's instructions.

3.2 INSTALLATION – BLUESTONE PAVERS

A. Base - Install concrete per Section 03 30 00 "Concrete Sidewalks and Curbing"

1. Do not add water to concrete mix in the field.

2. Surfaces shall be finished uniformly with the following finish;

a. Trowel: Precautions should be taken to ensure that the surface is uniformly troweled so that it will not be slippery. Do not over-trowel or burnish the surface.

B. Setting Bed - The mortar setting bed and bluestone shall be placed on the concrete base as shown on the plans. The mortar setting bed thickness will vary according to actual thickness of the bluestone. The total thickness of the mortar setting bed and bluestone shall be ± 3 inches. The bluestone is to be set on the mortar setting bed with approximate ± ¼ inch mortar joint. When setting the stones, the mortar should be leveled to match the bottom of the profile of the stone to be laid.

C. Set the stone and tamp with a rubber mallet to set the stone into mortar bed. Tamp units until uniformly level, true to grade and free of movement. If stones are low after being tamped they shall be reset and mortar added under full area of stone. Use string lines to keep straight lines and grades.

D. After the bluestone has been set, mortar shall be placed into the joints and struck smooth. No mortar shall remain on paver surface.

E. Where required, cut paving units with an approved cutter to fit accurately, neatly and without damaged edges. Use full units without cutting, wherever possible. Select units from several pallets of pavers to blend color and texture variation as required.

3.3 DEFECTS

A. Where defects in material or installation appear in the completed work, such areas shall be removed to the full depth of the course and the defective material replaced with new for the required thickness of pavement at no expense to the City.

B. The layout of the pavers shall be as indicated on the plans and is subject to approval by the Engineer in coordination with the Landscape Architect. All edges, borders, and corners of the paved area shall be finished to true and neat lines. Special cutting, soldier courses, color patterns, various shapes, and variations in size and finish are all to be included in the work for this item.

END OF SECTION – 02780

SECTION 02800 – SITE IMPROVEMENTS
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

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

1. Sloped Stone Paving

2. Ornamental Steel Fence

3. Ornamental Bollard

4. Bike Rack

5. Site Bench

6. Litter (Trash) Receptacle

7. Wayfinding Signage – Add Alternate No. 2

B. Related Sections:

1. Section 02750 – Concrete Sidewalks and Curbing

1.3 SUBMITTALS

A. In accordance with the General Requirements, submit samples, materials certifications, manufacturer's product data and test reports as hereinafter required.

B. Shop drawings for all site improvements.

1.4 QUALITY ASSURANCE

A. Codes and Standards: All materials and construction methods shall conform to New York State Department of Transportation Standard Specifications and latest supplements, unless otherwise specified herein.

B. Workmen: all workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

C. All steel work shall conform to the latest edition of the American Institute of Steel Construction, Inc. "Manual of Steel Construction."

D. All welding shall be performed by welders, tackers, and welding operators who have been qualified in the last six (6) months by test as prescribed in the Code for Welding in Building Construction of the American Welding Society.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. See Details. Provide Shop Drawings for approval.

2.2 WAYFINDING SIGN

A. Wayfinding Sign Panel: Sign Panel and Posts as Manufactured/Supplied By:

Fossil Industries Inc.
44 Jefryn Boulevard
Deer Park, Ny 11729
p: 631.254.9200
f: 631.254.4172
Or Approved Equal

A. Bluestone Sawed Veneer: Specified stone is 3"-11" wall thickness.

B. Wayfinding Sign Bases: Precast concrete pier bases, color – gray. Submit shop drawings for final approval.

C. Wayfinding Sign Base Cap: 3" thick Bluestone, cut to shape shown on the plans.

D. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

Low-Alkali Cement: Not more than 0.60 percent total alkali when tested according to ASTM C 114.
Hydrated Lime: ASTM C 207, Type S.
Masonry Cement: ASTM C 91.
Aggregate: ASTM C 144 and as follows:

For pointing mortar, use aggregate graded with 100 percent passing No. 16 sieve.
Water: Potable.

E. Anchors:

1. Hot-Dip Galvanized-Steel Wire: ASTM A 82, with ASTM A 153/A 153M, Class B-2.

2. Corrugated-Metal Veneer Anchors: Not less than 0.030-inch- (0.76-mm-) thick by 7/8-inch- (22-mm-) wide hot-dip galvanized-steel sheet with corrugations having a wavelength of 0.3 to 0.5 inch (7.6 to 13 mm) and amplitude of 0.06 to 0.10 inch (1.5 to 2.5 mm).

3. Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:

Dur-O-Wal, a Dayton Superior Company;
Heckmann Building Products Inc.
Hohmann & Barnard, Inc.
Wire-Bond; 1004.

4. Structural Performance Characteristics: Capable of withstanding a 100-lbf load in both tension and compression without deforming or developing play in excess of 0.05 inch.

Anchor Section: Sheet metal plate, with screw holes top and bottom and with raised rib-stiffened strap stamped into center to provide a slot between strap and plate for inserting wire tie.

F. Masonry Cleaners:

1. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar and grout stains, efflorescence, and other new construction stains from stone masonry surfaces without discoloring or damaging masonry surfaces; expressly approved for intended use by cleaner manufacturer and stone producer.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

Diedrich Technologies, Inc.
Dominion Restoration Products.
EaCo Chem, Inc.
Hydrochemical Techniques, Inc.

G. General:

1. Do not use admixtures unless otherwise indicated.

2. Do not use calcium chloride.

3. Limit cementitious materials in mortar to portland cement and lime.

4. Mixing Pointing Mortar: Thoroughly mix cementitious and aggregate materials together before adding water. Then mix again, adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for one to two hours. Add remaining water in small portions until mortar reaches

desired consistency. Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material.

5. Mortar for Stone Masonry: Comply with ASTM C 270, Proportion Specification.

6. Mortar for Setting Stone: Type S

7. Mortar for Pointing Stone: Type N

8. Latex-Modified Portland Cement Setting Mortar: Proportion and mix portland cement, aggregate, and latex additive to comply with latex-additive manufacturer's written instructions.

H. Fabrication:

1. Cut stone to produce pieces of thickness, size, and shape indicated, including details on Drawings. Dress joints (bed and vertical) straight and at right angle to face unless otherwise indicated.

2. Shape stone for type of masonry (pattern) as indicated on the drawings:

a. Finish exposed faces and edges of stone to comply with requirements indicated on the drawings and to match approved samples and mockups.

2.3 INSTALLATION - GENERAL

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

B. Bollards and Bike Racks: Install to depth shown on details, with expansion joint all around.

C. Should rock or boulders be encountered in making the excavation, this material shall be removed so as to make a hole of sufficient size to set the posts to the normal depth as called for on the plan and in the details.

2.4 STONE MASONRY

A. Submittals:

1. Product Data: For each type of product indicated.

2. For stone varieties proposed for use on Project, include test data indicating compliance with physical properties required by referenced ASTM standards.

a. Samples: For each stone type indicated.

b. For each color of mortar required.

c. Provide a minimum of two 5' x 5' sample panel(s) of each stone pattern for approval by Engineer.

d. Contractor to provide stone veneer sample – 10" x 24" for approval by the owner and Engineer prior to installation

B. Project Conditions:

1. Protection of Stone Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work.

2. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

3. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried.

4. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

C. Setting of Stone Masonry: General

1. Perform necessary field cutting and trimming as stone is set.

2. Sort stone before it is placed in wall to remove stone that does not comply with requirements relating to aesthetic effects, physical properties, or fabrication, or that is otherwise unsuitable for intended use.

3. Arrange stones in pattern with joint widths within tolerances indicated. Insert small stones into spaces between larger stones as needed to produce joints as uniform in width as practical.

4. Arrange stones in an ashlar pattern with uniform joint widths.

5. Arrange stones with color and size variations uniformly dispersed for an evenly blended appearance.

6. Maintain uniform joint widths except for variations due to different stone sizes and where minor variations are required to maintain bond alignment if any. Provide sealant joints of widths and at locations indicated.

D. Construction Tolerances:

1. Variation from Plumb: For vertical lines and surfaces, do not exceed 1/4 inch in 10 feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet or 1/2 inch in 40 feet.

2. Variation from Level: For bed joints and other conspicuous lines, do not exceed 1/4 inch in 20 feet.

E. Installation of Anchored Masonry:

1. Anchor stone masonry to unit masonry with wire anchors unless otherwise indicated. Connect anchors to masonry joint reinforcement by inserting pintles into eyes of masonry joint reinforcement projecting from unit masonry.

2. Anchor stone masonry to unit masonry with wire anchors unless otherwise indicated. Connect anchors to masonry joint reinforcement with vertical rods inserted through anchors and through eyes of masonry joint reinforcement projecting from unit masonry.

3. Embed veneer anchors in mortar joints of stone masonry at least halfway, but not less than 1-1/2 inches, through stone masonry and with at least 5/8-inch cover on outside face.

4. Install continuous wire reinforcement in horizontal joints and attach to seismic veneer anchors as stone is set.

5. Space anchors to provide not less than 1 anchor per 2 sq. ft. of wall area. Install additional anchors within 12 inches of openings, sealant joints, and perimeter at intervals not exceeding 12 inches.

6. Set stone in full bed of mortar with full head joints unless otherwise indicated. Build anchors into mortar joints as stone is set.

7. Place mortar spots in cavity at veneer anchors to maintain spacing.

8. Slope beds toward cavity to minimize mortar protrusions into cavity.

F. Pointing:

1. Prepare stone-joint surfaces for pointing with mortar by removing dust and mortar particles. Where setting mortar was removed to depths greater than surrounding areas, apply pointing mortar in layers not more than 3/8 inch deep until a uniform depth is formed.

2. Point stone joints by placing and compacting pointing mortar in layers not more than 3/8 inch deep. Compact each layer thoroughly and allow to become thumbprint hard before applying next layer.

3. Tool joints, when pointing mortar is thumbprint hard, with a smooth jointing tool to produce the following joint profile.

F. Adjusting and Cleaning:

1. In-Progress Cleaning: Clean stone masonry as work progresses. Remove mortar fins and smears before tooling joints.

2. Final Cleaning: After mortar is thoroughly set and cured, clean stone masonry as follows:

3. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

4. Test cleaning methods on mockup; leave one-half of panel uncleaned for comparison purposes.

5. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.

6. Wet wall surfaces with water before applying cleaner; remove cleaner promptly by rinsing thoroughly with clear water.

7. Clean stone masonry by bucket and brush hand-cleaning method described in BIA Technical Note No. 20 Revised II, using job-mixed detergent solution.

8. Clean stone masonry with proprietary acidic cleaner applied according to manufacturer's written instructions.

9. Clean limestone masonry to comply with recommendations in ILI's "Indiana Limestone Handbook."

G. Excess Materials and Waste:

1. Disposal as Fill Material: Dispose of clean masonry waste, including mortar and excess or soil-contaminated sand, by crushing and mixing with fill material as fill is placed.

2. Do not dispose of masonry waste as fill within 24 inches of finished grade.

2.5 CLEANING

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

END OF SECTION – 02800

4766-02-3-3-jn1714-specs-Specifications

SECTION 02900 – TOPSOIL, SEEDING, MULCHING, AND PLANTINGS
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 SUMMARY

A. Work under this section includes furnishing, grading and treatment of topsoil to finish grade elevations, including mulching and fertilization.

B. Seeding of lawn areas.

C. Maintain cultivation of lawn areas, but not limited to: fertilization, reseeding, watering, weeding, and correcting the grade in areas of settlement.

D. Planting, trans-planting and maintenance of trees, shrubs, flowers, and other misc. plantings.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

A. Section 02230 – Site Preparation

B. Section 02300 – Earthwork

1.3 SUBMITTALS

A. Product data sheets, specifications, performance data, physical properties for the following:

1. Seed mixture

2. Fertilizer

B. Manufacturer's Certificates or labels from containers certifying that the product meets the specified requirements for the following:

1. Seed mixture, if pre-mixed; also show compliance with State and federal seed laws

2. Fertilizers

3. Plants, trees, planting materials, and shrubs

C. Samples and test report, in the following quantities:

1. Topsoil, five gallon pail – Provide representative testing to indicate percent organic content for both on-site and off-site source material. Only topsoil meeting organic content specification (6% min. – 20% max.) is acceptable.

a. Provide soil alkalinity

b. Percentages of clay, silt, and sand (soil texture)

c. Soluble salts

d. Extractable nutrients

e. Extractable heavy metals

f. Extractable aluminum

g. Cation exchange capacity

h. Percent base saturation

2. Mulch, one gallon pail.

1.4 QUALITY ASSURANCE

A. The Owner reserves the right to require testing and reject for cause any material not meeting material specifications by tests in accordance with methods adopted by the Association of Official Agricultural Chemists. Costs for these tests shall be borne by the Contractor.

B. Acceptance of the lawn areas shall be established by the Landscape Architect in writing, following the completion of all maintenance work requirements as specified herein, and following the correction of all punch list deficiencies by the Contractor.

C. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Landscape Architect, together with proposal for use of equivalent material.

D. Analysis and standards - Package standard products with manufacturer certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists, wherever applicable.

E. Trees, shrubs and plants - Provide trees, shrubs, and plants of quantity, size, genus, species, and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock." Provide healthy, vigorous stock, grown in recognized nursery in accordance with good horticultural practice and free of disease.

F. Inspection - The Landscape Architect may inspect trees and shrubs either at place of growth or at site before planting, for compliance with requirements for genus, species, variety, size, and quality. Landscape Architect retains right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries and at any time during progress of work. Remove rejected trees or shrubs immediately from project site.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver grass seed mixture in new, sealed, containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in sealed waterproof bags showing weight, chemical analysis and name of manufacturer.

C. Trees and Shrubs: Provide freshly dug trees and shrubs. Do not prune prior to delivery unless otherwise approved by Landscape Architect. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches, or destroy natural shape. Provide protective stock during delivery.

D. Do not remove container grown stock from containers until planting.

1.6 JOB CONDITIONS

A. Seeding shall be performed when weather and soil conditions are suitable in accordance with locally accepted practice, as specified herein.

B. Seeding dates are as follows:

April 15 - May 30
August 20 – October 15

C. Do not install grass seed when wind velocity exceeds 5 mph.

1.7 SEQUENCING AND SCHEDULING

A. Coordinate the work of this Section with the respective trades responsible for installing interfacing work to ensure that the work performed is scheduled to minimize damage to lawn areas.

1.8 MAINTENANCE SERVICE

A. Furnish maintenance of seeded [sodded] areas immediately after placement until grass is well established and exhibits a vigorous growing condition.

1.9 SPECIAL PRODUCT WARRANTY

A. Warranty lawns until final acceptance.

B. Warranty which are beyond Landscape Installer's control.

C. Remove and replace trees and shrubs for a period of one year after date of substantial completion, against defects including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others, or unusual phenomena or incidents trees, shrubs, or other plants found to be dead or in unhealthy condition during warranty period. Make replacements during growth season following end of warranty period. Replace trees and

shrubs which are in doubtful condition at end of warranty period, unless in the opinion of Landscape Architect, it is advisable to extend warranty period for a full growing season.

D. Another warranty inspection will be conducted at end of extended warranty period, if any, to determine acceptance or rejection. Only one replacement (per tree, shrub or plant) will be required at end of warranty period, except for losses or replacements due to failure to comply with specific requirements.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Grass Seed - Seed mixture shall be fresh, clean, new crop seed. Grass shall be of the previous year's crop with a weed seed content of less than 0.5 [1] percent, by weight. All seed shall comply with State and federal seed laws. Seed, which has become wet, moldy or otherwise damaged, shall not be acceptable.Seed may be mixed on-site by an approved method or pre-mixed by a dealer. If the seed is to be mixed on-site, seed shall be delivered to the site in separate containers for each variety of seed.

B. Seed mix:

General Seed Mix

Baron Kentucky Bluegrass	60%
Jamestown II Chewings Fescue	20%
Palmer Perennial Ryegrass	20%

*Lofts – "Triplex General" mix or approved equal. Recommended rate in accordance with manufacturer's instructions.

C. Soil Materials - Use existing topsoil stockpiled by Section 313000 – Earthwork, if it satisfies organic content specification.

D. Additional loam, if required, shall be fertile, friable, agricultural soil, typical for locality, pH value compatible, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and free from other impurities, plants, weeds and roots.

E. Soil Additives - Ground agricultural limestone containing not less that 85 percent total carbonates by weight. Limestone shall be graded per the following:

1. 100 percent passing a Number 10 sieve.

2. 90 percent passing a Number 20 sieve.

3. 60 percent passing a Number 100 sieve.

F. Fertilizer - Recommended for grass only. Provide laboratory recommendations for deficiencies of topsoil as indicated in soil test report.

G. Straw Mulch - Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

H. Peat Moss - Shredded, loose, sphagnum moss; free of lumps, roots, inorganic material or acidic materials. As determined by AOAC methods of testing, the acidity range is to be 3.5 to 5.5 ph, and have a maximum moisture content of 30 percent. Organic matter content shall be not less than 90 percent, and ash content shall not be more than 10 percent, by weight on an oven-dry basis.

I. Accessories - Water - Clean, fresh and free of substances or matter, which could inhibit vigorous growth of vegetation.

2.2 PLANT MATERIALS

A. Deciduous Trees - Provide trees of height and caliper scheduled or shown and with branching configuration recommend by ANSI Z60.1 for type and species required. Provide single stem trees except where special forms are shown or listed.

B. Provide balled and burlapped (B&B) deciduous trees.

C. Deciduous Shrubs - Provide shrubs of height shown or listed and with not less than minimum number of canes required by ANSI Z60.1 for type and height of shrub required.

D. Coniferous and Broad leafed Evergreens - Provide evergreens of sizes shown and listed. Dimensions indicate minimum spread for spreading and semi-spreading type evergreens and height for other types, such as globe, dwarf, cone, pyramidal, broad upright, and columnar. Provide normal quality evergreens with well balanced form compiling with requirements for other size relationships to the primary dimension shown.

2.3 MISCELLANEOUS LANDSCAPE MATERIALS

A. Mulch - Provide clean, double-shredded hardwood bark mulch, submit supplier name and contact information.

B. Anti-Dessicant - Emulsion type, film-forming agent designed to permit transpiration, but retard excesses loss of moisture from plants. Deliver in manufacturer's fully identified containers and mix in accordance manufacturer's instructions.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify prepared soil base is properly rough graded and ready to receive the work of this Section.

B. Verify building and trench backfilling has been inspected.

C. Verify substrate base has been contoured and compacted.

D. Beginning of landscaping work means acceptance of existing soil base, and site conditions.

3.2 PREPARATION

A. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes in level areas.

B. Remove foreign materials, debris, weeds, undesirable plants, roots, branches, stones in excess of 1/2 inch in size. Remove subsoil contaminated with petroleum products, or other materials, which would inhibit healthy plant growth.

C. Scarify subgrade to depth of 3 inches where topsoil is scheduled. Scarify in areas where equipment is used for hauling and spreading topsoil and has compacted subsoil.

D. Saturate soil with water to test drainage.

E. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas and secure Landscape Architect's acceptance before start of planting work. Make minor adjustments as may be required.

3.3 LAYOUT OF LAWN AREAS

A. Outlines of lawn areas shall be staked by the Contractor to allow sufficient time for permit review and acceptance by Landscape Architect.

3.4 PLACING AND TREATING TOPSOIL

A. Place both stockpiled topsoil and additional loam during dry weather; place to a minimum compacted depth of 6 inches on dry unfrozen subgrade. Treat additional loam with ground limestone.

B. Fine grade topsoil, making changes in grade gradual, eliminating rough or low areas. Blend slopes into level areas. Manually spread topsoil close to trees, plants, and building to prevent damage. Roll, fill depressions to ensure positive drainage.

C. Remove roots, weeds, rocks and foreign material while spreading.

D. Remove surplus subsoil and topsoil from site. Leave stockpile areas and site clean and raked ready to receive grass.

E. Apply fertilizer in accordance with manufacturer's instructions and as directed by testing agency within 10 days of seeding, after smooth raking of topsoil and prior to roller compaction.

F. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

G. Mix thoroughly into upper 6 inches of topsoil.

H. Lightly water to aid the dissipation of fertilizer.

I. After incorporation of fertilizer and limestone into the soil, fine grade seed bed to remove all ridges and depressions, and the surface cleared of all stones one inch or more in diameter and all other debris.

J. Smooth rake again and clear surface of all stones one inch or more in diameter and all other debris.

3.5 SEEDING

A. Apply seed by mechanical spreader at a rate 5 pounds per 1000 square feet evenly in two uniform applications. Direction of the second application shall be perpendicular to the first application. Rake in lightly.

B. Do not seed areas in excess of that which can be mulched on same day.

C. Do not sow immediately following rain or snow, when ground is too dry, or during windy periods.

D. After seeding, lightly rake areas to mix 1/8 to 1/4 inch depth of soil with seed.

E. Roll seeded area with roller of 24 inch diameter and not exceeding 90 pounds per 24 inch roller width.

F. Immediately following seeding and compacting, apply approved straw mulch to a thickness of 1/8 inch, keeping clear of shrubs and trees.

G. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

3.6 SITE CLEANING AND REPAIR

A. Absolutely no debris may be left on the site. Excavated material shall be removed as directed. Repair any damage to site or structures to restore them to their original condition.

3.7 PROTECTION OF LAWNS

A. Identify lawn seeded areas with stakes and string around area periphery.

B. Cover seed slopes where grade is 4 inches per foot or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling. Lay fabric smoothly on surface, bury top end of each

section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil. Secure outside edges and overlaps at 36 inch intervals with stakes. Lightly dress slopes with topsoil to ensure close contact between fabric and soil. At sides of ditches, lay fabric laps in direction of water flow; lap ends and edges minimum 6 inches.

3.8 EXCAVATION FOR TREES AND SHRUBS

A. Excavate pits, beds, and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard subsoil in bottom of excavation.

B. For balled and burlapped stock, make excavations at least 1 ½ times as wide as the ball diameter and equal to the ball depth, allowing for setting of ball on a layer of compacted backfill.

C. Allow for 12 inch depth layer of planting soil mixture.

D. For container grown stock, excavate as specified for balled and burlapped stock, adjusted to size of container width and depth.

E. Dispose of subsoil removed from planting excavations. Do not mix with planting soil.

F. Fill excavations for trees and shrubs with water and allow water to percolate out prior to planting.

3.9 PLANTING TREES AND SHRUBS

A. Set balled and burlapped (B&B) stock on layer of compacted planting soil mixture, plumb and in center of pit or trench with top of ball at same elevation as adjacent finished landscape grades. Remove burlap from sides of balls; retain on bottoms. When set, place additional backfill and eliminate voids and air pockets. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill.

B. Set container grown stock, as specified, for balled burlapped stock, except cut cans on 2 sides with an approved can cutter; remove bottoms of wooden boxes after partial backfilling so as not to damage root balls.

C. Dish top of planting mix to allow for mulching.

D. Mulch pits, trenches, and planted areas. Provide not less than following thickness of mulch, and work into top of backfill and finish level with adjacent finish grades.

E. Provide four inches thickness of mulch.

F. Apply anti-desiccant, using power spray, to provide an adequate film over trunks, branches, stems, twigs and foliage.

G. If deciduous trees or shrubs are moved when in full-leaf, spray with anti-desiccant at nursery before moving and spray again 2 weeks after planting.

H. Prune, thin out, and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by Landscape Architect; do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any. Prune shrubs to retain natural character.

I. Remove and replace excessively pruned or misformed stock resulting from improper pruning.

J. Guy and stake trees immediately after planting, as indicated.

3.10 MAINTENANCE

A. Begin maintenance immediately after planting.

B. Maintain trees, shrubs, and other plants until final acceptance, but in no case, less than following period:

60 days after substantial completion of planting.

C. Maintain trees, shrubs, and other plants by pruning, cultivating, and weeding as required for health growth. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Restore or replace damaged wrappings. Spray as required to keep trees and shrubs free of insects and disease.

3.11 CLEANUP AND PROTECTION

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

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

3.12 INSPECTION AND ACCEPTANCE

A. When landscape work is completed, including maintenance, Landscape Architect will, upon request, make an inspection to determine acceptability.

B. When inspected landscape work does not comply with requirements, replace rejected work and continue specified maintenance until re-inspected by Landscape Architect and found to be acceptable. Remove rejected plants and materials promptly from project site.

C. Final acceptance of seeded lawns is based on an established turf thickly uniform and well developed over 95% of the bed and ready for the Owner to use and occupy. The Contractor is responsible for all mowing until final acceptance.

D. Substantial completion for installation of trees and shrubs is the date the landscape contractor has complied with the punch list items developed by the Landscape Architect. This date shall be defined and noted by the Landscape Architect in a memorandum issued to the Owner.

END OF SECTION – 02900

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SECTION 16050 – COMMON WORK RESULTS FOR ELECTRICAL
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 WORK INCLUDED

A. Basic Electrical Requirements specifically applicable to Division 26 Sections.

1.2 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

B. New York State Building Code.

C. New York Fire Safety Code.

1.3 SUBMITTALS

A. Submit under provisions of Division 1 Sections.

B. Include products as required by individual sections.

C. Submit Shop Drawings and Product Data grouped to include complete submittals of related systems, products and accessories in a single submittal.

D. Mark dimensions and values in units to match those specified.

E. Delete or cross-out information not applicable to project.

F. Submit samples as required by individual sections.

1.4 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.

2. To provide for ease of disconnecting the equipment with minimum interference to other installations.

3. To allow right of way for piping and conduit installed at required slope.

4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed.

D. Coordinate sleeve selection and application with selection and application of firestopping.

E. It is not the intention of the drawings to show every item, piece of equipment and detail. Provide complete, operating systems.

F. Install work as closely as possible to layouts shown on drawings. Modify work as necessary to meet job conditions and to clear other equipment. Consult Architect before making changes which affect the function or appearance of systems.

G. Dimensions, elevations and locations are shown approximately. Verify dimensions in field.

H. Architect reserves the right to order changes in layout of such items as switches, fixtures and outlets if such changes do not substantially affect costs and if affected items have not been fabricated or installed.

I. In some cases, drawings are based on products of one or several manufacturers, as listed on Contract Documents. Contractor shall be responsible for modifications made necessary by substitution of products of other manufacturers.

J. Do not install part of a system until all critical components of the system and related systems have been approved. Coordinate parts of systems.

K. Install products in accordance with manufacturer's instructions. Notify Engineer if Contract Documents conflict with manufacturer's instructions. Comply with Architect's interpretations.

L. Provide brackets, supports, anchors and frames required for installation of work specified in this division.

M. Where Contract Documents provide conflicting information, Contractor shall be responsible for design having highest cost.

1.5 PROJECT RECORD DRAWINGS

A. Prepare project Record Drawings in conformance with the requirements of the General Conditions and Division 1 Sections.

1.6 EQUIPMENT CLEARANCES

A. Deliver equipment knocked down, if necessary, to place it in proper position.

B. Install equipment with adequate clearances for maintenance and operation, both of the equipment and of adjacent equipment.

1.7 PRELIMINARY OPERATION

A. Operate electrical systems with required supervision for at least two full days prior to substantial completion. Make necessary adjustments and check proper operation.

1.8 TESTS PRIOR TO SUBSTANTIAL COMPLETION

A. Tests shall be attended by representatives of electrical subcontractors, equipped with instruments required to demonstrate proper functioning of systems, as specified.

B. Demonstrate the following:

1. Equipment installed and operating in accordance with manufacturer's specifications and instructions and with these specifications.

2. Safety controls operating as specified.

3. Submit report listing system tested, date, results and description of fault corrections, if any.

1.9 WARRANTY

A. Submit written warrant or warranties covering work specified in Division 26.

B. Warranty period shall be one year (unless modified by individual specification sec-tions) from the date of Substantial Completion of the building or of the equipment being warranted, whichever is later.

C. Owner is to receive full use of equipment for period of warranty.

1.10 OPERATING AND MAINTENANCE

A. Prepare Operating and Maintenance Manuals for equipment requiring maintenance and operation.

1. List replacement parts and order procedure.

2. Include lubrication instructions and schedule with types of lubricant to be used.

3. Document scheduled maintenance and troubleshooting procedures.

4. Include copy of Warranty.

5. Instruct Owner's personnel in use of equipment specified in this Division. Refer to individual sections for specific training requirements.

1.11 REGULATORY REQUIREMENTS

A. Conform to applicable provisions of the New York State Building Code including the National Electric Code/2008 of the National Fire Protection Association (NFPA 70/2008).

B. Conform to applicable provisions of the New York State Fire Safety Code.

C. Conform to applicable City of Kingston requirements.

D. Conform to applicable Central Hudson Gas and Electric requirements.

E. Obtain and pay for permits and inspections from authorities having jurisdiction.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to piping systems installed at a required slope.

END OF SECTION – 16050

SECTION 16100 – IDENTIFICATION FOR ELECTRICAL SYSTEMS
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Identification for raceways.

2. Identification of power and control cables.

3. Identification for conductors.

4. Underground-line warning tape.

5. Warning labels and signs.

6. Instruction signs.

7. Equipment identification labels.

8. Miscellaneous identification products.

1.3 SUBMITTALS

A. Product Data: For each electrical identification product indicated.

B. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

C. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.

1.4 QUALITY ASSURANCE

A. Comply with ANSI A13.1 and IEEE C2.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.5 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 – PRODUCTS

2.1 POWER RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.

2. Legend: Indicate voltage and system or service type.

C. Colors for Raceways Carrying Circuits at More Than 600 V:

1. Black letters on an orange field.

2. Legend: "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch-high letters on 20-inch centers.

D. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

E. Snap-Around Labels for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

F. Snap-Around, Color-Coding Bands for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

G. Tape and Stencil for Raceways Carrying Circuits More Than 600 V: 4-inch-wide black stripes on 10-inch centers diagonally over orange background that extends full length of raceway or duct and is 12 inches wide. Stop stripes at legends.

H. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.

I. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.2 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.

B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

C. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.

D. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

E. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

F. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

2.3 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

C. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

D. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

E. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

F. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.4 UNDERGROUND-LINE WARNING TAPE

A. Tape:

1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.

2. Printing on tape shall be permanent and shall not be damaged by burial operations.

3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

B. Color and Printing:

1. Comply with ANSI Z535.1 through ANSI Z535.5.

2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.

3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.

C. Tag: Type ID:

1. Detectable three-layer laminate, consisting of a printed pigmented polyolefin film, a solid aluminum-foil core, and a clear protective film that allows inspection of the continuity of the

conductive core, bright-colored, continuous-printed on one side with the inscription of the utility, compounded for direct-burial service.

2. Overall Thickness: 5 mils.

3. Foil Core Thickness: 0.35 mil.

4. Weight: 28 lb/1000 sq. ft.

5. 3-Inch Tensile According to ASTM D 882: 70 lbf, and 4600 psi.

2.5 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Baked-Enamel Warning Signs:

1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.

2. ¼-inch grommets in corners for mounting.

3. Nominal size, 7 by 10 inches.

D. Metal-Backed, Butyrate Warning Signs:

1. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application.

2. ¼-inch grommets in corners for mounting.

3. Nominal size, 10 by 14 inches.

E. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."

2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.6 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.

2. Punched or drilled for mechanical fasteners.

3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

C. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.7 EQUIPMENT IDENTIFICATION LABELS

A. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

C. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

D. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

E. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch.

2.8 CABLE TIES

A. General-Purpose Cable Ties: Fungus inert, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.

2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 12,000 psi.

3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).

4. Color: Black except where used for color-coding.

B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.

2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 12,000 psi.

3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).

4. Color: Black.

C. Plenum-Rated Cable Ties: Self extinguishing, UV stabilized, one piece, self locking.

1. Minimum Width: 3/16 inch.

2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 7000 psi.

3. UL 94 Flame Rating: 94V-0.

4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).

5. Color: Black.

2.9 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

F. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

G. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.

H. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:

1. Outdoors: UV-stabilized nylon.

2. In Spaces Handling Environmental Air: Plenum rated.

I. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.

3.2 IDENTIFICATION SCHEDULE

A. Concealed Raceways, Duct Banks, More Than 600 V, within Buildings: Tape and stencil 4-inch-wide black stripes on 10-inch centers over orange background that extends full length of raceway or duct and is 12 inches wide. Stencil legend "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch-high black letters on 20-inch centers. Stop stripes at legends. Apply to the following finished surfaces:

1. Floor surface directly above conduits running beneath and within 12 inches of a floor that is in contact with earth or is framed above unexcavated space.

2. Wall surfaces directly external to raceways concealed within wall.

3. Accessible surfaces of concrete envelope around raceways in vertical shafts, exposed in the building, or concealed above suspended ceilings.

B. Accessible Raceways, Armored and Metal-Clad Cables, More Than 600 V: Self-adhesive vinyl labels. Install labels at 30-foot maximum intervals.

C. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A, and 120 V to ground: Identify with self-adhesive vinyl label. Install labels at 30-foot maximum intervals.

D. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:

1. Emergency Power.

2. Power.

3. UPS.

E. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.

b. Colors for 208/120-V Circuits:

1) Phase A: Black.

2) Phase B: Red.

3) Phase C: Blue.

c. Colors for 480/277-V Circuits:

1) Phase A: Brown.

2) Phase B: Orange.

3) Phase C: Yellow.

d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two (2) turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

F. Power-Circuit Conductor Identification, More than 600 V: For conductors in vaults, pull and junction boxes, manholes, and handholes, use write-on tags, nonmetallic plastic tag holder with adhesive-backed phase tags, and a separate tag with the circuit designation.

G. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

H. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

I. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.

2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.

3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

J. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Limit use of underground-line warning tape to direct-buried cables.

2. Install underground-line warning tape for both direct-buried cables and cables in raceway.

K. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

L. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.

2. Identify system voltage with black letters on an orange background.

3. Apply to exterior of door, cover, or other access.

4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.

b. Controls with external control power connections.

M. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

N. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch-high letters for emergency instructions at equipment used for power transfer and load shedding.

O. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

a. Indoor Equipment: Adhesive film label. Unless otherwise indicated, provide a single line of text with ½-inch-high letters on 1½-inch-high label; where two (2) lines of text are required, use labels 2 inches (high.

b. Outdoor Equipment: Engraved, laminated acrylic or melamine label. Stenciled legend 4 inches high.

c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.

d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:

a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be self-adhesive and engraved laminated acrylic or melamine label.

b. Enclosures and electrical cabinets.

c. Access doors and panels for concealed electrical items.

d. Switchgear.

e. Switchboards.

f. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.

g. Substations.

h. Emergency system boxes and enclosures.

i. Motor-control centers.

j. Enclosed switches.

k. Enclosed circuit breakers.

l. Enclosed controllers.

m. Variable-speed controllers.

n. Push-button stations.

o. Power transfer equipment.

p. Contactors.

q. Remote-controlled switches, dimmer modules, and control devices.

r. Battery-inverter units.

s. Battery racks.

t. Power-generating units.

u. Monitoring and control equipment.

v. UPS equipment.

END OF SECTION – 16100

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SECTION 16120 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes grounding systems and equipment, plus the following special applications:

1. Underground distribution grounding.

2. Ground bonding common with lightning protection system.

1.3 SUBMITTALS

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

B. As-Built Data: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:

1. Test wells.

2. Ground rods.

3. Ground rings.

4. Grounding arrangements and connections for separately derived systems.

5. Grounding for sensitive electronic equipment.

C. Qualification Data: For qualified testing agency and testing agency's field supervisor.

D. Field quality-control reports.

E. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

1. Instructions for periodic testing and inspection of grounding features at test wells, ground rings, and grounding connections for separately derived systems based on NETA MTS and NFPA 70B.

a. Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.

b. Include recommended testing intervals.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 – PRODUCTS

2.1 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.

2. Stranded Conductors: ASTM B 8.

3. Tinned Conductors: ASTM B 33.

4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, ¼ inch in diameter.

5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

C. Bare Grounding Conductor and Conductor Protector for Wood Poles:

1. No. 4 AWG minimum, soft-drawn copper.

2. Conductor Protector: Half-round PVC or wood molding; if wood, use pressure-treated fir, cypress, or cedar.

D. Grounding Bus: Predrilled rectangular bars of annealed copper, ¼ by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V. Lexan or PVC, impulse tested at 5000 V.

2.2 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, pressure type with at least two (2) bolts.

1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-bar Connectors: Mechanical type, cast silicon bronze, solderless compression and exothermic-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad, sectional type; ¾ inch by 10 feet and 5/8 by 96 inches in diameter.

B. Chemical-Enhanced Grounding Electrodes: Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.

1. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches long.

2. Backfill Material: Electrode manufacturer's recommended material.

PART 3 – EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct-bank installation.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection,

with alternating bands of green and yellow tape, with at least three (3) bands of green and two (2) bands of yellow.

D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.

2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down to specified height above floor; connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.

2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.

3. Connections to Ground Rods at Test Wells: Bolted connectors.

4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 GROUNDING SEPARATELY DERIVED SYSTEMS

A. Generator: Install grounding electrode(s) at the generator location. The electrode shall be connected to the equipment grounding conductor and to the frame of the generator.

3.4 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Grounding Manholes and Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, nonshrink grout.

C. Grounding Connections to Manhole Components: Bond exposed-metal parts such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground

rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields according to written instructions by manufacturer of splicing and termination kits.

D. Pad-Mounted Transformers and Switches: Install two ground rods and ground ring around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for ground ring and for taps to equipment grounding terminals. Bury ground ring not less than 6 inches from the foundation.

3.5 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.

2. Lighting circuits.

3. Receptacle circuits.

4. Single-phase motor and appliance branch circuits.

5. Three-phase motor and appliance branch circuits.

6. Flexible raceway runs.

7. Armored and metal-clad cable runs.

8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.

9. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.

B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

D. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

E. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

F. Signal and Communication Equipment: In addition to grounding and bonding required by NFPA 70, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A.

1. For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.

2. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a ¼-by-4-by-12-inch grounding bus.

3. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

G. Metal and Wood Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.6 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Bonding Common with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.

C. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.

2. For grounding electrode system, install at least three (3) rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

D. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Section 260543 "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one (1) test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

E. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.

2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.

3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

F. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one (1) of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.

2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.

3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

G. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.

H. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet apart.

I. Ground Ring: Install a grounding conductor, electrically connected to each building structure ground rod and to each steel column and/or indicated item, extending around the perimeter of building, area, and/or item indicated.

1. Install tinned-copper conductor not less than No. 2/0 AWG for ground ring and for taps to building steel.

2. Bury ground ring not less than 24 inches from building's foundation.

J. Ufer Ground (Concrete-Encased Grounding Electrode): Fabricate according to NFPA 70; use a minimum of 20 feet of bare copper conductor not smaller than No. 4 AWG.

1. If concrete foundation is less than 20 feet long, coil excess conductor within base of foundation.

2. Bond grounding conductor to reinforcing steel in at least four (4) locations and to anchor bolts. Extend grounding conductor below grade and connect to building's grounding grid or to grounding electrode external to concrete.

3.7 LABELING

A. Comply with requirements in Section 260553 "Identification for Electrical Systems" Article for instruction signs. The label or its text shall be green.

B. Install labels at the telecommunications bonding conductor and grounding equalizer and at the grounding electrode conductor where exposed.

1. Label Text: "If this connector or cable is loose or if it must be removed for any reason, notify the facility manager."

3.8 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. Manufacturer's Field Service: Contractor shall engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.

2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, at ground test wells, and at individual ground rods. Make tests at ground rods before any conductors are connected.

a. Measure ground resistance no fewer than two (2) full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

b. Perform tests by fall-of-potential method according to IEEE 81.

4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

C. Grounding system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

E. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.

2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.

3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.

4. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).

5. Substations and Pad-Mounted Equipment: 5 ohms.

6. Manhole Grounds: 10 ohms.

F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION – 16120

SECTION 16130 – UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Conduit, ducts, and duct accessories for direct-buried and concrete-encased duct bank, and in single duct runs.

2. Handholes and pull boxes.

1.3 DEFINITION

A. RNC: Rigid nonmetallic conduit.

B. Trafficways: Locations where vehicular or pedestrian traffic is a normal course of events.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Duct-bank materials, including separators and miscellaneous components.

2. Ducts and conduits and their accessories, including elbows, end bells, bends, fittings, and solvent cement.

3. Accessories for handholes, pull boxes, and other utility structures.

4. Warning tape.

B. Shop Drawings for Factory-Fabricated Handholes and Pull Boxes Other Than Precast Concrete: Include dimensioned plans, sections, and elevations, and fabrication and installation details, including the following:

1. Duct entry provisions, including locations and duct sizes.

2. Cover design.

3. Grounding details.

4. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

C. Duct-Bank Coordination Drawings: Show duct profiles and coordination with other utilities and underground structures.

1. Include plans and sections, drawn to scale, and show bends and locations of expansion fittings.

2. Drawings shall be signed and sealed by a qualified professional engineer.

D. Product Certificates: For concrete and steel used in precast concrete manholes, pull boxes, and handholes, comply with ASTM C 858.

E. Qualification Data: For qualified professional engineer and testing agency.

F. Source quality-control reports.

G. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Comply with IEEE C2.

B. Comply with NFPA 70.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver ducts to Project site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.

B. Store precast concrete and other factory-fabricated underground utility structures at Project site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.

C. Lift and support precast concrete units only at designated lifting or supporting points.

1.7 PROJECT CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Architect and Construction Manager no fewer than two (2) days in advance of proposed interruption of electrical service.

2. Do not proceed with interruption of electrical service without Architect's and Construction Manager's written permission.

1.8 COORDINATION

A. Coordinate layout and installation of ducts, handholes, and pull boxes with final arrangement of other utilities, site grading, and surface features as determined in the field.

B. Coordinate elevations of ducts and duct-bank entrances into manholes, handholes, and pull boxes with final locations and profiles of ducts and duct banks as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations from those indicated as required to suit field conditions and to ensure that duct runs drain to manholes and handholes, and as approved by Architect.

1.9 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

B. Furnish cable-support stanchions, arms, insulators, and associated fasteners in quantities equal to five percent (5%) of quantity of each item installed.

PART 2 – PRODUCTS

2.1 CONDUIT

A. Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.

B. RNC: NEMA TC 2, Type EPC-40-PVC and Type EPC-80-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

2.2 NONMETALLIC DUCTS AND DUCT ACCESSORIES

A. Manufacturers: Subject to compliance with requirements, provide available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AFC Cable Systems

2. ARNCO Corporation

3. Beck Manufacturing

4. Cantex, Inc.

5. CertainTeed Corp.

6. Condux International, Inc.

7. DCX-CHOL Enterprises, Inc.; ELECSYS Division

8. Electri-Flex Company

9. IPEX Inc.

10. Lamson & Sessions; Carlon Electrical Products

11. Manhattan Wire Products; a Belden company

B. Underground Plastic Utilities Duct: NEMA TC 6 & 8, Type EB-20-PVC, ASTM F 512, UL 651A, with matching fittings by the same manufacturer as the duct, complying with NEMA TC 9.

C. Underground Plastic Utilities Duct: NEMA TC 6 & 8, Type DB-60-PVC and Type DB-120-PVC, ASTM F 512, with matching fittings by the same manufacturer as the duct, complying with NEMA TC 9.

D. Duct Accessories:

1. Duct Separators: Factory-fabricated rigid PVC interlocking spacers, sized for type and sizes of ducts with which used, and retained to provide minimum duct spacings indicated while supporting ducts during concreting or backfilling.

2. Warning Tape: Underground-line warning tape specified in Section 260553 "Identification for Electrical Systems."

2.3 PRECAST CONCRETE HANDHOLES AND PULL BOXES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Christy Concrete Products

2. Cretex Concrete Products West, Inc.; Riverton Division

3. Elmhurst-Chicago Stone Co.

4. Oldcastle Precast Group

5. Oldcastle Precast Inc.; Utility Vault Division

6. Utility Concrete Products, LLC

7. Wausau Tile Inc.

B. Comply with ASTM C 858 for design and manufacturing processes.

C. Ferrous metal hardware shall be hot-dip galvanized in accordance with ASTM A 153 and ASTM A 123.

D. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or pull box.

1. Frame and Cover: Weatherproof steel frame, with hinged steel access door assembly with tamper-resistant, captive, cover-securing stainless-steel bolts.

a. Cover Hinges: Concealed, with hold-open ratchet assembly.

b. Cover Handle: Recessed.

2. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.

3. Cover Legend: Molded lettering, "ELECTRIC.", "TELEPHONE.", and as indicated for each service.

4. Configuration: Units shall be designed for flush burial and have integral closed bottom unless otherwise indicated.

5. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.

a. Extension shall provide increased depth of 12 inches.

b. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.

6. Windows: Precast openings in walls, arranged to match dimensions and elevations of approaching ducts and duct banks plus an additional 12 inches vertically and horizontally to accommodate alignment variations.

a. Windows shall be located no less than 6 inches from interior surfaces of walls, floors, or frames and covers of handholes, but close enough to corners to facilitate racking of cables on walls.

b. Window opening shall have cast-in-place, welded wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct banks.

c. Window openings shall be framed with at least two additional No. 4 steel reinforcing bars in concrete around each opening.

7. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.

a. Type and size shall match fittings to duct or conduit to be terminated.

b. Fittings shall align with elevations of approaching ducts and be located near interior corners of handholes to facilitate racking of cable.

8. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.4 HANDHOLES AND PULL BOXES OTHER THAN PRECAST CONCRETE

A. Description: Comply with SCTE 77.

1. Color: Gray.

2. Configuration: Units shall be designed for flush burial and have integral closed bottom unless otherwise indicated.

3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.

4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.

5. Cover Legend: Molded lettering,

a. "ELECTRIC.", "TELEPHONE.", and as indicated for each service.

b. Tier level number, indicating that the unit complies with the structural load test for that tier according to SCTE 77.

6. Direct-Buried Wiring Entrance Provisions: Knockouts equipped with insulated bushings or end-bell fittings, retained to suit box material, sized for wiring indicated, and arranged for secure, fixed installation in enclosure wall.

7. Duct Entrance Provisions: Duct-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.

8. Handholes 12 inches wide by 24 inches long and larger shall have factory-installed inserts for cable racks and pulling-in irons.

B. Polymer Concrete Handholes and Pull Boxes with Polymer Concrete Cover: Molded of sand and aggregate, bound together with a polymer resin, and reinforced with steel or fiberglass or a combination of the two (2). Handholes and pull boxes shall comply with the requirements of SCTE 77 Tier 8 and Tier 15 loading.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Armorcast Products Company

b. Carson Industries LLC

c. CDR Systems Corporation

d. Hubbell Power Systems; Lenoir City Division

e. NewBasis

C. Fiberglass Handholes and Pull Boxes with Polymer Concrete Frame and Cover: Complying with SCTE 77 Tier 8 and Tier 15 loading. Sheet-molded, fiberglass-reinforced, polyester resin enclosure joined to polymer concrete top ring or frame.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Armorcast Products Company

b. Carson Industries LLC

c. Christy Concrete Products

d. Synertech Moulded Products, Inc.; a division of Oldcastle Precast

D. Fiberglass Handholes and Pull Boxes: Molded of fiberglass-reinforced polyester resin, with covers of polymer concrete, complying with SCTE 77 Tier 8 and Tier 5 loading.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Carson Industries LLC

b. Christy Concrete Products

c. Nordic Fiberglass, Inc.

E. High-Density Plastic Pull Boxes: Injection molded of high-density polyethylene or copolymer-polypropylene, complying with SCTE 77 Light Duty loading. Cover shall be polymer concrete.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Carson Industries LLC

b. Nordic Fiberglass, Inc.

c. Pencell Plastics

2.5 SOURCE QUALITY CONTROL

A. Test and inspect precast concrete utility structures according to ASTM C 1037.

B. Nonconcrete Handhole and Pull Box Prototype Test: Test prototypes of manholes and pull boxes for compliance with SCTE 77. Strength tests shall be for specified Tier ratings of products supplied.

1. Testing Agency: Owner will engage a qualified testing agency to evaluate nonconcrete handholes and pull boxes.

2. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 – EXECUTION

3.1 PREPARATION

A. Coordinate layout and installation of ducts, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field. Notify Architect if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.

B. Coordinate elevations of ducts and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of ducts and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct runs drain to manholes and handholes, and as approved by Architect.

3.2 CORROSION PROTECTION

A. Aluminum shall not be installed in contact with earth or concrete.

3.3 UNDERGROUND DUCT APPLICATION

A. Ducts for Electrical Cables over 600 V: RNC, NEMA Type EPC-40-PVC, in concrete-encased duct bank unless otherwise indicated.

B. Ducts for Electrical Feeders 600 V and Less: RNC, NEMA Type EPC-40 PVC, in direct-buried duct bank unless otherwise indicated.

C. Ducts for Electrical Branch Circuits: RNC, NEMA Type EPC-40-PVC, in direct-buried duct bank unless otherwise indicated.

D. Underground Ducts for Telephone, Communications, or Data Circuits: RNC, NEMA Type EPC-40-PVC, in direct-buried duct bank unless otherwise indicated.

E. Underground Ducts Crossing Driveways, Roadways, and Railroads: RNC, NEMA Type EPC-40-PVC, encased in reinforced concrete.

3.4 UNDERGROUND ENCLOSURE APPLICATION

A. Handholes and Pull Boxes for 600 V and Less, Including Telephone, Communications, and Data Wiring:

1. Units in Roadways and Other Deliberate Traffic Paths: Precast concrete. AASHTO HB 17, H-20 structural load rating.

2. Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Polymer concrete, SCTE 77, Tier 15 or Tier 22 structural load rating.

3. Units in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: structural load rating.

4. Units Subject to Light-Duty Pedestrian Traffic Only: Fiberglass-reinforced polyester resin, structurally tested according to SCTE 77 with 3000-lbf "Light-Duty" vertical loading.

3.5 EARTHWORK

A. Excavation and Backfill: Comply with Section 312000 "Earth Moving," but do not use heavy-duty, hydraulic-operated, compaction equipment.

B. Restore surface features at areas disturbed by excavation and reestablish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

C. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary top soiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Cut and patch existing pavement in the path of underground ducts and utility structures.

3.6 DUCT INSTALLATION

A. Slope: Pitch ducts a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope ducts from a high point in runs between two (2) manholes to drain in both directions.

B. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 25 ft. both horizontally and vertically, at other locations unless otherwise indicated.

C. Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.

D. Duct Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches o.c. for 5-inch ducts, and vary proportionately for other duct sizes.

1. Begin change from regular spacing to end-bell spacing 10 ft. from the end bell without reducing duct line slope and without forming a trap in the line.

2. Direct-Buried Duct Banks: Install an expansion and deflection fitting in each conduit in the area of disturbed earth adjacent to manhole or handhole.

3. Grout end bells into structure walls from both sides to provide watertight entrances.

E. Building Wall Penetrations: Make a transition from underground duct to rigid steel conduit at least 10 ft. outside the building wall without reducing duct line slope away from the building and without forming a trap in the line. Use fittings manufactured for duct-to-conduit transition. Install conduit penetrations of building walls as specified in Section 260500 "Common Work Results for Electrical."

F. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.

G. Pulling Cord: Install 100-lbf-test nylon cord in ducts, including spares.

H. Concrete-Encased Ducts: Support ducts on duct separators.

1. Separator Installation: Space separators close enough to prevent sagging and deforming of ducts, with not less than five (5) spacers per 20 ft. of duct. Secure separators to earth and to ducts to prevent floating during concreting. Stagger separators approximately 6 inches between tiers. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.

2. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.

a. Start at one end and finish at the other, allowing for expansion and contraction of ducts as their temperature changes during and after the pour. Use expansion fittings installed according to manufacturer's written recommendations, or use other specific measures to prevent expansion-contraction damage.

b. If more than one (1) pour is necessary, terminate each pour in a vertical plane and install ¾-inch reinforcing rod dowels extending 18 inches into concrete on both sides of joint near corners of envelope.

3. Pouring Concrete: Spade concrete carefully during pours to prevent voids under and between conduits and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Use a plank to direct concrete down sides of bank assembly to trench bottom. Allow concrete to flow to center of bank and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-bank application.

4. Reinforcement: Reinforce concrete-encased duct banks where they cross disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.

5. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.

6. Minimum Space between Ducts: 3 inches between ducts and exterior envelope wall, 2 inches between ducts for like services, and 4 inches between power and signal ducts.

7. Depth: Install top of duct bank at least 24 inches below finished grade in areas not subject to deliberate traffic, and at least 30 inches below finished grade in deliberate traffic paths for vehicles unless otherwise indicated.

8. Stub-Ups: Use manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor unless otherwise indicated. Extend concrete encasement throughout the length of the elbow.

9. Stub-Ups: Use manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.

a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.

b. Stub-Ups to Equipment: For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of base. Install insulated grounding bushings on terminations at equipment.

10. Warning Tape: Bury warning tape approximately 12 inches above all concrete-encased ducts and duct banks. Align tape parallel to and within 3 inches of the centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

I. Direct-Buried Duct Banks:

1. Support ducts on duct separators coordinated with duct size, duct spacing, and outdoor temperature.

2. Space separators close enough to prevent sagging and deforming of ducts, with not less than five (5) spacers per 20 ft. of duct. Secure separators to earth and to ducts to prevent displacement during backfill and yet permit linear duct movement due to expansion and contraction as temperature changes. Stagger spacers approximately 6 inches between tiers.

3. Excavate trench bottom to provide firm and uniform support for duct bank. Prepare trench bottoms as specified in Section 312000 "Earth Moving" for pipes less than 6 inches in nominal diameter.

4. Install backfill as specified in Section 312000 "Earth Moving."

5. After installing first tier of ducts, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand-place backfill to 4 inches over ducts and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."

6. Install ducts with a minimum of 3 inches between ducts for like services and 6 inches between power and signal ducts.

7. Depth: Install top of duct bank at least 36 inches below finished grade unless otherwise indicated.

8. Set elevation of bottom of duct bank below the frost line.

9. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.

10. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.

a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.

b. For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.

3.7 INSTALLATION OF CONCRETE HANDHOLES, AND PULL BOXES

A. Precast Concrete Handhole Installation:

1. Comply with ASTM C 891 unless otherwise indicated.

2. Install units level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances.

3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

B. Elevations:

1. Install handholes with bottom below the frost line, below grade.

2. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch above finished grade.

3. Where indicated, cast handhole cover frame integrally with handhole structure.

C. Waterproofing: Apply waterproofing to exterior surfaces of handholes after concrete has cured at least three (3) days. Waterproofing materials and installation are specified in Division 07. After ducts have been connected and grouted, and before backfilling, waterproof joints and connections and touch up abrasions and scars. Waterproof exterior of manhole chimneys after mortar has cured at least three (3) days.

D. Field-Installed Bolting Anchors in Concrete Handholes: Do not drill deeper than 3-7/8 inches for manholes and 2 inches for handholes, for anchor bolts installed in the field. Use a minimum of two (2) anchors for each cable stanchion.

E. Warning Sign: Install "Confined Space Hazard" warning sign on the inside surface of each manhole cover.

3.8 INSTALLATION OF HANDHOLES AND PULL BOXES OTHER THAN PRECAST CONCRETE

A. Install handholes and pull boxes level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances. Use pull box extension if required to match depths of ducts, and seal joint between box and extension as recommended by the manufacturer.

B. Unless otherwise indicated, support units on a level 6-inch-thick bed of crushed stone or gravel, graded from ½-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: Set so cover surface will be flush with finished grade.

D. Install handholes and pull boxes with bottom below the frost line, below grade.

E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated.

Retain arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.

F. Field-cut openings for ducts and conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

G. For enclosures installed in asphalt paving and subject to occasional, nondeliberate, heavy-vehicle loading, form and pour a concrete ring encircling, and in contact with, enclosure and with top surface screeded to top of box cover frame. Bottom of ring shall rest on compacted earth.

1. Concrete: 3000 psi, twenty-eight (28) day strength, complying with Section 033000 "Cast-in-Place Concrete," with a troweled finish.

2. Dimensions: 10 inches wide by 12 inches deep.

3.9 GROUNDING

A. Ground underground ducts and utility structures according to Section 260526 "Grounding and Bonding for Electrical Systems."

3.10 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.

2. Pull aluminum or wood test mandrel through duct to prove joint integrity and test for out-of-round duct. Provide mandrel equal to eighty percent (80%) fill of duct. If obstructions are indicated, remove obstructions and retest.

3. Test manhole and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Division 26 Section "Grounding and Bonding for Electrical Systems."

B. Correct deficiencies and retest as specified above to demonstrate compliance.

C. Prepare test and inspection reports.

3.11 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

END OF SECTION – 16130

SECTION 16400 – LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
CONTRACT CK-EDSP-2014-003

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Building wires and cables rated 600 V and less.

2. Connectors, splices, and terminations rated 600 V and less.

3. Sleeves and sleeve seals for cables.

1.3 DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

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

B. Qualification Data: For testing agency.

C. Field quality-control test reports.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

1.6 COORDINATION

A. Set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

PART 2 – PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:

1. American Insulated Wire Corp.; a Leviton Company.

2. General Cable Corporation.

3. Senator Wire & Cable Company.

4. Southwire Company.

B. Copper Conductors: Comply with NEMA WC 70.

C. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN.

2.2 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:

1. AFC Cable Systems, Inc.

2. Hubbell Power Systems, Inc.

3. O-Z/Gedney; EGS Electrical Group LLC.

4. 3M; Electrical Products Division.

5. Tyco Electronics Corp.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SLEEVES FOR CABLES

A. Steel Pipe Sleeves: ASTM A 53, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.4 SLEEVE SEALS

A. Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:

1. Advance Products & Systems, Inc.

2. Calpico, Inc.

3. Metraflex Co.

4. Pipeline Seal and Insulator, Inc.

B. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.

2. Pressure Plates: Plastic, Carbon steel, Stainless steel. Include two (2) for each sealing element.

3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one (1) for each sealing element.

PART 3 – EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper for all feeders. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND WIRING METHODS

A. Service Entrance: Type THHN-THWN, single conductors in raceway.

B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-THWN, single conductors in raceway.

D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.

E. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-THWN, single conductors in raceway.

F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.

G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.

H. Class 1 Control Circuits: Type THHN-THWN, in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.

D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

E. Identify and color-code conductors and cables according to Division 26 Section "Identification for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

B. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

C. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.

2. For sleeve rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.

D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

E. Cut sleeves to length for mounting flush with both wall surfaces.

F. Extend sleeves installed in floors 2 inches above finished floor level.

G. Size pipe sleeves to provide ¼-inch annular clear space between sleeve and cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

I. Aboveground Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeves to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

J. Underground Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between cable and sleeve for installing mechanical sleeve seals.

3.6 SLEEVE-SEAL INSTALLATION

A. Install to seal underground exterior-wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for cable material and size. Position cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

3.8 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

B. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors, and conductors feeding the following critical equipment and services for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

3. Infrared Scanning: After Substantial Completion, but not more than sixty (60) days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.

a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice eleven (11) months after date of Substantial Completion.

b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

C. Test Reports: Prepare a written report to record the following:

1. Test procedures used.

2. Test results that comply with requirements.

3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

D. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION – 16400

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exterior luminaires with lamps and ballasts.

2. Luminaire-mounted photoelectric relays.

3. Poles and accessories.

1.3 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color-rendering index.

C. HID: High-intensity discharge.

D. LER: Luminaire efficacy rating.

E. Luminaire: Complete lighting fixture, including ballast housing if provided.

F. Pole: Luminaire support structure, including tower used for large area illumination.

G. Standard: Same definition as "Pole" above.

1.4 STRUCTURAL ANALYSIS CRITERIA FOR POLE SELECTION

A. Dead Load: Weight of luminaire and its horizontal and vertical supports, lowering devices, and supporting structure, applied as stated in AASHTO LTS-4-M.

B. Live Load: Single load of 500 lbf distributed as stated in AASHTO LTS-4-M.

C. Ice Load: Load of 3 lbf/sq. ft. pplied as stated in AASHTO LTS-4-M Ice Load Map.

D. Wind Load: Pressure of wind on pole and luminaire and banners and banner arms, calculated and applied as stated in AASHTO LTS-4-M.

1. Basic wind speed for calculating wind load for poles exceeding 49.2 feet in height is 100 mph.

a. Wind Importance Factor: 1.0.

b. Minimum Design Life: Fifty (50) years.

c. Velocity Conversion Factors: 1.0.

2. Basic wind speed for calculating wind load for poles 50 feet high or less is 100 mph.

a. Wind Importance Factor: 1.0.

b. Minimum Design Life: Fifty (50) years.

c. Velocity Conversion Factors: 1.0.

1.5 SUBMITTALS

A. Product Data: For each luminaire, pole, and support component, arranged in order of lighting unit designation. Include data on features, accessories, finishes, and the following:

1. Physical description of luminaire, including materials, dimensions, effective projected area, and verification of indicated parameters.

2. Details of attaching luminaires and accessories.

3. Details of installation and construction.

4. Luminaire materials.

5. Photometric data based on laboratory tests of each luminaire type, complete with indicated lamps, ballasts, and accessories.

a. Testing Agency Certified Data: For indicated luminaires, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.

b. Manufacturer Certified Data: Photometric data shall be certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.

6. Photoelectric relays.

7. Ballasts, including energy-efficiency data.

8. Lamps, including life, output, CCT, CRI, lumens, and energy-efficiency data.

9. Materials, dimensions, and finishes of poles.

10. Means of attaching luminaires to supports, and indication that attachment is suitable for components involved.

11. Anchor bolts for poles.

12. Manufactured pole foundations.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

2. Anchor-bolt templates keyed to specific poles and certified by manufacturer.

3. Design calculations, certified by a qualified professional engineer, indicating strength of screw foundations and soil conditions on which they are based.

4. Wiring Diagrams: For power, signal, and control wiring.

C. Pole and Support Component Certificates: Signed by manufacturers of poles, certifying that products are designed for indicated load requirements in AASHTO LTS-4-M and that load imposed by luminaire and attachments has been included in design. The certification shall be based on design calculations by a professional engineer.

D. Qualification Data: For qualified agencies providing photometric data for lighting fixtures.

E. Field quality-control reports.

F. Operation and Maintenance Data: For luminaires and poles include in emergency, operation, and maintenance manuals.

G. Warranty: Sample of special warranty.

1.6 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by manufacturers' laboratories that are accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products.

B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Comply with IEEE C2, "National Electrical Safety Code."

E. Comply with NFPA 70.DELIVERY, STORAGE, AND HANDLING

F. Package aluminum poles for shipping according to ASTM B 660.

G. Store poles on decay-resistant-treated skids at least 12 inches above grade and vegetation. Support poles to prevent distortion and arrange to provide free air circulation.

H. Retain factory-applied pole wrappings on fiberglass and laminated wood poles until right before pole installation. Handle poles with web fabric straps.

I. Retain factory-applied pole wrappings on metal poles until right before pole installation. For poles with nonmetallic finishes, handle with web fabric straps.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace products that fail in materials or workmanship; that corrode; or that fade, stain, perforate, erode, or chalk due to effects of weather or solar radiation within specified warranty period. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, or unauthorized repairs or alterations from special warranty coverage.

1. Warranty Period for Luminaires: Five (5) years from date of Substantial Completion.

2. Warranty Period for Metal Corrosion: Five (5) years from date of Substantial Completion.

3. Warranty Period for Color Retention: Five (5) years from date of Substantial Completion.

4. Warranty Period for Poles: Repair or replace lighting poles and standards that fail in finish, materials, and workmanship within manufacturer's standard warranty period, but not less than three (3) years from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Products: Exterior lighting for this project is intended to match an existing City standard. No substitutions will be considered.

2.2 GENERAL REQUIREMENTS FOR LUMINAIRES

A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.

1. LER Tests Incandescent Fixtures: Where LER is specified, test according to NEMA LE 5A.

2. LER Tests Fluorescent Fixtures: Where LER is specified, test according to NEMA LE 5 and NEMA LE 5A as applicable.

3. LER Tests HID Fixtures: Where LER is specified, test according to NEMA LE 5B.

B. Lateral Light Distribution Patterns: Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.

C. Metal Parts: Free of burrs and sharp corners and edges.

D. Sheet Metal Components: Corrosion-resistant aluminum unless otherwise indicated. Form and support to prevent warping and sagging.

E. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed luminaires.

F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses. Designed to disconnect ballast when door opens.

G. Exposed Hardware Material: Stainless steel.

H. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

I. Light Shields: Metal baffles, factory installed and field adjustable, arranged to block light distribution to indicated portion of normally illuminated area or field.

J. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:

1. White Surfaces: Eighty-five percent (85%).

2. Specular Surfaces: Eighty-three percent (83%).

3. Diffusing Specular Surfaces: Seventy-five percent (75%).

K. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

L. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

M. Factory-Applied Finish for Steel Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated

steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."

2. Exterior Surfaces: Manufacturer's standard finish consisting of one (1) or more coats of primer and two (2) finish coats of high-gloss, high-build polyurethane enamel.

a. Color: Black.

N. Factory-Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

2. Class I, Color Anodic Finish: AA-M32C22A42/A44 (Mechanical Finish: medium satin; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.

a. Color: Black.

O. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps and ballasts. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp and ballast characteristics:

a. "USES ONLY" and include specific lamp type.

b. Lamp diameter code (T-4, T-5, T-8, T-12), tube configuration (twin, quad, triple), base type, and nominal wattage for fluorescent and compact fluorescent luminaires.

c. Lamp type, wattage, bulb type (ED17, BD56, etc.) and coating (clear or coated) for HID luminaires.

d. Start type (preheat, rapid start, instant start) for fluorescent and compact fluorescent luminaires.

e. ANSI ballast type (M98, M57, etc.) for HID luminaires.

f. CCT and CRI for all luminaires.

2.3 LUMINAIRE-MOUNTED PHOTOELECTRIC RELAYS

A. Comply with UL 773 or UL 773A.

B. Contact Relays: Factory mounted, single throw, designed to fail in the on position, and factory set to turn light unit on at 1.5 to 3 fc and off at 4.5 to 10 fc with fifteen (15) second minimum time delay. Relay shall have directional lens in front of photocell to prevent artificial light sources from causing false turnoff.

1. Relay with locking-type receptacle shall comply with ANSI C136.10.

2. Adjustable window slide for adjusting on-off set points.

2.4 BALLASTS FOR HID LAMPS

A. Comply with ANSI C82.4 and UL 1029 and capable of open-circuit operation without reduction of average lamp life. Include the following features unless otherwise indicated:

1. Ballast Circuit: Constant-wattage autotransformer or regulating high-power-factor type.

2. Minimum Starting Temperature: Minus 22 deg F.

3. Normal Ambient Operating Temperature: 104 deg F.

4. Ballast Fuses: One (1) in each ungrounded power supply conductor. Voltage and current ratings as recommended by ballast manufacturer.

B. Auxiliary, Instant-On, Quartz System: Factory-installed feature automatically switches quartz lamp on when fixture is initially energized and when momentary power outages occur. System automatically turns quartz lamp off when HID lamp reaches approximately sixty percent (60%) of light output.

C. High-Pressure Sodium Ballasts: Electromagnetic type with solid-state igniter/starter and capable of open-circuit operation without reduction of average lamp life. Igniter/starter shall have an average life in pulsing mode of ten thousand (10,000) hours at an igniter/starter-case temperature of 90 deg C.

1. Instant-Restrike Device: Integral with ballast, or solid-state potted module, factory installed within fixture and compatible with lamps, ballasts, and mogul sockets up to 150 W.

a. Restrike Range: 105- to 130-V ac.

b. Maximum Voltage: 250-V peak or 150-V ac rms.

2. Minimum Starting Temperature: Minus 40 deg F.

2.5 HID LAMPS

A. High-Pressure Sodium Lamps: ANSI C78.42, CRI 21 (minimum), CCT color temperature 1900 and average rated life of twenty-four thousand (24,000) hours, minimum.

1. Dual-Arc Tube Lamp: Arranged so only one (1) of two (2) arc tubes is lighted at one time and, when power is restored after an outage, the cooler arc tube, with lower internal pressure, lights instantly, providing an immediate eight to fifteen percent (8-15%) of normal light output.

B. Low-Pressure Sodium Lamps: ANSI C78.43.

C. Metal-Halide Lamps: ANSI C78.43, with minimum CRI 65, and CCT color temperature 4000 K.

D. Pulse-Start, Metal-Halide Lamps: Minimum CRI 65, and CCT color temperature 4000 K.

E. Ceramic, Pulse-Start, Metal-Halide Lamps: Minimum CRI 80, and CCT color temperature 4000 K.

2.6 GENERAL REQUIREMENTS FOR POLES AND SUPPORT COMPONENTS

A. Structural Characteristics: Comply with AASHTO LTS-4-M.

1. Wind-Load Strength of Poles: Adequate at indicated heights above grade without failure, permanent deflection, or whipping in steady winds of speed indicated in "Structural Analysis Criteria for Pole Selection" Article.

2. Strength Analysis: For each pole, multiply the actual equivalent projected area of luminaires and brackets by a factor of 1.1 to obtain the equivalent projected area to be used in pole selection strength analysis.

B. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.

C. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.

1. Materials: Shall not cause galvanic action at contact points.

2. Anchor Bolts, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication unless otherwise indicated.

3. Anchor-Bolt Template: Plywood or steel.

D. Handhole: Oval-shaped, with minimum clear opening of 2½ by 5 inches with cover secured by stainless-steel captive screws. Provide on all, except wood poles.

E. Concrete Pole Foundations: Cast in place, with anchor bolts to match pole-base flange. Concrete, reinforcement, and formwork are specified in Section 033000 "Cast-in-Place Concrete."

F. Power-Installed Screw Foundations: Factory fabricated by pole manufacturer, with structural steel complying with ASTM A 36 and hot-dip galvanized according to ASTM A 123; and with top-plate and mounting bolts to match pole base flange and strength required to support pole, luminaire, and accessories.

G. Breakaway Supports: Frangible breakaway supports, tested by an independent testing agency acceptable to authorities having jurisdiction, according to AASHTO LTS-4-M.

2.7 ALUMINUM POLES

A. Poles: Fluted, tapered, extruded from ASTM Alloy 6061-T6.

B. Pole Base: Decorative, heavy wall cast aluminum from certified ASTM 356.1 ingot per ASTM B-179-95a or ASTM B26-95. Furnish with access handhole.

C. Pole-Top Tenons: Fabricated to support luminaire or luminaires and brackets indicated, and securely fastened to pole top.

D. Grounding and Bonding Lugs: Welded ½-inch threaded lug, complying with requirements in Section 260526 "Grounding and Bonding for Electrical Systems," listed for attaching grounding and bonding conductors of type and size listed in that Section, and accessible through handhole.

E. Aluminum Finish: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

2. Class I, Color Anodic Finish: AA-M32C22A42/A44 (Mechanical Finish: medium satin; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.

a. Color: As selected by Architect/Engineer from manufacturer's full range.

PART 3 – EXECUTION

3.1 LUMINAIRE INSTALLATION

A. Install lamps in each luminaire.

B. Fasten luminaire to indicated structural supports.

1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.

C. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.

3.2 POLE INSTALLATION

A. Alignment: Align pole foundations and poles for optimum directional alignment of luminaires and their mounting provisions on the pole.

B. Clearances: Maintain the following minimum horizontal distances of poles from surface and underground features unless otherwise indicated on Drawings:

1. Fire Hydrants and Storm Drainage Piping: 60 inches.

2. Water, Gas, Electric, Communication, and Sewer Lines: 10 feet.

3. Trees: 15 feet from tree trunk.

C. Concrete Pole Foundations: Set anchor bolts according to anchor-bolt templates furnished by pole manufacturer. Concrete materials, installation, and finishing requirements are specified in Section 033000 "Cast-in-Place Concrete."

D. Foundation-Mounted Poles: Mount pole with leveling nuts, and tighten top nuts to torque level recommended by pole manufacturer.

1. Use anchor bolts and nuts selected to resist seismic forces defined for the application and approved by manufacturer.

2. Grout void between pole base and foundation. Use nonshrink or expanding concrete grout firmly packed to fill space.

3. Install base covers unless otherwise indicated.

4. Use a short piece of ½-inch diameter pipe to make a drain hole through grout. Arrange to drain condensation from interior of pole.

E. Embedded Poles with Concrete Backfill: Set poles in augered holes to depth below finished grade indicated on Drawings, but not less than one-sixth of pole height.

1. Make holes 6 inches in diameter larger than pole diameter.

2. Fill augered hole around pole with air-entrained concrete having a minimum compressive strength of 3000 psi at twenty-eight (28) days, and finish in a dome above finished grade.

3. Use a short piece of ½-inch diameter pipe to make a drain hole through concrete dome. Arrange to drain condensation from interior of pole.

4. Cure concrete a minimum of seventy-two (72) hours before performing work on pole.

F. Poles and Pole Foundations Set in Concrete Paved Areas: Install poles with minimum of 6-inch wide, unpaved gap between the pole or pole foundation and the edge of adjacent concrete slab. Fill unpaved ring with pea gravel to a level 1 inch below top of concrete slab.

G. Raise and set poles using web fabric slings (not chain or cable).

3.3 BOLLARD LUMINAIRE INSTALLATION

A. Align units for optimum directional alignment of light distribution.

B. Install on concrete base with top 4 inches above finished grade or surface at bollard location. Cast conduit into base, and shape base to match shape of bollard base. Finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Section 033000 "Cast-in-Place Concrete."

3.4 INSTALLATION OF INDIVIDUAL GROUND-MOUNTING LUMINAIRES

A. Install on concrete base with top 4 inches above finished grade or surface at luminaire location. Cast conduit into base, and finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Section 033000 "Cast-in-Place Concrete."

3.5 CORROSION PREVENTION

A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

B. Steel Conduits: Comply with Section 260533 "Raceway and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch thick, pipe-wrapping plastic tape applied with a fifty percent (50%) overlap.

3.6 GROUNDING

A. Ground metal poles and support structures according to Section 260526 "Grounding and Bonding for Electrical Systems."

1. Install grounding electrode for each pole unless otherwise indicated.

2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.

B. Ground nonmetallic poles and support structures according to Section 260526 "Grounding and Bonding for Electrical Systems."

1. Install grounding electrode for each pole.

2. Install grounding conductor and conductor protector.

3. Ground metallic components of pole accessories and foundations.

3.7 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Illumination Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source.

1. Verify operation of photoelectric controls.

C. Illumination Tests:

1. Measure light intensities at night. Use photometers with calibration referenced to NIST standards. Comply with the following IESNA testing guide(s):

a. IESNA LM-5, "Photometric Measurements of Area and Sports Lighting Installations."

b. IESNA LM-50, "Photometric Measurements of Roadway Lighting Installations."

c. IESNA LM-52, "Photometric Measurements of Roadway Sign Installations."

d. IESNA LM-64, "Photometric Measurements of Parking Areas."

e. IESNA LM-72, "Directional Positioning of Photometric Data."

D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

3.8 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain luminaire lowering devices.

END OF SECTION – 16500