

VL-4

CONTRACT DOCUMENTS

AND

SPECIFICATIONS

FOR

VOLNEY LANDFILL SITE
REMEDIAL ACTION
TOWN OF VOLNEY
OSWEGO COUNTY, NEW YORK

CONTRACT 1A - LINER SYSTEMS
CONTRACT 1B - GAS VENTS
CONTRACT 1C - FENCING

OSWEGO COUNTY
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT SYSTEM

New York State Department of Environmental Conservation

Contract #1 for the Volney Landfill site

#7-38-003 Region 7 Oswego Co.

Approved Approved As Noted Resubmit With Revisions Disapproved

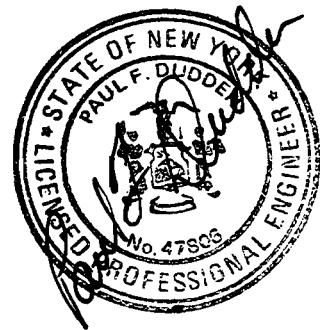
COMMISSIONER OF ENVIRONMENTAL CONSERVATION

[Signature] Designated Representative

Date: 6/12/00

PREPARED BY:

BARTON & LOGUIDICE, P.C.
CONSULTING ENGINEERS
290 ELWOOD DAVIS ROAD
BOX 3107
SYRACUSE, NEW YORK 13220



BIDDING & CONTRACT REQUIREMENTS

SECTION 00020

ADVERTISEMENT FOR BIDS

Sealed bids for the furnishing of all labor and material necessary for the construction of the Volney Landfill Site Remedial Action will be received by the Oswego County Purchasing Department, 46 East Bridge Street, Oswego, New York 13126 until 11:00 A.M. local time Thursday, July 6, 2000 at which time and place they will be publicly opened and read aloud. There is a mandatory Pre-bid Meeting scheduled for 10:00 A.M. June 15, 2000 at the Oswego County DPW Offices all bidders must attend.

Bids will be received for the following Contract(s):

Contract Nos. 1A, 1B and 1C

Contract 1A - Liner Systems: Production, fabrication and delivery of the liner membrane and geotextile, installing the liner membrane, welding all liner field seams, approving subgrade preparation, installing connections to all penetrations, all testing required in the Specifications, documenting quality assurance activities, preparing construction drawings before work begins in the field, preparing final "Record" drawings upon completion of the work and provide warranties.

Contract 1B - Gas Vents: Shall include all related work required to install 40 deep gas vents, 122 shallow well gas vents and extensions to existing gas vents. Work shall also include disposal on site of debris from gas vent.

Contract 1C - Fencing: Shall include all related work required to furnish and install 3,200 L.F. of 8 foot high chain link fence (misc. appurtenances and site grading associated with the fence installation). Work shall also include removal and disposal of existing fence as shown on the Contract Drawings.

Contract Documents, including Advertisement For Bids, Information For Bidders, Wage Rates, Additional Instructions, Bid Documents, Agreement, General Conditions, General Requirements, Specifications, Contract Drawings and any Addenda, may be examined at no expense at the office of Barton & Loguidice, P.C., Consulting Engineers, 290 Elwood Davis Road, Liverpool, New York 13088, or at the Purchasing Department, 3rd Floor, County Office

BIDDING & CONTRACT REQUIREMENTS

SECTION 00060

TABLE OF CONTENTS

DIVISION 0	BIDDING & CONTRACT REQUIREMENTS
SECTION	
00020	ADVERTISEMENT FOR BIDS
00060	TABLE OF CONTENTS
00061	INDEX - INFORMATION FOR BIDDERS
00062	INDEX - WAGE RATES
00063	INDEX - ADDITIONAL INSTRUCTIONS
00065	INDEX - GENERAL CONDITIONS
00066	INDEX - GENERAL REQUIREMENTS
00067	INDEX - SPECIFICATIONS
00068	INDEX - CONTRACT DRAWINGS
00100	INFORMATION FOR BIDDERS
00150	WAGE RATES
00160	ADDITIONAL INSTRUCTIONS
00301	BIDDER'S CHECKLIST
00370-00499	BID DOCUMENTS
00570	AGREEMENT
00610	PERFORMANCE BOND
00620	LABOR & MATERIALS PAYMENT BOND
00650	CERTIFICATE OF INSURANCE
00750-00761	GENERAL CONDITIONS
DIVISION 1	GENERAL REQUIREMENTS
DIVISION 2-16	SPECIFICATIONS
PAYMENT ITEMS	CONTRACT 1A - LINER SYSTEMS
PAYMENT ITEMS	CONTRACT 1B - GAS VENTS
PAYMENT ITEMS	CONTRACT 1C - FENCING

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00061

INDEX TO SECTION 00100

INFORMATION FOR BIDDERS

SECTION

00100

- 01 Location of the Work
- 02 Description of the Work
- 03 Commencement & Completion of the Work
- 04 Collateral Work & Conditions of Work
- 05 Receipt & Opening of Bids
- 06 Informalities, Waivers & Withdrawals
- 07 Bid Preparation
- 08 Addenda & Interpretations
- 09 Qualifications of Bidders
- 10 Obligations of Bidders
- 11 Bid Security
- 12 Liquidated Damages for Failure to Execute Contract
- 13 Discrepancy in Bids
- 14 Lowest Bidder
- 15 Award of Contract

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00062

INDEX TO SECTION 00150

WAGE RATES

SECTION

00150

- 01 Posting Minimum Wage Rates & Keeping Records
- 02 Non-Discrimination and Labor Practices
- 03 Legal Day's Work
- 04 Wage Rates
- 05 Verification of Amounts Due for Wages and Supplements
- 06 Minimum Rates

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00063

INDEX TO SECTION 00160

ADDITIONAL INSTRUCTIONS

SECTION

00160

- 01 Borings & Subsurface Data
- 02 Pre-Construction Conference
- 03 Power of Attorney
- 04 Laws & Regulations
- 05 Non-Collusive Bidding Certification
- 06 Changes and Amplifications to General Conditions
- 07 Changes and Amplifications to General Requirements
- 08 Mandatory Provisions for Title 3 Contracts
- 09 Job Coordination Meetings
- 10 Staging Plan
- 11 Dust Control Program
- 12 Contractor's Office
- 13 Temporary Construction Access Roads
- 14 Work By Owner
- 15 Gas Vent Sequencing
- 16 Engineer's Field Office Trailer
- 17 Health & Safety
- 18 Bidding Provisions
- 19 Project Sign
- 20 Contract Documents Hierarchy
- 21 Environmental Monitoring During Gas Vent Drilling
- 22 Surveyed Liner Quantities

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00065

INDEX - SECTION 00750 - 00761

GENERAL CONDITIONS

SECTION

00750	DEFINITIONS OF WORDS & TERMINOLOGY
-01	Definitions of Words & Terms
-02	References to Other Specifications and Codes
00751	POWERS & DUTIES OF ENGINEER
-01	Responsibility of the Engineer
-02	Inspection of Work
-03	No Waiver of Rights
00752	INSURANCE, SECURITIES & GUARANTEES
-01	Guarantees, Performance and Labor & Materials Payment Bonds
-02	Additional Security
-03	Contractor's Insurance
00753	STATUS OF CONTRACTOR
-01	Representations of Contractor
-02	Address of Contractor
-03	Patents
-04	Contractor's Obligations
-05	Liability for Injuries or Damage
-06	General Indemnification
-07	Contractor's Claim for Disputed Work
-08	No Claims Against Individuals
-09	Contractor's Title to Materials
-10	Title to Old Materials
00754	CONTRACTOR'S ORGANIZATION & STAFF
-01	Superintendents, Foremen & Agents
-02	Competency & Character of Employees
-03	Contractor's Field Office

00065-2

SECTION 00065

INDEX - SECTION 00750 - 00761

GENERAL CONDITIONS

SECTION

00755	PERMITS, TAXES, ACCESS, OTHER CONTRACTS
-01	Laws, Regulations & Permits
-02	Required Legal Provisions Deemed Included
-03	Unlawful Requirements Deemed Excluded
-04	Taxes
-05	Access to Work & Contractor's Records
00756	TIME ELEMENTS
-01	Commencement & Completion
-02	Time Essence
-03	Progress
-04	Approved Work Schedules
-05	Work Suspension
-06	Time Extensions
-07	Engineering & Inspection Charges
-08	Per Diem Charges for Delay
00757	CHANGES IN THE WORK
-01	Right to Alter Contract
-02	Minor Charges
-03	Change Orders & Payment or Credit Therefor
-04	Correction of Work
-05	Emergency Powers Unimpaired
00758	ASSIGNMENT & SUBCONTRACTS
-01	Subcontracts
-02	Limit of Subcontracts Value
-03	Assignment
-04	Payment

SECTION 00065

INDEX - SECTION 00750 - 00761

GENERAL CONDITIONS

SECTION

00759	PAYMENTS
-.01	Estimated Quantities
-.02	Prices All-Inclusive
-.03	Lump Sum Prices
-.04	Unit Prices
-.05	Monthly Estimates & Payments
-.06	Withdrawal of Retained Percentage
-.07	Owner's Right to Withhold Payments
-.08	Inspection at Substantial Completion
-.09	Certificate of Substantial Completion
-.10	Payment at Substantial Completion
-.11	Final Payment
-.12	Acceptance of Final Payment
-.13	Guarantee Inspection
-.14	Acceptance of Portions of the Work
-.15	Repair or Replacement of Damaged, Defective or Faulty Work
-.16	Payment to Subcontractors by Contractor
00760	CONTRACT TERMINATION
-.01	Owner's Right to Stop Work or Terminate Contract
-.02	Contractor's Right to Stop Work or Terminate Contract
-.03	Other Termination Provisions
00761	DESCRIPTION & DELINEATION OF THE WORK
-.01	Intent of Plans and Specifications
-.02	Interpretation of Plans & Specifications
-.03	Contract Drawings
-.04	Additional or Supplemental Drawings

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00066

INDEX - DIVISION 1

GENERAL REQUIREMENTS

SECTION

01012	COLLATERAL WORK
-.01	Collateral Work
01015	CONTRACTOR USE OF PREMISES
-.01	Area Available for Contractor's Use
-.02	Travel Not Obstructed
-.03	Cleaning Up
01019	SITE CONDITIONS
-.01	Pre-Bid Inspection & Examination
-.02	Borings
-.03	Protection of Existing Structures
-.04	Existing Structures Below Ground
-.05	Abandoned Structures
-.06	Latent Subsurface Conditions
-.07	Adjustment or Changes of Existing Structures
-.08	Maintenance and Restoration of Service
-.09	Poles & Posts On Site
-.10	Notification of Other Parties
01051	LAYOUT OF WORK
-.01	Services Provided by Engineer
-.02	Services Provided by Contractor
-.03	Obligations of the Contractor
-.04	Lines, Grades and Elevations
-.05	Masonry Chases, Openings and Inserts
-.06	Payment for Layout of Work

00066-2

SECTION 00066

INDEX - DIVISION 1

GENERAL REQUIREMENTS

SECTION

01064	SAFETY AND HEALTH
-01	Safety and Health Regulations
-02	Safety and First Aid
-03	Dust Hazards
01340	SUBMITTALS
-01	Drawings Furnished by the Contractor
-02	Transmittal, Identification and Resubmittal
-03	Delay Through Tardy Submittal
-04	Contractor Responsible for Accuracy
-05	Additional Instructions
-06	Drawings to be Checked by Contractor
-07	Substitutes and "Or-Equal" Items
-08	Additional Engineering Costs
01506	WORK UNDER UNUSUAL CONDITIONS
-01	Work After Dark
-02	Work on Sundays or Holidays
-03	Work in Storms
-04	Work in Cold Weather
01510	SERVICES DURING CONSTRUCTION
-01	Sanitary Facilities
-02	Water
-03	Temporary Heat
-04	Temporary Electric Light and Power
-05	Payment for Temporary Services
01568	EROSION AND SEDIMENT CONTROL
-01	General
-02	Control Schedule
-03	Control Measures
-04	Payment

SECTION 00066

INDEX - DIVISION 1

GENERAL REQUIREMENTS

SECTION

01577	MAINTENANCE OF TRAFFIC
-01	General
-02	Travel Not Obstructed During Excavation
-03	Basic Maintenance and Protection of Traffic
-04	Payment
01580	PROJECT SIGN
-01	General
-02	Sign Panel
-03	Painting
-04	Miscellaneous
-05	Payment
01590	ENGINEER'S FIELD OFFICE TRAILER
-01	Description
-02	Facilities to be Provided
-03	Location
-04	Payment
01640	MATERIALS, EQUIPMENT AND WORKMANSHIP
-01	Materials and Workmanship - General Requirements
-02	Samples, Tests and Inspections
-03	Removal of Finished Work for Inspection
-04	Field Tests
-05	Manufacturers and Suppliers
-06	Experience and Equivalent Clauses
-07	Installation of Equipment
-08	Tools, Accessories and Manuals
-09	Care and Protection of the Work
-10	Absence of Engineer

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00067

INDEX TO DIVISION 2 - DIVISION 16

SPECIFICATIONS

DIVISION 2 - SITE WORK

SECTION	
02002	PAYMENT ITEM FOR MOBILIZATION/DEMOBILIZATION FOR LINER SYSTEMS
02003	PAYMENT ITEM FOR MOBILIZATION/DEMOBILIZATION FOR GAS VENTS
02220	EXCAVATION
02225	SELECT FILL MATERIALS
02233	GEOTEXTILE
02436	POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS
02444	FENCE, CHAIN LINK
02595	POLYVINYL CHLORIDE (PVC) LINING MATERIAL
02598	LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL
02677	ROTARY-DRILLED LANDFILL GAS VENT WELLS

DIVISION 3 - CONCRETE

03300	CAST-IN-PLACE CONCRETE
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DIVISION 13 - SPECIAL CONSTRUCTION

13052	LANDFILL GAS VENTS
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DIVISION 15 - MECHANICAL

15884	LANDFILL GAS VENT FLARE
15999	PAYMENT ITEM FOR AUGERED HOLE ABANDONMENT

END OF SECTION

00068-1

BIDDING & CONTRACT REQUIREMENTS

SECTION 00068

INDEX - CONTRACT DRAWINGS
(Bound Separately)

<u>SHEET NO.</u>	<u>DESCRIPTION</u>	<u>FILE NO.</u>
1	General Site Plan	132.164-20F
2	Miscellaneous Details	132.164-21F
3	Miscellaneous Details	132.164-22F

END OF SECTION

3.00

132.164

BIDDING & CONTRACT REQUIREMENTS

SECTION 00100

INFORMATION FOR BIDDERS

00100.01 LOCATION OF THE WORK

The work under Contract Nos. 1A, 1B, and 1C for the Volney Landfill Site Remedial Action Project is located on Silk Road in the Town of Volney, New York.

00100.02 DESCRIPTION OF THE WORK

The items of work under these Contracts include, but are not necessarily limited to the following:

Contract 1A - Liner Systems: Production, fabrication and delivery of the liner membrane and geotextile, installing the liner membrane, welding all liner field seams, approving subgrade preparation, installing connections to all penetrations, all testing required in the Specifications, documenting quality assurance activities, preparing construction drawings before work begins in the field, preparing final "Record" drawings upon completion of the work and provide warranties.

Contract 1B - Gas Vents: Shall include all related work required to install 40 deep gas vents and 122 shallow well gas vents. Work shall also include disposal on site of debris from gas vent shafts.

Contract 1C - Fencing: Shall include all related work required to furnish and install 3,200 L.F. of 8 foot high chain link fence (misc. appurtenances and site grading associated with the fence installation). Work shall also include removal and disposal of existing fence as shown on the Contract Drawings.

00100.03 COMMENCEMENT AND COMPLETION OF THE WORK

Upon execution of the Contract including delivery of the Performance Bond, Labor & Materials Payment Bond and insurance policies and certificates by the Contractor to the Owner and the approval thereof by the Owner's attorney, the Contractor will be notified to proceed with the work. Such notification will be in the form of a letter to proceed from the Engineer.

00100-2

SECTION 00100

INFORMATION FOR BIDDERS

00100.03 COMMENCEMENT AND COMPLETION OF THE WEEK - Continued

The Contractor shall give the Engineer at least five (5) days written notice of the date he intends to start work at the site.

All work items of the Contracts shall be substantially completed within 180 calendar days following the date the Contractor is notified to proceed with the work unless such period is extended by the Owner as provided herein.

00100.04 COLLATERAL WORK AND CONDITIONS OF WORK

Each Bidder shall inform himself fully of the conditions relating to the construction of the Project and the employment of labor thereon. Failure to do so will not relieve a successful Bidder, as Contractor, of his obligation to furnish all material and labor necessary to carry out the provisions of his Contract. Insofar as possible, the Contractor, in carrying out the work, shall employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor. (See also Section 01012.01.)

Each Contractor will be required to coordinate his work with the work of other Contracts. Each Contractor will be required to adjust his schedule accordingly.

00100.05 RECEIPT & OPENING OF BIDS

The County of Oswego (herein called the Owner) invites Bids on the attached forms. Bids will be received by the Owner until the time and at the place stated in the attached Advertisement For Bids. Bids must be sealed in envelopes addressed to the Oswego County Department of Purchasing, County Office Building, 46 East Bridge Street, Oswego, New York 13126. The outside of the envelope shall bear the name and address of the Bidder and shall be labeled to clearly show the Contract designation for which the Bid is submitted.

00100.06 INFORMALITIES, WAIVERS AND WITHDRAWALS

The Owner may consider informal any Bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any or all Bids. Bids which do not contain a price for every numbered item contained in the Bid form for that contract will not be accepted.

SECTION 00100

INFORMATION FOR BIDDERS

00100.06 INFORMALITIES, WAIVERS AND WITHDRAWALS - Continued

Any Bid may be withdrawn prior to the scheduled deadline for receipt of Bids or authorized postponement thereof, but no Bid may be withdrawn within forty-five (45) days after the actual date of the opening thereof. Any Bid received after the time and date specified will not be considered, and will be returned unopened.

00100.07 BID PREPARATION

Unless otherwise noted thereon, all blanks on the Bid forms must be appropriately filled in with ink and with both words and figures, and the Bid must be properly executed. Do not remove the Bid forms from this binder.

All Contract Documents, except the Contract Drawings, the Performance Bond, Labor & Materials Payment Bond, Certificate of Insurance and any Addenda, are contained in this binder. The Contract Drawings are bound separately. All Contract Documents, except the Contract Drawings, Performance Bond and Labor & Materials Payment Bond, and Certificate of Insurance must be submitted with the Bid. The Contract Documents are defined in the Agreement.

Telegraphic or facsimile communication will not be accepted. All bids must be received in a sealed envelope.

00100.08 ADDENDA AND INTERPRETATIONS

No verbal interpretation of the intent of any of the Contract Documents will be made before receipt of Bids. Requests for interpretations prior to receipt of Bids must be presented in writing to the Engineer, Barton & Loguidice, P.C., Consulting Engineers, 290 Elwood Davis Road, Box 3107, Syracuse, New York 13220, and to be given consideration must be received by the Engineer at least seven (7) days prior to the date set for the opening of Bids.

Any interpretation, and any additional information or instruction will, if issued, be in the form of a written Addendum or Addenda sent by certified mail to all holders of Contract Documents at the addresses furnished therefor, at least five (5) days prior to the date of the opening of Bids. Facsimile ("fax") communication may be issued in advance of any written Addendum or Addenda without diminishing any part of this Section.

00100-4

SECTION 00100

INFORMATION FOR BIDDERS

00100.08 ADDENDA AND INTERPRETATIONS - Continued

Failure of any Bidder to receive any such Addendum or interpretation shall not relieve such Bidder from any obligation under this Bid as submitted. All Addenda so issued shall become a part of the Contract Documents.

00100.09 QUALIFICATIONS OF BIDDERS

The Owner reserves the right to make such investigation as he may deem necessary or advisable to determine any Bidder's ability to do the work, and the Bidder shall furnish to the Owner on request all data and information pertinent thereto. The Owner reserves the right to reject any Bid if such investigation fails to satisfy the Owner that the Bidder is fully qualified to do the work.

Conditional Bids will be considered informal and will be rejected.

Immediately following the Canvass of Bids the Low Bidder, if so requested, shall furnish the Owner a sworn and notarized financial statement, and a statement of his qualifications and experience.

00100.10 OBLIGATIONS OF BIDDERS

At the time of the opening of Bids, each Bidder will be presumed to have inspected the Site, to have informed himself fully of the conditions relating to the work and labor required for the work, and to have read and acquainted himself with all the Contract Documents. Failure to do so will not relieve the Bidder who is awarded the Contract of his obligation to complete the work for the price or prices bid, or of any other obligation under the Contract. The failure or omission of any Bidder to receive or examine any Contract Documents shall in no way relieve him from any obligation in respect to his Bid.

00100.11 BID SECURITY

Each Bid must be accompanied by cash in United States currency or a certified check of the Bidder in an amount not less than five percent (5%) of the Bid. A Bid Bond, fully executed by the Bidder as principal, and having as surety thereon a surety company approved by the Owner and authorized to do business in New York State, will be accepted in lieu of cash or certified check. Checks should be made payable to the Owner.

SECTION 00100

INFORMATION FOR BIDDERS

00100.11 BID SECURITY - Continued

Such cash, checks or Bid Bonds will be returned to all except the three lowest Bidders within three working days after the opening of Bids. The remaining deposits will be returned to the three lowest Bidders within three working days after execution of the Contract, or, if no Contract is executed within 45 calendar days after opening of Bids, upon demand of the Bidder at any time thereafter so long as he has not been notified of the acceptance of his Bid.

00100.12 LIQUIDATED DAMAGES FOR FAILURE TO EXECUTE CONTRACT

Should the successful Bidder refuse or fail to execute the Contract and Bond within five (5) working days after receipt of notice of the acceptance of his Bid, the security deposited with his Bid shall be forfeited to the Owner as liquidated damages for such refusal or failure.

00100.13 DISCREPANCY IN BIDS

In the event a discrepancy exists in any Bid between the prices written in words and the prices written in figures, the prices written in words shall govern. If a discrepancy exists in any bid between unit prices and the extended totals therefor, the unit prices shall govern. In either of the above cases, the extended totals, and the total of all extensions, shall be corrected, if necessary, and the Bid may not be considered informal.

00100.14 LOWEST BIDDER

Bids will be compared on the basis of the totals for the Contract, corrected as necessary in conformance with Article 00100.13, given at the bottom of the schedule of quantities, prices and extensions. Such total in each Bid shall be the sum of all lump sum prices, plus the sum of all the extensions produced by multiplying the unit price in each case by the corresponding listed quantity.

00100.15 AWARD OF CONTRACT

The Contract will be awarded within 45 days to the lowest responsive, responsible bidder.

The Owner reserves the right to reject any and all Bids.

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00150

WAGE RATES

00150.01 POSTING MINIMUM WAGE RATES & KEEPING RECORDS

The Contractor and every Subcontractor on public works contracts shall post in a prominent and accessible place on the Site a legible statement of all wage rates and supplements as specified in the Contract to be paid or provided, as the case may be, for the various classes of mechanics, workmen and laborers employed on the work.

The Contractor and every Subcontractor shall keep original payrolls or verified transcripts thereof showing the hours and days worked by each workman, mechanic or laborer, the occupation at which he worked, the hourly wage rate paid and the supplements paid or provided, on the Site, when the Contractor or Subcontractor maintains no regular place of business in New York State and where the amount of the Contract is in excess of \$25,000. All other Contractors and Subcontractors shall produce within five days on the Site and upon formal order of the Commissioner of Labor or his designated representative such original payrolls or verified transcripts thereof, as may be deemed necessary to adequately enforce the provisions of this Section.

Notwithstanding the aforementioned requirements, every Contractor and Subcontractor shall submit to the Owner within thirty days after issuance of its first payroll, and every thirty days thereafter, a transcript of the original payroll record, as provided by Article 8 of the Labor Law, subscribed and affirmed as true under penalties of perjury. The original payrolls or transcripts shall be preserved for three years from the completion of the work.

00150.02 NON-DISCRIMINATION AND LABOR PRACTICES

In accordance with Section 220-e of Article 8 of the State Labor Law, the Contractor agrees:

- A. That in the hiring of employees for the work of this Contract or any Subcontract, neither he nor any Subcontractor, nor any person acting on behalf of the Contractor, or any Subcontractor, shall by reasons of race, creed, color, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which his employment relates; and

00150-2

SECTION 00150

WAGE RATES

00150.02 NON-DISCRIMINATION AND LABOR PRACTICES - Continued

- B. That neither the Contractor, nor any Subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this Contract on account of race, creed, color, sex, disability or national origin; and
- C. That there may be deducted from the amount payable to the Contractor by the Owner, a penalty of Fifty Dollars for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of this Contract; and
- D. That this Contract may be cancelled or terminated by the Owner, and all monies due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this Section of the Contract; and
- E. That the aforesaid provisions of this Section covering contracts for the manufacture, sale or distribution of materials, equipment or supplies shall be limited to operations performed within the territorial limits of the State of New York.
- F. During the performance of this Contract, the Contractor agrees as follows:
 - 1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, disability or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin. Such action shall be taken with reference, but not be limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.

SECTION 00150

WAGE RATES

00150.02 NON-DISCRIMINATION AND LABOR PRACTICES - Continued

2. The Contractor will send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice to be provided by the State Division of Human Rights, advising such labor union or representative of the Contractor's agreement under subparagraphs (1) through (7) (hereinafter called "non-discrimination clauses"). If the Contractor was directed to do so by the contracting agency as part of the Bid or negotiation of this Contract, the Contractor shall request such labor union or representative to furnish him with a written statement that such labor union or representative either will affirmatively cooperate, within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses or that it consents and agrees that recruitment, employment and the terms and conditions of employment under this Contract shall be in accordance with the purposes and provisions of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such a statement, the Contractor shall promptly notify the State Division of Human Rights of such failure or refusal.
3. The Contractor will post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Division of Human Rights setting forth the substance of the provisions of subparagraphs (1) and (2) and such provisions of the State's laws against discrimination as the State Commissioner of Human Rights shall determine.
4. The Contractor will state, in all solicitations, or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, sex, color, disability or national origin.

SECTION 00150

WAGE RATES

00150.02 NON-DISCRIMINATION AND LABOR PRACTICES - Continued

5. The Contractor will comply with the provisions of Sections 291-299 of the Executive Law and the Civil Rights Law, will furnish all information and reports deemed necessary by the State Commissioner of Human Rights under these non-discrimination clauses and such sections of the Executive Law, and will permit access to his books, records and accounts by the State Commissioner of Human Rights, the Attorney General and the Commissioner of Labor for purposes of investigation to ascertain compliance with these non-discrimination clauses and such sections of the Executive Law and Civil Rights Law.
6. This Contract may be forthwith cancelled, terminated or suspended, in whole or in part, by the contracting agency upon the basis of a finding made by the State Commissioner of Human Rights that the Contractor has not complied with these non-discrimination clauses, and the Contractor may be declared ineligible for future contracts made by or on behalf of the State or a public authority or agency of the State, until he satisfies the State Commissioner of Human Rights that he has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such finding shall be made by the State Commissioner of Human Rights after conciliation efforts by the State Division of Human Rights have failed to achieve compliance with these non-discrimination clauses and after verified complaint has been filed with the State Division of Human Rights, notice thereof has been given to the Contractor and an opportunity has been afforded him to be heard publicly before the State Commissioner of Human Rights or his designee. Such sanctions may be imposed and remedies otherwise provided by law.
7. The Contractor will include the provisions of sub-paragraph (1) through (7) of this paragraph A and in every Subcontract or purchase order in such a manner that such provisions will be binding upon each Subcontractor or vendor as to operations to be performed within the State of New York. The Contractor will take such action in enforcing such provisions of such Subcontract or purchase order as the contracting agency may direct, including sanctions or remedies for non-compliance. If the Contractor becomes involved in or is threatened with litigation with a Subcontractor or vendor as a result of such direction by the

SECTION 00150

WAGE RATES

00150.02 NON-DISCRIMINATION AND LABOR PRACTICES - Continued

contracting agency, the Contractor shall promptly so notify the Attorney General, requesting him to intervene and protect the interest of the State of New York.

- G. It is hereby agreed that all applicable provisions of the Labor Law of the State of New York shall be carried out in the performance of this Contract.
- H. This agreement shall be void and of no effect unless the Contractor shall secure compensation insurance for the benefit of, and keep insured during the life of this agreement, such employees engaged therein as are required to be insured by the provisions of the Worker's Compensation Law of the State of New York.

00150.03 LEGAL DAY'S WORK

In accordance with Section 220 (2) of Article 8 of the State Labor Law, no laborer, workman or mechanic employed by the Contractor, a Subcontractor or other person doing or contracting to do any part of the work shall be permitted or required to work more than eight hours in any one calendar day or more than five days in any week except in cases of extraordinary emergency including fire, flood or danger to life or property, or in case of national emergency when so proclaimed by the President of the United States.

00150.04 WAGE RATES

In accordance with Section 220 of Article 8 of the State Labor Law, the wages to be paid for a legal day's work, as hereinbefore defined, to laborers, workmen or mechanics employed by the Contractor or Subcontractors, shall be not less than the prevailing rate of wages as hereinafter defined. Each laborer, workman or mechanic employed by the Contractor, Subcontractors, or other person upon or about the work, shall be paid not less than the wages and supplements herein provided.

Any person or corporation that willfully pays or provides less than the stipulated wage scale or supplements shall be guilty of a misdemeanor and upon conviction shall be punished as provided by law.

00150-6

SECTION 00150

WAGE RATES

00150.04 WAGE RATES - Continued

It shall be the duty of the Commissioner of Labor, or, if the Owner is a city, the comptroller or other analogous officer of such city, to make a determination of the schedule of wages to be paid all laborers, workmen and mechanics employed on the Project (if it is a public works project) including supplements for welfare, pension, vacation and other benefits. These supplements include hospital, surgical or medical insurance or benefits, life insurance or death benefits, accidental death or dismemberment insurance, and pension or retirement benefits. If the amount of supplements provided by the employer is less than the total supplements shown on the wage schedule, the difference shall be paid in cash to employees.

The supplements to be provided shall be in accordance with prevailing practices in the locality. The amount for wages and for supplements listed in the schedule in these Contract Documents does not necessarily include all types of prevailing wages and supplements in the locality, and a future determination by the Commissioner of Labor may require the Contractor to pay increased wages or provide additional supplements.

00150.05 VERIFICATION OF AMOUNTS DUE FOR WAGES AND SUPPLEMENTS

In accordance with Section 220-a of Article 8 of the State Labor Law, the New York State schedule of prevailing wages and supplements, as included in this Contract or as subsequently redetermined by the New York State Department of Labor, shall be specifically included in each and every Subcontract, regardless of tier, awarded by the Contractor or his Subcontractors.

Subcontractors, regardless of tier, shall provide to the Contractor a verified statement attesting that the Subcontractor has received and reviewed the prevailing wage rate and supplement schedule and agreeing that it will pay its employees the applicable wages and will pay or provide the supplements specified therein. The Contractor shall submit to the Owner copies of all such verified statements.

The Owner will not make final payment to the Contractor unless and until the Contractor submits the following:

- verified statements as described in the preceding paragraph

SECTION 00150

WAGE RATES

00150.05 VERIFICATION OF AMOUNTS DUE FOR WAGES AND SUPPLEMENTS
- Continued

- certification to the amounts then due from the Contractor to any and all laborers for wages or supplements on account of labor performed upon the work under the Contract
- certification to the amounts then due from any Subcontractor, regardless of tier, for wages and supplements, on account of labor performed upon the work under the Contract, or shall certify that the Contractor has no knowledge of such amounts owing to or on behalf of any laborers of its Subcontractors.

In the event it is determined by the New York State Commissioner of Labor that the wages and/or supplements of any employees of the Contractor's Subcontractors, regardless of tier, have not been paid or provided pursuant to the appropriate schedule of wages and supplements, the Contractor shall be responsible for payment of such wages or supplements.

00150.06 MINIMUM RATES

New York State Department of Labor wage rates will be in effect on this Project.

The minimum wage rates designated by the Commissioner of Labor of the State of New York are attached. These minimum rates and supplements may be modified during the life of the Contract. If the prevailing wage rates should subsequently be legally modified or increased by any means other than by the action of the Owner, the Contractor shall assume full responsibility for the payment of said increases without recourse to the Owner.

END OF SECTION

NEW YORK STATE DEPARTMENT OF LABOR
BUREAU OF PUBLIC WORK
STATE OFFICE BUILDING CAMPUS
ALBANY, NY 12240

SCHEDULE 1999A

Date 01/14/00

OSWEGO CO.

PRC 0000129 OSWEGO COUNTY

01

DOUGLAS A. MILLER, P.E.
BARTON & LOGUIDICE, P.C.
290 ELWOOD DAVIS ROAD
BOX 3107
SYRACUSE NY 13220

Location and Type of Project
PROJECT ID #: NONE
VOLNEY LANDFILL
REMEDIAL ACTION
LANDFILL CLOSURE
SILK ROAD, VOLNEY, NY

JAN 20 2000

In response to your request, enclosed is the schedule of the prevailing hourly wage rates and the prevailing hourly supplements for the above project, together with copies of the Notice of Contract Let (PW-16) for your use. THE SCHEDULES MUST BE ANNEXED TO AND FORM A PART OF THE SPECIFICATIONS FOR THIS PROJECT WHEN IT IS ADVERTISED FOR BIDS. These schedules have been prepared and forwarded in accordance with Article 8 of the NYS Labor Law, which provides that it shall be the duty of the fiscal officer to ascertain and determine the schedules of supplements to be provided and wages to be paid to workers, laborers and mechanics employed on public work projects, and to file such schedules with the Department having jurisdiction.

The attached rates are based on the latest information available to the Department of Labor, Bureau of Public Work. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the Public Work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project.

This schedule is effective from July 1, 1999 through June 30, 2000. A new updated schedule will automatically be mailed to you each July 1 until we are notified that the project is completed or canceled.

Note: A 1997 AMENDMENT TO SECTION 220 OF THE LABOR LAW REQUIRES THE DEPT. OF JURISDICTION TO RECEIVE AND MAINTAIN MONTHLY TRANSCRIPTS OF PAYROLL RECORDS FOR THREE YEARS FROM THE DATE OF COMPLETION OF THE WORK IN THE AWARDED CONTRACT.

Very truly yours,

CHET RYSEDORPH
DIRECTOR

NOTICE TO CONTRACTING AGENCIES:

Upon cancellation or completion of this project, enter the necessary information and return this page to Bureau of Public Work, Bldg. 12, Rm. 130 SOBC, Albany, NY 12240.

PROJECT HAS BEEN COMPLETED/CANCELED:

Date _____

Signature _____

Title _____

For additional information, contact our local District Offices:

Albany (518) 457-2744
Binghamton (607) 721-8005
Buffalo (716) 847-7159
Hempstead (516) 485-4878
New York City (212) 352-6088

Syracuse (315) 428-4056
Rochester (716) 258-4505
Utica (315) 793-2314
White Plains (914) 997-9507

PW-200 (6-98)

CONTRACT REQUIREMENTS

Each public work contract to which the State, a public benefit corporation, a municipal corporation or a commission appointed pursuant to law is a party and which may involve the employment of laborers, workers or mechanics, shall comply with the requirements of Article 8 (Sections 220-223) of the New York State Labor Law:

1. No laborer, worker or mechanic in the employ of the contractor, subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract shall be permitted or required to work more than eight hours in any one calendar day or more than five days in any one week except in the extraordinary emergencies set forth in the Labor Law or where a dispensation is granted by the Commissioner of Labor.
2. Each laborer, worker or mechanic employed by the contractor or subcontractor shall be paid not less than the prevailing rate of wages as indicated on the wage schedule provided by the Department, Bureau of Public Work. The prevailing rate of wage shall be annually determined no later than thirty days prior to July 1st of each year. The prevailing rate of wage for the period commencing July first of such year through June thirtieth, inclusive of the following year shall be the rate of wage set forth in collective bargaining agreements for the same period, including those increases for such period which are directly ascertainable from such collective bargaining agreements. (See Sections 220.3, 220.5)
3. It shall be the duty of the department of jurisdiction to file with the fiscal officer, the classification of workers mechanics and laborers to be employed on a public work project, together with a statement of the work to be performed by each classification. (See Section 220.3-a)
4. The contractor and every subcontractor shall post in a prominent and accessible place at the work site a statement of all wage rates and supplements to be paid or provided for the various classes of mechanics, workers or laborers. (See Section 220.3-a)
5. No employee shall be deemed to be an apprentice unless individually registered with the New York State Department of Labor. The allowable ratio of apprentices to journey-level workers in any craft classification shall not be greater than the ratio permitted to the contractor as to its work force on any job under the registered program. Any employee who is not registered as above, shall be paid or provided the prevailing wage and supplement rate for the journey level classification of work actually performed. The contractor or subcontractor will be required to furnish written evidence of registration of its program and apprentices as well as of the appropriate ratios and wage and supplement rates for the area of construction, prior to using any apprentices on the contract work. (See Section 220.3-e)
6. (a) No contractor, subcontractor, nor any person acting on its behalf, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates. (See Section 220-e(a))

(b) No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex or national origin. (See Section 220-e(b))
Note: The Human Rights Law also prohibits discrimination in employment because of age, marital status or religion.

(c) There may be deducted from the amount payable to the contractor under the contract a penalty of fifty dollars for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of the contract. (Section 220-e(c))

- (d) The contract may be cancelled or terminated by the State or municipality, and all moneys due or to become due thereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of the antidiscrimination sections of the contract. (See Section 220-e(d))
- 7. (a) All contractors or their subcontractors shall provide to their subcontractors a copy of the prevailing wage rate schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8 or the Labor Law. (See Section 220-e(d))
- (b) All subcontractors engaged by a public improvement contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the wage schedule and will pay or provide the applicable rate of wages and supplements specified therein. (See Section 220-a)

PW-3 (4-95).

ATTENTION: ALL CONTRACTORS AND SUBCONTRACTORS
ENGAGED ON PUBLIC WORK PROJECTS IN NEW YORK STATE

INTRODUCTION: Below are the major provisions of the Labor Law covering workers on public work projects.

HOURS: A laborer, worker or mechanic is permitted to work on a public work project no more than eight hours a day and no more than five days in a week, except in case of extraordinary emergency such as a fire, flood or danger to life or property. You may apply to the Bureau of Public Work for a DISPENSATION permitting workers to work additional hours or days per week on a particular public work project.

WAGES AND SUPPLEMENTS: The wages and supplements to be paid and provided for laborers, workers and mechanics employed on a public work project shall be not less than those listed in the current prevailing rate schedule for the locality where the work is performed. If a prevailing rate schedule for the project has not been provided to the prime contractor by the department of jurisdiction (i.e., the governmental entity awarding the public work contract), or to a subcontractor by the prime contractor, the applicable schedule must be obtained from the Department of Jurisdiction, who must make written application to the Bureau of Public Work, Labor Department, Building No. 12, State Office Building Campus, Albany, New York 12240.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by its subcontractors.

PAYROLL RECORDS: Every contractor and subcontractor must keep originals or transcripts of payroll records, showing for each person employed on public work, the following:

1. Name
2. Address and phone number
3. Social Security Number
4. Occupational classification in which worked
5. Hourly wage rate paid
6. Supplements provided
7. Daily and weekly number of hours worked in each classification
8. Deductions made
9. Actual wages paid.

When payroll records are requested by the Commissioner, each payroll record must be affirmed as true under the penalties of perjury which means a notarized signature to that effect. Such records must be kept on the site of the work when the contractor or subcontractor does not maintain a regular place of business in New York State and the amount of the contract exceeds \$25,000. All other contractors and subcontractors must, within 5 days after a request, produce at the work site the original payrolls or transcripts.

Every contractor and subcontractor shall submit to the Dept. of Jurisdiction within thirty days after issuance of its first payroll, and every thirty days thereafter, a transcript of the original payroll records, subscribed and affirmed as true under penalty of perjury, as provided by Article 8, Section 220, of the NYS Labor Law. The DEPARTMENT OF JURISDICTION shall receive and maintain such payroll records. The original payrolls and transcripts must be preserved for three years from the date of completion of the project.

POSTING: The current prevailing rate schedule must be posted in a prominent and accessible place on the site of the public work project.

APPRENTICES: Employees cannot be paid apprentice rates if they are not individually registered under a program or agreement registered with the Commissioner of Labor. The contractor or subcontractor will be required to furnish written evidence of the registration of its program and apprentices and of the appropriate ratio. The allowable ratio of apprentices to journeymen in any craft classification can be no greater than the ratio permitted to the contractor or subcontractor as to its work force on any job under the registered program. An employee listed on a payroll as an apprentice, who is not registered as above, must be paid the prevailing journeyman's wage rate for that classification of work.

WITHHOLDING OF PAYMENTS: When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract may be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

INTEREST AND PENALTIES: If an underpayment of wages or supplements is found, interest must be added at the rate then in effect prescribed by the Superintendent of Banks pursuant to section 14-a of the banking law per annum from the date of underpayment to the date of the new payment, and may also include the imposition of a civil penalty not to exceed 25% of the amount due.

DEBARMENT: When final determinations have been made against a contractor or subcontractor in two instances within a six-year period determining that it willfully failed to pay or provide the prevailing rate of wages or supplements,

or if there is one wilful violation that involves falsification of payroll records or kickback of wages, such contractor or subcontractor will be ineligible to bid on or be awarded a public work contract for a period of five years from the second final determination.

CRIMINAL SANCTIONS: Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) constitute a misdemeanor punishable by fine or imprisonment, or both.

DISCRIMINATION: No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status. Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment or employment training centers, notices furnished by the State Division of Human Rights.

POSTING OF OTHER NOTICES: Every employer providing worker's compensation insurance and disability benefits must post in a conspicuous place notices of such coverage in a form prescribed by the Workers' Compensation Board.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post notices furnished by the State Department of Labor.

NOTICE OF NEW PREVAILING WAGE RATE PUBLICATIONS

APPLICABLE TO ALL COUNTIES

(*) AS NOTED ON PREVAILING RATE SCHEDULES PAGES.

The annual determination of the prevailing rates of wages and supplements for workers employed on public work projects throughout the state will be published on May 31st of each year. These new rates will be in effect July 1st thru June 30th. This new determination will supersede the original schedule or any prior issued annual determination.

It is the responsibility of the contracting agency or its agents to provide all prevailing rate schedules to contractors immediately upon receipt. Any rate change from a previously issued determination becomes effective July 1st, regardless of whether the new determination has been received by the contractor.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates that additional adjustments become effective.

PW-202 (4-95)

docm: letterd

VERIFYING THE REGISTRATION APPRENTICES

Certain State and Federal Laws require that apprentices must be individually registered as such in order to be paid apprenticeship rates on Public Work.

The New York Labor Department is the official registration agency for apprentices in New York State. No other Federal or State Agency or office registers apprentices in New York State.

Each year the apprentice training central office in Albany receives hundreds of requests from Federal and State Agencies, Contractors, and other interested parties requesting verification of individual apprentice registrations.

The following information is provided in order to clarify New York State procedures.

All registered apprentices in New York State are individually registered by name, address, social security number, starting date of training, and other related data.

This information is computerized and is available ONLY through the Albany Apprentice Training Central Office.

Persons wishing to verify the apprentice registration of any individual should write to the Senior Employment Consultant, New York State Department of Labor, Job Service and Training Division, Building 12, State Office Building Campus, Albany, New York 12240.

All inquiries MUST include name and social security number and will be answered in writing. The response will indicate whether or not the individual is registered, and if so, will provide other pertinent information regarding the registration.

The only conclusive proof of individual apprentice registration is written verification from the Albany Apprentice Training Central Office. Neither Federal nor State Apprentice Training Offices outside Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any individual is registered in that program.

Furthermore, the existence or possession of wallet cards, identification cards or copies of state forms are not conclusive proof of the registration of any individual as an apprentice.

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

INSTRUCTIONSPREVAILING RATE SCHEDULE INFORMATION

The information listed below is provided to assist you in the interpretation of particular requirements, for each classification of worker, contained in the attached Schedule of Prevailing Rates.

PAID HOLIDAYS

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work.
Note: If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

SUPPLEMENTAL BENEFITS

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is for each hour worked, some classifications require the payment or provision of supplements for each hour paid (this may include paid holidays on which no work is performed) and/or may require supplements to be paid or provided at a premium rate for premium hours worked.

EFFECTIVE DATES

When you review the schedule for a particular trade or occupation, your attention should be directed to the date above the column(s) of rates. This is the date on which the rate become effective. The rate listed is valid until the next effective rate change or until the new annual determination, which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. The department of jurisdiction is required to provide a copy of the current annual determination. Should you have questions, please contact the Bureau of Public Work or visit the NYS Department of Labor's Web site at www.labor.state.ny.us for current wage rate information.

WORKERS COMPENSATION

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage under the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

-Contractor to be awarded contract must provide proof of Workers' Compensation coverage prior to being allowed to begin work.

-The policy of insurance must be issued by a company authorized to provide Workers' Compensation coverage in this state.

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO1999A

-Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

-If New York State coverage is added to an existing out of state policy, it can only be added to a policy of a company authorized to write Workers' Compensation coverage in this state, and the coverage must be listed under item 3A of the information page.

-The contract must maintain proof that subcontractors doing work covered under this contract secure and maintain a Workers' Compensation policy for all employees working in New York State.

If you have any questions concerning the attached schedule or would like additional information, please contact nearest BUREAU of PUBLIC WORK District Office or write to the NEW YORK STATE DEPARTMENT of LABOR, BUREAU of PUBLIC WORK, BUILDING 12, STATE OFFICE BUILDING CAMPUS, ALBANY, NEW YORK 12240.

<u>District Office Locations:</u>	<u>Telephone#</u>	<u>FAX #</u>
Bureau of Public Work - Albany	518-457-2744	518-485-1870
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Hempstead	516-485-4878	516-485-0322
Bureau of Public Work - Rochester	716-258-4505	716-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2342
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - New York City	212-352-6088	212-352-6186
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

(7/06/99)

OVERTIME

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule.
Additional requirements may also be listed in the OVERTIME section.

- (A) Time and one half of the hourly rate after 7 hours per day.
- (AA) Time and one half of the hourly rate after 7 and one half hours per day.
- (B) Time and one half of the hourly rate after 8 hours per day.
- (B1) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday. Double the hourly rate for all additional hours.
- (C) Double the hourly rate after 7 hours per day.
- (C1) Double the hourly rate after 7 and one half hours per day.
- (D) Double the hourly rate after 8 hours per day.
- (D1) Double the hourly rate after 9 hours per day.
- (E) Time and one half of the hourly rate on Saturday.
- (E1) Time and one half 1st 4 hours on Saturday. Double the hourly rate all additional Saturday hours.
- (E2) Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather.
- (E3) Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week.
- (E4) Saturday and Sunday may be used as a make-up day at straight time

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

- when a day is lost during that week due to inclement weather.
- (F) Time and one half of the hourly rate on Saturday and Sunday.
 - (G) Time and one half of the hourly rate on Saturday and Holidays.
 - (H) Time and one half of the hourly rate on Saturday, Sunday, and Holidays.
 - (I) Time and one half of the hourly rate on Sunday.
 - (J) Time and one half of the hourly rate on Sunday and Holidays.
 - (K) Time and one half of the hourly rate on Holidays.
 - (L) Double the hourly rate on Saturday.
 - (M) Double the hourly rate on Saturday and Sunday.
 - (N) Double the hourly rate on Saturday and Holidays.
 - (O) Double the hourly rate on Saturday, Sunday, and Holidays.
 - (P) Double the hourly rate on Sunday.
 - (Q) Double the hourly rate on Sunday and Holidays.
 - (R) Double the hourly rate on Holidays.
 - (S) Two and one half times the hourly rate for Holidays, if worked.
 - (S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays. One and one half times the hourly rate all additional hours.
 - (T) Triple the hourly rate for Holidays, if worked.
 - (U) Four times the hourly rate for Holidays, if worked.
 - (V) Including benefits at SAME PREMIUM as shown for overtime.
 - (W) Time and one half for benefits on all overtime hours.
- NOTE: BENEFITS are PER HOUR WORKED, for each hour worked, unless otherwise noted

HOLIDAYS

PAID

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work.

Note: If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

- (1) None.
- (2) Labor Day.
- (3) Memorial Day and Labor Day.
- (4) Memorial Day and July 4th.
- (5) Memorial Day, July 4th, and Labor Day.
- (6) New Year's Day, Thanksgiving Day, and Christmas Day.
- (7) Lincoln's Birthday, Washington's Birthday, and Veterans Day.
- (8) Good Friday.
- (9) Lincoln's Birthday.
- (10) Washington's Birthday.
- (11) Columbus Day.
- (12) Election Day.

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

- (13) Presidential Election Day.
- (14) 1/2 Day on Presidential Election Day.
- (15) Veterans Day.
- (16) Day after Thanksgiving Day.
- (17) July 4th.
- (18) 1/2 Day before Christmas Day.
- (19) 1/2 Day before New Years Day.
- (20) Thanksgiving Day.
- (21) New Year's Day.
- (22) Christmas Day.
- (23) Day before Christmas.
- (24) Day before New Year's Day.
- (25) Presidents' Day.
- (26) Martin Luther King, Jr. Day.

ASBESTOS WORKER

WAGES(per hour)

7/01/1999

Asbestos Worker
Insulation Work (On mechanical systems only) \$ 20.44

OVERTIME PAY: See (B1, Q) on OVERTIME PAGE

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6) on HOLIDAY PAGE. Triple time for LABOR DAY if worked.

APPRENTICES: (1) yr terms at the following percentage of Journeyman's wage.

1st yr	2nd	3rd	4th	5th
10.13	10.36	11.65	14.04	16.31

SUPPLEMENTAL BENEFITS:(per hour worked)

Journeyman..... 9.74

APPRENTICES

1st yr	2nd	3rd	4th	5th	
3.90	8.74	9.74	9.74	9.74	NO. 6-30

ASBESTOS WORKER

WAGES(per hour)

7/01/1999

Asbestos Worker
Removal &
Abatement Only *..... \$16.82
* On Mechanical Devices NOT to be scrapped.

OVERTIME PAY: See (B, E2, H) ON OVERTIME PAGE.

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6) on HOLIDAY PAGE.

-----Case Number-----
 0000129
 OSWEGO 1999A

SUPPLEMENTAL BENEFITS:(per hour worked)

\$3.70 *

* After 1000 hours and
 1 year of service ADD
 \$3.90

5-202.1B

BOILERMAKER

WAGES(per hour)

7/01/1999

Boilermaker..... \$23.00

OVERTIME PAY:New Work See (B,E,Q) on OVERTIME PAGE. Time & 1/2
 for the 9th & 10th hours Monday thru Saturday,double all addtl.hours.

OVERTIME PAY:Maint. See (B,E,Q) on OVERTIME PAGE

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 10, 11, 15) on HOLIDAY PAGE

APPRENTICES: (1/2) year terms at the following percentage of Journeyman's
 wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
65%	65%	70%	75%	80%	85%	90%	95%

SUPPLEMENTAL BENEFITS:(per hour worked) *NOTE See below

Journeyman... \$ 7.96 Plus 12% of gross wage

*Note (Supplemental benefits per hour paid)

Journeyman...\$ 4.00

Apprentice	Per hrs worked	Per hrs Paid
1st year.	\$ 6.53 + 12% of wage	\$ 2.62
2nd year..		
1st 6 months	6.73 + 12% of wage	2.82
2nd 6 months	6.93 + 12% of wage	3.02
3rd year..		
1st 6 months	7.13 + 12% of wage	3.22
2nd 6 months	7.33 + 12% of wage	3.42
4th year..		
1st 6 months	7.53 + 12% of wage	3.62
2nd 6 months	7.73 + 12% of wage	3.82

No.6-175

ELEVATOR

WAGES(per hour)

7/01/1999

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSW:GO

1999A

Elevator Constructor... \$24.24
" Helper .. \$16.97

OVERTIME PAY: See (D, O, T) on OVERTIME PAGE

HOLIDAYS:

Paid: See (5, 6, 16) on HOLIDAY PAGE

Overtime: See (5, 6, 16) on HOLIDAY PAGE

SUPPLEMENTAL BENEFITS: (per hour worked)

\$ 6.675 plus
6 % of wage

No. 6-62.1

CARPENTER

WAGES(per hour) 7/01/1999

Building:
Carpenter..... \$18.55
Carpet Layer..... 18.55
Dry-Wall Applicator.. 18.55
Lather..... 18.55
Hazardous waste work. 18.55
Piledriver (Bldg).... 18.70
Millwright..... 18.80
Millwright welder.... 19.05
Diver Wet Day..... 39.375
" Dry Day & Tenders 18.70
Pile driver welder... 18.95

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

APPRENTICES: (1/2) year terms at the following percentage of Journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

SUPPLEMENTAL BENEFITS:(per hour paid)

Journeyman \$9.14
Appr 70% to Journeyman \$9.14
Appr 50% to 55%..... 3.64
Appr 60% to 65%..... 6.39

No. 6-747

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

GLAZIER

WAGES(per hour)

7/01/1999

Glazier.....\$ 18.00
" over 35 ft above ground*
*Addit.\$.50 per hr.

OVERTIME PAY: See (B, E, E2, Q) on OVERTIME PAGE.

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6) on HOLIDAY PAGE.

APPRENTICES: (1/2) year terms at the following percentage of journeyman's wage.

1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.
45%	50%	60%	70%	80%	80%	90%	90%

SUPPLEMENTAL BENEFITS:(per hour worked)

Journeyman \$ 5.12

5-677.B

ROOFER

WAGES(per hour)

7/01/1999

Roofer, Waterproofer.. \$ 19.15
*Addtl. \$.50 per hr. for Pitch removal & application.
*Addtl. \$.25 per hr. for asbestos abatement under abatement conditions.
Under NYS Code rule 56 for asbestos abatement addtl \$.25. Total of \$.50

OVERTIME PAY: See (B, E, *, Q) on OVERTIME PAGE *
* Saturday may be paid at straight time if it is the 5th day worked. But if a holiday falls in that week Saturday will be paid at 1 1/2 times the rate.

HOLIDAY:

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

APPRENTICES: (500) hour terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
500hrs	500hrs	1000 to 2000	2000 to 3000	2000 to 3000	3000 to 4000	3000 to 4000	3000 to 4000
\$7.86	9.77	11.69	13.40	13.40	15.32	15.32	15.32

SUPPLEMENTAL BENEFITS:(per hour worked)

Journeyman \$ 6.72
Appr 1st thru 4th terms 3.52
Appr 5th thru 6th terms 5.72
Appr 7th thru 8th terms 6.72

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

6-195

SHEETMETAL WORKER

WAGES(per hour)

7/01/1999

5/01/2000

Sheetmetal Worker:

*(under \$5 million).. \$ 21.13 Addtl \$.80
*(over \$ 5 million).. 22.13 (Allocation to be determined)
*For total cost of Sheetmetal contract only.

OVERTIME PAY: See (B, E, Q*) on OVERTIME PAGE
*National Holidays Only.

HOLIDAY:
Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

APPRENTICES: (1/2)year terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
40%	45%	50%	55%	60%	65%	70%	75%	80%	85%

SUPPLEMENTAL BENEFITS:(per hour worked)

Journeyman \$10.125
Appr 1st thru 3rd year 6.31 plus 3% of both wage and \$ 5.78
Appr 4th & 5th year 7.31 plus 3% of both wage and 6.78

6-58

LABORER

Laborer (Building):

Group #A: Basic rate, nuclear site or nuclear related work.
Group #B: Blaster, asbestos and hazardous waste.

The rates and supplements under Group "A" and Group "B" apply to all categories listed below if the above descriptions are applicable.

WAGES(per hour) 7/01/1999

Group # A..... \$ 7.55
Group # B..... 7.95

OVERTIME PAY: See (B,E,Q) on OVERTIME PAGE

HOLIDAYS:
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

SUPPLEMENTAL BENEFITS:(per hour worked)

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

\$ 7.10

WAGES(per hour)

7/01/1999

Laborer(Bldg):(\$6 million to \$20 million total cost of project)
All classifications.... \$ 14.97
(Except if Group A or B apply)

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

SUPPLEMENTAL BENEFITS:(per hour worked)

\$ 7.10

No. 6-214/6-20

WAGES(per hour)

6/01/99
5/31/2000

Laborer(Bldg):(\$750,000 to \$6 million, total cost of project.)
All Classifications....\$ 14.79
(Except if Group A or B apply)

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

SUPPLEMENTAL BENEFITS:(per hour worked)

\$6.46

No . 6-214/un6

WAGES(per hour)

7/01/1999

Laborer(Bldg):(Under \$ 750,000 total cost of project)

All classifications: \$11.25
(Except if Group A or B apply)

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAYS:

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWESD

1999A

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

The following apprentice percentages apply to all above classifications.

APPRENTICES: (1) year terms of the following percentage of journeyman's wage

1st	2nd	3rd	4th
65%	75%	80%	90%

SUPPLEMENTAL BENEFITS:(per hour worked)

\$ 6.31

6-214un750

MASON - Building

WAGES(per hour)

7/01/1999

Bricklayer, Blocker, Stone Mason, Concrete Finisher, Plasterer, Refractor
Pointer, Caulker, Cleaner, Fireproofers, Synthetic Plastering, Gunite Nozzman,
Cutting of Concrete, Grout Nozzman, Bush Hammering of All Concrete, Curing.
All of The Above.....\$ 21.15

Additional \$.25 per hr for work in restricted radiation area of atomic plant.
Additional \$5.00 per day for working on a two point suspension scaffold except
Pointers Caulkers and Cleaners.

OVERTIME PAY: See (B, E, E2*, Q) on OVERTIME PAGE.

* Provided employee worked between 16 and 32 hours in that week.

HOLIDAY:

Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6) on HOLIDAY PAGE.

Apprentices: (750 hour) Terms at the following percentage of
Journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
55%	60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS:(per hour worked)

\$ 8.87

6-2b.4

MASON - Building

WAGES(per hour)

7/01/1999

Building:
Tile, Terrazzo, Marble Wk..\$ 17.23
Finisher..... 14.78

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAY:

Paid: See (1) on HOLIDAY PAGE

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

Overtime: See (5, 6) on HOLIDAY PAGE

APPRENTICES: (1/2 yr) terms at the following percentage of journeyman's wage.

Setter.....	1st	2nd	3rd	4th	5th	6th
	40%	50%	60%	70%	80%	90%

Finisher...	50%	60%	75%	90%
-------------	-----	-----	-----	-----

SUPPLEMENTAL BENEFITS:(per hour worked)

Finisher	\$ 7.08	_
Setter	7.17	

6-2T.3

SURVEY CREW - Building

SURVEY CLASSIFICATIONS:

- Party Chief- One who directs a survey party.
- Instrumentman- One who runs the instrument and assists the Party Chief.
- Rodman- One who holds the rods and in general, assists the survey party.

WAGES:(per hour) 7/01/1999

Survey Rates-Building:	
Party Chief.....	\$20.90
Inst. Man/Rodperson	17.51
Grade checker.....	17.51

Additional 2.00 per hr. if work requires Level A, B or C of Personal Protective Equipment listed in the Occup. Saf. & Health Guidance Manual for Hazardous waste site activities. Paper dust masks are excluded from coverage in this section.

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE.

HOLIDAY:
 Paid: See (5, 6) on HOLIDAY PAGE.
 Overtime: See (5, 6) on HOLIDAY PAGE.

APPRENTICES: (1000) hour terms at the following percentage of Journeyman's wage.

1st 1000 hours	\$13.13
2nd 1000 hours	14.88
3rd 1000 hours	16.63

SUPPLEMENTAL BENEFITS: (per hour paid)

Journeyman	\$10.40
Appr 1st	5.15
Appr 2nd	6.65
Appr 3rd	7.40

6-545.b

SPRINKLER FITTER

WAGES(per hour) 7/01/1999

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
DSWF:GO

-----1999A-----

Sprinkler Fitter.....\$ 23.65

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE.

HOLIDAY:

Paid: See (1) on HOLIDAY PAGE.

Overtime: See (5, 6) on HOLIDAY PAGE.

APPRENTICES: (1/2) year terms at the following percentage of Journeyman's wage.

1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.
40%	45%	50%	55%	60%	65%	70%	75%	80%	85%

SUPPLEMENTAL BENEFITS:(per hour worked)

Journeyman	\$ 7.90
Apprs. 1st thru 4th term	4.10
All other terms	7.90

No. 1-669

In the Towns of Orwell and Rich and.
THE FOLLOWING RATE APPLIES:

TEAMSTER-Building

Truck Driver (Building):

Group # A: Straight trucks, Mechanic Helper, Parts Chaser.

Group # B: Tractor trailer, Farm Tractor, Fuel Tank.

Group # C: Euclid.

Group # D: Mechanic-on-Site.

WAGES(per hour) 7/01/1999

Building:(under \$ 5 million)

Group #A.....	\$ 16.43
Group #B.....	16.43
Group #C.....	16.43
Group #D.....	16.43

OVERTIME PAY: On Job site See (D,O) on OVE TIME PAGE

OVERTIME PAY: Over road See (B,H) on OVERTIME PAGE

HOLIDAY:

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5,6) on HOLIDAY PAGE

SUPPLEMENTAL BENEFITS:(per hour worked)

\$ 6.13

6-317un5

WAGES(per hour) 7/01/1999

Building:(over \$ 5 million)

Group #A.....	17.43
Group #B.....	17.58

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

Group #C..... 17.83
Group #D..... 17.63

OVERTIME PAY: On Job site See (D,O) on OVERTIME PAGE

OVERTIME PAY: Over road See (B,H) on OVERTIME PAGE

HOLIDAY:

 Paid: See (1) on HOLIDAY PAGE

 Overtime: See (5,6) on HOLIDAY PAGE

SUPPLEMENTAL BENEFITS:(per hour worked)

6.28

6-317ov5

In the Remainder of the County.
THE FOLLOWING RATE APPLIES:

TEAMSTER-Building

Truck Driver (Building): Group # A: Fuel Trucks, Fork Lift (Warehouse & Storage Area Only), Bus, Warehouse, Yardman, Truck Helper, Pickups, Panel Truck, Flatbody Material Trucks (straight Jobs), Single axle Dump Trucks, Dumpsters, Material Checkers & Receivers, Greasers, Tiremen, Mechanic Helpers and Parts Chasers.

Group # B: Tandems, Mechanics & Batch Trucks.

Group # C: Semi Trailers, Low Boys, Asphalt Distributor Trucks, and Agitator Mixer Truck, Dump Crete Type Vehicles and 3 axle Dump trucks.

Group # D: Asbestos Removal, Special earth moving Euclid type or similar off highway equip.(non self load.)

WAGES(per hour)

7/01/1999

Building:

Group #A.....\$ 15.84
Group #B..... 15.89
Group #C..... 15.94
Group #D..... 16.10

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE.

HOLIDAY:

 Paid: See (1) on HOLIDAY PAGE.

 Overtime: See (5, 6) on HOLIDAY PAGE.

SUPPLEMENTAL BENEFITS:(per hour worked)

\$ 7.51

7-687

POWER EQUIPMENT OPERATOR - BUILDING

Building:

CLASS # A: Air Plako, Asphalt and Blacktop Roller, Automated Concrete Spreader (CMI or equiv), Automated Fine Grade Machine (CMI), Backhoe, Belt Placer,

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWI:GD

1999A

Blacktop Spreader(such as Barber Greene & Blaw Knox), Blacktop Plant (automated), Blast or Rotary Drill(Truck or cat mounted), Boom Truck, Cableway, Caisson Auger, Scraper, Central Mix Plant (Automated), Cherry Picker-over(15)ton capacity, Concrete pump, Crane, Crusher - Rock, Derrick, Diesel Power Unit, Dragline, Dredge, Dual Drum Paver, Elevating Grader(self-propelled or towed), Elevator Hoist- Two Cage, Excavator-All purpose-hydraulically operated, Fork Lift (Loed/Lull Rough Terrain type), Front End Loader(4c.y. and over), Gradall, Grader (Power), Head Tower (Saurman or equal), Hoist (2 or 3 Drum), Hydroblaster (Laser Pump) (LCM's) work Boat Operator, Light Plants, compressors and generators, Locomotive, Maintenance Engineer, Maintenance Welder, Mine Hoist, Mucking Machine or Mole, Overhead Crane-Fixed/Permanent, Pile Driver, Quarry Master or Equivalent, Refrigeration Equip.-For Soil Stabilization, Sea Mule, Shovel, Side Boom, Slip Form Paver, Straddle Buggy (Ross Carrier, Lumber Carrier), Tractor Drawn Belt Type Loader(Euclid Loader), Trenching Machine (digging capacity of over 4 ft.depth), Truck Crane Operator, Truck or Trailer mounted log chipper(self-feeder), Tug operator(Manned, rented equip. excluded), Tunnel Shovel, Vibro or Sonic Hammer Controls(when not mounted in proximity to Rig Operator) Dewatering press, Burning plant operator, Barrel shredder.

CLASS B: "A" Frame Truck, Blacktop Plant(non-automatic), Boring Machine, Bulldozer, Cage-Hoist, Central Mix Plant(non-automated), Cherry Picker(15)tons and under, Compressor when used in battery of not more than five, Concrete Paver(single drum over 16S), Core Boring Machine, Drill Rigs-Tractor mounted, Elevator-as a material hoist, Fork Lift(other than Loed/Lull rough terr)w or w/o attach, Front End Loader(under 4 c.v.) Gunite Machine, High Pressure Boiler(15 lbs. & Over),Hoist(one drum),Hydraulic Breaking Hammer (Drop Hammer), Kolman Plant Loader (screening gravel), Maintenance Grease Man, Mixer for stabilized base-self-propelled (Seaman Mixer), Monorail Machine, Parapet Concrete or Pavemt Grinder, Post Hole Digger (truck or tractor mtd), Power Sweeper(Wayne or similar), Group Pump, Pump-Crete or Squeeze-Crete, Skid Steer Bobcat type loader, Road Widener(front end of Grader or self propelled), Roller, Shell Winder (motorized), Snorkel(over head arms), Snowblower controlman, Trenching Machine (digging capacity of 4 ft. or less), Tugger Hoist, Vibro-tamp, Well Drill, Well Point System (Submersible pumps used in lieu of well point system), Winch(Motor driven), Winch truck, self-contained Hydraulic Bench Drill, Parts man and Vacuum mach. (self prop. or mtd.)

CLASS C: Compressor (Up to 500 c.f.), Concrete Paver or Mixer (under 16S), Concrete Pavement Spreaders and Finishers (not automated), Conveyor (over 12 ft), Electric Submersible Pump (4" and over), Farm Tractor with or without accessories, Fine Grade Machine (not automated), Fireman, Form Tamper, Generator(2,500 watts and over) Hydraulic Pump, Mechical Heaters - More than two(2) Mechanical Heaters or any Mechanical Heater or Heaters whose combined output exceeds 640,000 BTU per hour (manufacturer's rating) plus one self contained heating unit (i.e. Surodog or Air Heat type, New Holland Hay Dryer type excluded), Mulching Machine, Oiler Post Driver(Truck or Tractor Mounted), Power Driven Welding Machine-300 amp.and over(other than all electric)one Welding Machine under 300 amp. won't require engineer unless in battery, Power Heater(hay dryer), Pump(all water & trash), Revinus Widener(rd widener), Single Light Plant, Steam Cleaner or Jenny, Tractor w or w/out towed access, Winch Cat

WAGES(per hour)

7/01/1999

Building:

Master Mechanic.....	\$22.34
Asst.Master Mechanic	21.40
Class # A.....	20.90
Class # B.....	19.48
Class # C.....	16.91
Ple Dr. w/Bm/Ld 100ft+	21.90

0000129
 OSWEGO 1999A

Tower Crane 21.90
 Crane/Derrick w/boom:
 " 150 ft and over... 21.90
 " 200 ft..... 22.90
 " 300 ft..... 23.90

ADDITIONAL \$2.00 per hr. if work requires Level A,B,C of Personal Protective Equipment listed in the Occup. Saf. & Health Guidance Manual for Hazard. Wst. Site Activities. Paper dust masks are excluded from coverage in this section.

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAY:
 Paid: For master & Asst. Master Mech, Classes A & B

See (5, 6) on HOLIDAY PAGE

HOLIDAY:
 Paid: All others See (1) on HOLIDAY PAGE

Overtime: All others See (5,6) on HOLIDAY PAGE

APPRENTICES: (1000) hour terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th
50% of class A	55% of class A	70% of class A	75% of class A

SUPPLEMENTAL BENEFITS:(per hour paid)

Journeyman	\$10.40
Appr 1st	5.15
Appr 2nd	6.65
Appr 3rd	6.95
Appr 4th	7.40

6-545b

LINEMAN LINEMAN/ELECTRIC

WAGES(per hour)

7/01/1999 4/30/2000

Lineman/Tech./Welder	\$29.17	29.85
Dynamite/Cable splicer	29.17	29.85
Digging Mach.....	26.25	26.87
Tract Trlr Driver.....	24.79	25.37
Truck Dr/Groundman.....	23.34	23.88
Mech. 1st Class.....	23.34	23.88
Mech. 2nd Class/Flagman	17.50	17.91

Additional 1.00 per hr. for crew on helicopter job.

Above rates applicable on all overhead Transmission line work where other construction trades are or have been involved. This applies to transmission line work only, not other construction.

Lineman/Technician.....	27.96	28.64
Dynamite/welder.....	27.96	28.64
Digging Mach.....	25.16	25.78
Trctr Trlr Driver	23.77	24.34

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----
 0000129
 OSWE,GO
 1999A

Truck Dr/Groundman.....	22.37	22.91
Mech. 1st Class.....	22.37	22.91
Mech. 2nd Class.....	16.78	17.18
Flagman.....	16.78	17.18
Certified Welder.....	29.36	30.07
Cable Splicer	30.76	31.50

Additional 1.00 per hour on helicopter job.

Above rates apply on Switching Structures, Maintenance projects, Railroad Catenary install/maint, Third rail installation, Bonding of Rails and pipe type cable installation.

Lineman /Tech/Dynamite	26.68	27.36
Welder/Cable Splicer	26.68	27.36
Digging Machine Operator	24.01	24.62
Tractor Trailer Driver	22.68	23.26
Truck Driver/Groundman	21.34	21.89
Mech. 1st Class.....	21.34	21.89
Mech. 2nd Class/Flagman	16.01	16.42

Additional 1.00 per. hr. for crew on helicopter job.

Above rates applicable on all overhead and underground distribution and maintenance work, and all overhead and underground transmission line work where no other construction trades are or have been involved.

Lineman/tech/welder.....	27.26	27.36
Cable splicer.....	29.98	30.10
Certified welder (pipe-type cable).....	28.62	28.73
Digging machine operator	24.58	24.62
Tractor trailer driver..	23.17	23.26
Mechanic 1st class.....	21.81	21.89
Groundman/Truck driver..	21.81	21.89
Mechanic 2nd class/flagman	16.36	16.42

Additional \$ 1.00 per hour for crew on helicopter job.

Above rates applicable on all electrical SUB-STATIONS and all other work not defined as "Utility outside electrical work".

OVERTIME PAY: See (B, E, Q,) on OVERTIME PAGE.

HOLIDAYS:

Paid: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Gov. Election Day.
 Overtime: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Gov Election Day.
 SUPPLEMENTS for holidays paid at straight time.

The following APPRENTICE rates and the following SUPPLEMENTAL benefits apply to all classification categories of CONSTRUCTION, TRANSMISSION and DISTRIBUTION.

APPRENTICES: (1000) hr terms at the following percentage of Journeyman's wage.
 1st. 2nd. 3rd. 4th. 5th. 6th. 7th.

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

60% 65% 70% 75% 80% 85% 90%

SUPPLEMENTAL BENEFITS:(per Hour worked including above listed holidays.

 \$ 6.85 7.00
 plus plus
 7.5% of wage 7.5% of wage

6-1249a

LINEMAN/ELECTRIC

WAGES(per hour)

	7/01/1999	4/30/2000
Certified Welder... ..	25.00	25.71
Lineman/Technician.....	23.81	24.49
Digging Mach.....	21.43	22.04
Tractor trailer driver.	20.24	20.82
Truck Driver/groundman.	19.05	19.59
Mechanic 1st Class.....	19.05	19.59
Mechanic 2nd Class/Flagman	14.29	14.69

Above rates applicable on ALL Lighting and Traffic Signal Systems with the installation, testing, operation, maintenance and repair of all traffic control and illumination projects, traffic monitoring systems and road weather information systems.

OVERTIME PAY: See (B, E, Q,) on OVERTIME PAGE.

HOLIDAYS:

 Paid: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Gov Election Day.
 Overtime: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Gov Election Day.
Supplements paid at STRAIGHT TIME rate for holidays.
 Overtime: (5, 6, 8, 13, 25)

The following APPRENTICE Rates and the following SUPPLEMENTAL BENEFITS apply to all classifications.

APPRENTICES: (1000) hour terms at the following percentage of Journey's wage.

1st.	2nd.	3rd.	4th.	5th.	6th.	7th.
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS: per Hour Worked including above listed holidays.

 \$ 6.85 7.00
 plus plus
 7% of wage 7% of wage

NOTE(S): Each employee in a helicopter crew to receive \$ 1.00 above regular pay rate.

6-1249a-LT

LINEMAN - Pole Treater

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

OOOC 129
OSW&GO

1999A

WAGES(per hour)

7/01/1999 6/01/2000 6/01/2001

POLE TREATER AND MAINTENANCE

Pole treater 1st (Minimum 1 year experience)	\$ 10.97	\$ 11.24	\$ 11.52
Pole treater 2nd (Minimum 6 months experience)	10.38	10.64	10.91
Pole treater 3rd (Minimum 3 months experience)	9.81	10.06	10.31
Inexperienced treater (Less than 3 months)	9.24	9.47	9.71

OVERTIME PAY: See (B, H) on OVERTIME PAGE.

HOLIDAYS

Paid : See (5, 6, 8, 10, 15) on HOLIDAY PAGE.
Overtime : See (5, 6, 8, 10, 15) on HOLIDAY PAGE.

SUPPLEMENTAL BENEFITS:(per hours worked including the above listed holidays)

\$ 3.15	3.25	3.35
plus 3%	plus 3%	plus 3%
of wage	of wage	of wage

*NOTE.....ABOVE RATES APPLICABLE THROUGHOUT THE ENTIRE STATE EXCEPT THE FOLLOWING COUNTIES: BRONX, KINGS, NEW YORK COUNTY, QUEENS, RICHMOND, NASSAU, AND SUFFOLK COUNTIES.

6-1249pole

Towns of Constantia, Hastings, Schroepfel and West Monroe. THE FOLLOWING RATE APPLIES:

ELECTRICIAN (Syracuse)

WAGES(per hour) 7/01/1999

Electrician.....	\$ 20.50
Cable Splicer.....	22.55

OVERTIME PAY: See (B, E*, Q) on OVERTIME PAGE

* Double Time after 8hrs. on Saturday.

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

APPRENTICES: (at the following percentage of journeyman's wage)

1st Period (0-1000 hrs)	40%	4th Period (3501-5000 hrs)	60%
2nd Period (1001-2000 hrs)	45%	5th Period (5001-6500 hrs)	70%
3rd Period (2001-3500 hrs)	50%	6th Period (6501-8000 hrs)	80%

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

SUPPLEMENTAL BENEFITS: (per hour worked)

Journeyman	\$ 8.02 plus 3% of wage		
Apprentices:		1st period	\$1.35 plus 3% of wage
		2nd period	
		3rd period	\$4.59 plus 3% of wage
		4th period	\$4.81 plus 3% of wage
		5th period	\$5.03 plus 3% of wage
		6th period	\$6.25 plus 3% of wage

ELECTRICIAN
Teledata Rates

- Cable Puller..... The installation of teledata cable from one termination point to another.
- Teledata Installer... Perform installation and termination of teledata cable and installation of teledata equipment. Diagnostic and "start up" testing are excluded from the scope of the installer.
- Teledata Technician.. May perform all facets of teledata work covered by this agreement including diagnostic and "start up" testing.

WAGES (per hour) 7/01/1999

Technician.....	\$ 17.60
Journeyman installer..	15.85
Cable Puller	8.60

OVERTIME PAY: See (B,E,Q) on OVERTIME page

HOLIDAYS:

- Paid: See (1) on HOLIDAY PAGE
- Overtime: See (5,6) on HOLIDAY PAGE

SUPPLEMENTAL BENEFITS: (per hour worked)

Technician	\$ 3.75 plus 3% of wage
Journeyman Installer	3.60 " "
Cable Puller	2.80 " "

No. 6-43-S

Remainder of County.
THE FOLLOWING RATE APPLIES:

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----
 0000129
 OSWEGO
 1999A

ELECTRICIAN (Oswego)

WAGES(per hour) 7/01/1999

Electrician..... \$ 23.50
 Cable Splicer..... 25.85
 Audio/Sound..... 23.50

OVERTIME PAY: See (B, E*, Q) on OVERTIME PAGE

* Double Time after 8hrs. on Saturday.

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

APPRENTICES: (at the following percentage of journeyman's wage)

1st Period (0 -1000 hrs)	40%	4th Period (3501-5000 hrs)	60%
2nd Period (1001-2000 hrs)	45%	5th Period (5001-6500 hrs)	70%
3rd Period (2001-3500 hrs)	50%	6th Period (6501-8000 hrs)	80%

SUPPLEMENTAL BENEFITS:(per hour worked)

Journeyman \$ 8.02 plus
 3% of wage

Apprentice:

1st period	\$1.35 plus
2nd period	3% of wage
3rd period	\$4.59 plus
	3% of wage
4th period	\$4.81 plus
	3% of wage
5th period	\$5.03 plus
	3% of wage
6th period	\$6.25 plus
	3% of wage

ELECTRICIAN

Teledata rates

Cable Puller.....The installation of teledata cable from one termination point to another.

Teledata Installer..... Perform installation and termination of teledata cable and installation of teledata equipment. Diagnostic and "start up" testing are excluded from the scope of the installer.

Teledata Technician..... May perform all facets of teledata work covered by this Agreement including diagnostic and "Start up"

New York State Prevailing Rate Schedule Department of Labor
 -----Case Number-----
0000129
OSWEGO 1999A

testing.

WAGES (per hour) 7/01/1999

Technician \$ 17.60
 Journeyman installer. 15.85
 Cable Puller 8.60

OVERTIME PAY: See (B,E,Q) on overtime page.

HOLIDAYS:

Paid: See (1) on HOLIDAY page

Overtime: See (5,6) on HOLIDAY page

SUPPLEMENTAL BENEFITS: (Per hour worked)

Technician 3.75 plus 3 % of wage
 Journeyman Installer... 3.60 " "
 Cable Puller 2.80 " "

No. 6-43-S

LINEMAN-TREE CLEARANCE/TRIMMING

Applies to line clearance, tree work and right-of-way preparation on all new

or existing overhead electrical, telephone and CATV lines where construction is involved. Does not apply to beautification or line of sight trimming.

WAGES(per hour)

07/01/1999 01/01/2000

Tree Trimmer:
 Treeman..... \$ 14.91 15.28
 " Equip. Operator. 13.21 13.54
 " Mechanic..... 13.21 13.54
 " Truck Driver.... 11.22 11.50
 " Inexperienced Grdsman 9.30 9.53
 " Flagman 6.72 6.89

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE.

HOLIDAYS:

Paid: See (5, 6, 8, 10, 15, 16) on HOLIDAY PAGE.

Overtime: See (5, 6, 8, 10, 15, 16) on HOLIDAY PAGE.

Supplements paid at STRAIGHT TIME rate for holidays.

Overtime: (5, 6, 8, 10, 15, 16)

SUPPLEMENTAL BENEFITS: (per hour worked including above listed holidays.

\$ 3.65 plus 3.75 plus
3% of wage 3% of wage

No. 6-1249TT

IRONWORKER

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

000>129
OSW:GO

1999A

WAGES(per hour)

	7/01/1999	5/01/2000	5/01/2001	5/01/2002
Structural/Reinf/rebar	\$19.50	add\$ 1.00	add \$.75	add \$.75
Mach Mover & Rigger..	19.50	(Allocation to be determined)		
Ornamental & curtain wall/window.....	19.50			
Chain Link Fence/security	19.50			
Sheeter/Bridge rail..	19.50			
Pre-Cast erector	19.50			
Stone Derrickman	19.50			
Pre-Engineered bldg Erector	19.50			

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAYS:

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5,6) on HOLIDAY PAGE

APPRENTICES: (1) year terms at the following rates.

1st	2nd	3rd	4th
50%	60%	75%	85%
\$9.75	11.70	14.63	16.58

SUPPLEMENTAL BENEFITS: (Per hour worked)

Journeyman	\$11.59
All apprentices	3.64

6-60

In the Towns of Amboy, Constantia, Oneida Lake and Williamstown.
THE FOLLOWING RATE APPLIES:

PAINTER

<u>WAGES</u> (per hour)	07/01/1999	07/01/2000
Brush-Roller.....	16.85	17.20
Sign painting	16.85	17.20
Dry Wall Taper.....	16.85	17.20
Park. Lot/Hwgy Strip	16.85	17.20
Lead base paint abatement	16.85	17.20
Spray.....	17.35	17.70
Epoxy (Brush-Roller)..	17.35	17.70
Epoxy (Spray).....	17.35	17.70
Sandblasting (Oper)	17.35	17.70
Boatswain Chair.....	17.35	17.70
Swing Scaffold.....	17.35	17.70
Structural Steel.....	17.35	17.70
Coal Tar epoxy.....	18.35	18.70
Asbestos related work.	19.05	19.40
Bridge cleaning/Oiling	26.80	27.10
Bridge Sandblasting...	26.80	27.10
Bridge painting.....	26.80	27.10

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

OVERTIME PAY: See (B,E4,F,R) on OVERTIME PAGE

*NOTE: Nuclear power plants (Double time applicable on Sunday if other trades working receive double time.)

HOLIDAY:

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5,6) on HOLIDAY PAGE

APPRENTICES: (1000 hr) terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
40%	45%	50%	55%	60%	70%	80%	90%

SUPPLEMENTAL BENEFITS:(per hour worked)

Journeyman	\$ 7.15	\$ 7.35
Appr 1st thru 5th terms	2.70	2.70
Appr 6th term.....	4.93	4.93
Appr 7th term	5.43	5.63
Appr 8th term.....	5.93	6.13

6-31

In the Remainder of the County.
THE FOLLOWING RATE APPLIES:

PAINTER

WAGES(per hour) 7/01/1999

Brush-Roller.....	\$ 18.83
*Steel, Spray, SandBlast	20.05 *
Paperhanger, Taper...	18.83
Metalizing.....	19.40
Repaint-Schools,hospitals & Garages.....	15.55
Repaint offices.....	11.55

(*) Addtl \$1.19 per hr. when painting contract is in excess of \$100,000.
Steel, hazardous work, working with picks, bosun chair, window jacks, swing stage, safety belts, spray painting, steam cleaning, sandblasting, safe-way staging over fifteen (15) feet in height, any chemical or epoxy applications, hydro water blasting and steeplejack work and bridge painting, two (2) component block filler and epoxy system block filler, encapsulation or abatement of lead or asbestos:

OVERTIME PAY: See (B,E,Q) on OVERTIME PAGE

HOLIDAY:

Paid: See (5,20) on HOLIDAY PAGE (applies only on contracts \$100,000. and over.)

Overtime: See (5,6) on HOLIDAY PAGE

APPRENTICES: (1/2) year terms at the following percentage of journeyman's wage.

1st 6 weeks	to 6 months	2nd	3rd	4th	5th	6th
60%	65%	70%	75%	80%	90%	95%

SUPPLEMENTAL BENEFITS:(per hour paid)

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSW:GO

1999A

\$ 8.43

No. 6-38

PLUMBER

WAGES(per hour) 7/01/1999

Plumber/Welder.....	\$ 24.08
Steamfitter.....	24.08
On schools, hospitals & health related facilities...	20.92
Under \$300,000	20.92*

*Only to be used where the total Plumbing, HVAC or refrigeration contract does not exceed \$100,000 or the combination of all does not exceed \$300,000.

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE.

HOLIDAY:

Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6) on HOLIDAY PAGE.

APPRENTICES: (1) year terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th
50%	60%	70%	80%	90%

SUPPLEMENTAL BENEFITS:(per hour worked)

Journeyman	\$ 6.18	
Appr 1st yr	2.53 plus 50% of	\$ 3.65
Appr 2nd yr	2.53 plus 75% of	3.65
Appr 3rd yr	2.53 plus 90% of	3.65
Appr 4th & 5th yrs	6.18	

6-73.1

WELDER

Welder... To be paid the rate of the mechanic performing the work.

SURVEY CREW - Consulting Engineer

Feasibility and preliminary design surveying, line and grade surveying for inspection or supervision of construction when performed under a consulting engineer agreement.

SURVEY CLASSIFICATIONS:

Party Chief- One who directs a survey party.

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGD

1999A

Instrumentman- One who runs the instrument and assists the Party Chief.
Rodman- One who holds the rods and in general, assists the survey party.

WAGES:(per hour) 7/01/1999

Survey Rates:

Party Chief \$ 20.33
Instrument,Rodperson.. 17.84
Additional 3.00 per hr. for work in a tunnel.
Additional 2.50 per hr. for DEC or EPA certified toxic or hazardous waste work.

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAY:

Paid: See (5,6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

SUPPLEMENTAL BENEFITS: (per hour worked)

\$10.75

6-545Dcalg

SURVEY CREW - Heavy/Highway

SURVEY CLASSIFICATIONS:

Party Chief- One who directs a survey party.
Instrumentman- One who runs the instrument and assists the Party Chief.
Rodman- One who holds the rods and in general, assists the survey party.

WAGES:(per hour) 7/01/1999

Survey Rates:

Party Chief \$21.33
Instrument/Rodman..... 18.84

Additional 3.00 per hr. for work in a tunnel.
Additional 2.50 per hr. for DEC or EPA certified toxic or hazardous waste work.

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAY:

Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

APPRENTICE: (1 yr or 1000 hr) terms at the following wage rates.

	1st	2nd	3rd
6/01/97	\$ 9.00	11.29	13.54
6/01/98	9.20	11.54	13.84
6/01/99	9.40	11.79	14.14

SUPPLEMENTAL BENEFITS: (per hour paid)

Journeyman \$10.75
Appr 1st 5.40
Appr 2nd 6.70
Appr 3rd 8.05

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSW:GO

1999A

6-545Dha1g

CARPENTER

WAGES(per hour) 7/01/1999

Heavy/Highway:

Carpenter	\$ 18.93
Piledriver(Heavy/Hiway)	18.93
Certified welder	20.43

On projects for removal and/or abatement of asbestos or any toxic or hazardous material and it is required by the employer or mandated by NYS or Federal Regulation to wear protective equipment an additional \$1.50 per hour above their appropriate rate for all classifications including apprentices.

OVERTIME PAY: See (B, E, Q, V, E2) on OVERTIME PAGE

HOLIDAYS:

 Paid: See (2, 17) on HOLIDAY PAGE

 Overtime: See (5 & 6) on HOLIDAY PAGE

APPRENTICES: (1/2) year terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

SUPPLEMENTAL BENEFITS:(per hour paid)

Journeyman.....	\$9.14
Appr 70% to Journeyman.....	9.14
Appr 50% to 55%.....	3.64
Appr 60% to 65%.....	6.39

1/6-ADCh747

CARPENTER

WAGES(per hour) 7/01/1999

Marine Construction:

Diver	
Wet Day.....	39.375
Dry Day/tender ..	19.93
Certified welder....	20.43
Hazardous waste.....	20.43

OVERTIME PAY: See (B, E, Q, V & E2)) on OVERTIME PAGE

HOLIDAYS:

 Paid: See (2, 17) on HOLIDAY PAGE

 Overtime: See (5 & 6) on HOLIDAY PAGE

APPRENTICES: (1/2) year terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
DSWEGO

1999A

SUPPLEMENTAL BENEFITS:(per hour paid)

Journeyman.....	\$ 9.14
Appr 70% to Journeyman	9.14
Appr 60% to 65%	6.39
Appr 50% to 55%	3.64

no. 6-ADCd747

MASON - HEAVY/HIGHWAY

WAGES(per hour)

7/01/1999

Heavy/Highway:	
Cement Finish (H/H)...	\$ 18.57
Bricklayer.....	18.57

Additional \$1.00 per for work from swing scaffold or staging suspended by means of ropes or cables from hooks over parapet walls or windows.

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE.

HOLIDAY:

Paid: See (5, 20) on HOLIDAY PAGE.
Overtime: See (5, 6) on HOLIDAY PAGE.

APPRENTICE WAGE % JOURNEYMAN'S WAGE.(6 MONTH TERMS)

<u>1ST.</u>	<u>2ND.</u>	<u>3RD.</u>	<u>4TH.</u>	<u>5TH.</u>	<u>6TH</u>
50%	55%	60%	65%	70%	80%

SUPPLEMENTAL BENEFITS:(per hour worked)

\$ 8.12

6-2hh.4

LABORER- HEAVY/HIGHWAY

Heavy/Highway Laborer:

GROUP # A: Basic, Drill Helper, Flagman, Outboard and Hand Boats.
 GROUP # B: Bull Float, Chain Saw, Concrete Aggregate Bin, Concrete Bootmen, Gin Buggy, Hand or Machine Vibrator, Jack Hammer, Mason Tender, Mortar Mixer, Pavement Breaker, Handlers of all Steel Mesh, Small Generators for Laborers' Tools, Installation of Bridge Drainage Pipe, Pipe Layers, Vibrator Type Rollers, Tamper, Drill Doctor, Tail or Screw Operator on Asphalt Paver, Water Pump Operators(1-1/2" and Single Diaphragm), Nozzle (Asphalt, Gunite, Seeding, and Sand Blasting), Laborers on Chain Link Fence Erection, Rock Splitter and Power Unit, Pusher Type Concrete Saw and all other Gas, Electric, Oil and Air Tool Operators, Wrecking Laborer. GROUP #C: All Rock or Drilling Machine Operators (Except Quarry Master and Similar Type), Acetylene Torch Operators, Asphalt Raker and Powderman. GROUP #D: Blasters, Form Setters, Stone or Granite Curb Setters. GROUP #E: EPA or DEC Certified Toxic or Hazardous Waste Work

WAGES(per hour)

7/01/1999

7/01/2000

Heavy/Highway Laborer:

Group # A.....	17.89	\$.75 addtl
Group # B.....	18.09	(Allocation to be determined)
Group # C.....	18.29	

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
DSWEGO

1999A

Group # D..... 18.49
Group # E..... \$2.00/hr over
above rates.

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAYS:

Paid: See (3,6,7) on HOLIDAY PAGE

Overtime: See (3,6,7) on HOLIDAY PAGE

APPRENTICES: (1000 hr) terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th
60%	70%	80%	90%
0-1000	1001-2000	2001-3000	3001-4000 hours

SUPPLEMENTAL BENEFITS:(per hour worked)

\$ 7.10

No. 6-214/2h

In Towns of Orwell and Richland.
THE FOLLOWING RATE APPLIES:

TEAMSTER-Heavy/Highway

Truck Driver(H/H):

GROUP 1: Warehousemen, Yardmen, Truck Helpers, Pickups, Panel Trucks, Flatboy Material Trucks(straight jobs), Single Axel Dump Trucks, Dumpsters, Material Checkers and Receivers, Greasers, Truck Timemen, Mechanics Helpers and Parts Chasers, Tandems and Batch Trucks, Mechanics, Dispatcher, Semi-Trailers, Low-boy Trucks, Asphalt Distributor Trucks, and Agitator, Mixer Trucks and dumpcrete type vehicles, Truck Mechanic, Fuel Trucks.

GROUP 2: Specialized Earth Moving Equipment, Euclid type, or similar off-highway, where not self-loading, Straddle (Ross) Carrier, and self-contained concrete mobile truck, Off-highway Tandem Back-Dump, Twin Engin Equipment and Double-Hitched Equipment where not self-loading.

WAGES(per hour) 7/01/1999

Heavy/Hiway:

Group #1..... 17.67
Group #2..... 17.87

*For all work bid on or after April 1, 1988 there shall be a twelve month carryover of the rates in effect at the time of the bid.

Additional \$ 1.50 per hr on City, County or Federal/State designated hazardous waste site when personal protection is required, by regulation to be used or worn.

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE

HOLIDAY:

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5,6) on HOLIDAY PAGE

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

SUPPLEMENTAL BENEFITS:(per hour worked)

6.30

6-317h

In the Remainder of the County.
THE FOLLOWING RATE APPLIES:

TEAMSTER-Heavy/Highway

Truck Driver(H/H): GROUP 1: Warehousemen, Yardmen, Truck Helpers, Pickups, Panel Trucks, Flatboy Material Trucks(straight jobs), Single Axle Dump Trucks, Dumpsters, Material Checkers and Receivers, Greasers, Truck Tiremen, Mechanics Helpers and Parts Chasers. Fork Lift (storage & warehouse areas only) Tandems and Batch Trucks, Mechanics, Dispatcher. Semi-Trailers, Low-boy Trucks, Asphalt Distributor Trucks, and Agitator, Mixer Trucks and dumpcrete type vehicles, Truck Mechanic, Fuel Truck.
GROUP 2: Specialized Earth Moving Equipment, Euclid type, or similar off-highway where not self-loading, Straddle (Ross) Carrier, and self-contained concrete mobile truck. Off-highway Tandem Back-Dump, Twin Engin Equipment and Double-Hitched Equipment where not self-loading.

WAGES(per hour) 7/01/1999

Heavy/Highway:

Group #1.....\$ 19.05
Group #2..... 19.37

Additional \$2.50 per hr for hazardous waste removal work on a City, County, and/or Federal Designated waste site and regulations require employee to use or wear respiratory protection. For work bid on or after April 1, 1982 there shall be a 12 month carryover of the negotiated rate in effect at the time of the bid.

OVERTIME PAY: See (B, E, Q) on OVERTIME PAGE.

HOLIDAY:

Paid: See (5, 6) on HOLIDAY PAGE.
Overtime: See (5, 6) on HOLIDAY PAGE.

SUPPLEMENTAL BENEFITS:(per hour worked)

\$ 8.04

7-687h

POWER EQUIPMENT OPERATOR - Heavy/Highway

CLASS A: Asphalt Paver (fixed screed 10' width and over), Extend a-mat paver, Automated Concrete Spreader, Automatic Fine Grader, Backhoe (except tractor-mounted, rubber tired), Belt Placer, Blacktop Plant (automated) Boom Truck 100' & Over (jib & boom), Cableway, Caisson Auger, Central Mix Concrete Plant(automated), Hydraulic crane, (over 5 tons capacity), Concrete Curb Machine, Self-propelled, Slipform, Concrete Pump(8" or over), Crane, Derricks, Dragline, Dredge, Excavator (all purpose-hydraulic-Gradall or similar), Front End Loader(4c.y.& over), Head Tower (Sauerman or equal), Hoist (two or three drum), Belt loader, Hydrodemolition Equip (self contained) Maint. Eng, Mine Hoist, Mucking Machine or Mole, Overhead Crane(Gantry or Straddle Type), Pavement Profiler over 300 H.P., Pile Driver, Power Grader, Road widener,

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

OOOC129
OSWEGO

1999A

Scraper, Shovel, Side Boom, Slip Form Paver(If a second man is needed, he shall be an Oiler), Tractor Drawn Belt Type Loader, Truck Crane, Truck or Trailer Mounted Chipper(self-feed), Tug Oper.(manned, rented equipt excluded), Tunnel Shovel.

CLASS B: Asphalt paver under 40 ft width, Automated slope paving machine, Backhoe (Tractor-Mounted, Rubber Tired) Blacktop Plant (non-automated), Blast or Rotary Drill (Truck or Tractor Mounted), Boom Truck under 100' (boom & jib), Boring Machine, Directional boring machine, Bridge deck finishing machine, Cage Hoist, Central Mix Plant (Non Automated), All Concrete Batching Plants, Hydraulic crane (5 tons & under), Compressors(4 or less exceeding 2,000 c.f.m.combined capacity), Concrete Paver over 16S, Concrete Pump (Under 8"), Core Drill (skid, truck mtd. or track), Crusher, Diesel Power Unit, Drill Rigs (Tractor Mtd), Fork Lift, F.E.Loader(under 4 c.y.), Hi-Pressure Boiler (15 lbs.& over), Hoist(One Drum), Hydro Axe, Kolman Plant Loader & similar type loaders(if employer requires another man, he shall be Oiler), L.C.M.Work Boat Oper, Locomotive, Lubrication Erg/Grease man, Welder, Mixer(f or stabilized base-self propelled), Pavement Profiler(under 300H.P.) Plant Engineer, Pump Crete, Refrigeration Equipment (for soil stabilization), Roller(all above grade), Sea Mule, Skid Steer Bobcat Type Loader, Self-propelled rubbleizer, Stationary central compressed air plant (5000cfm and up), Tractor with Dozer and/or Pusher, Trencher, Tugger Hoist, Vermeer Saw (ride-on), Winch and Winch Cat, Log Skidder.

CLASS C: Aggregate Plant, A Frame Truck, Ballast Regulator (ride-on), Boiler(used in conjunction with production), Cement & Bin oper, Compressors (4 under 2,000 cfm combined capacity; or 3 or less with more than 1200 cfm. but not to exceed 2,000 c.f.m), Compressors (any size but subject to other provisions for compressors-Dust Collectors, Generators, Pumps, Welding Machines, Light Plants- 4 of any type or combination), Concrete Paver or Mixer(16s & over), Concrete Saw (self propelled), Concrete Paverment Spreaders & Finishers, Conveyor, Elec. Pump Used in Conjunction with Well Point System, Farm Tractor with accessories, Form Tamper, Grout Pump, Gunite Machine, Hydra-spiker(ride-on), Hammers(hydraulic-self propelled), Hydraulic Pump (jacking system), Light plants, Mulching Mach., Oiler, Parapet conc. or pave. grinder, Post Hole Digger & Post Driver, Power Sweeper, Power Heaterman, Roller(grade & fill), Scarifier(ride-on), Shell Winder, Steam Cleaner Span-saw(ride-on), Tamper(ride-on), All ride-on Tie Extractors, Tie Handlers, Tie Inserters, Tie spacers and Track Liners. Submersible Electric Pump(when used in lieu of well point system), Tractor, Vacuum machine (self propelled) Vibratory Compactor, Well Drill, Well point.

<u>WAGES(per hour)</u>	7/01/99	7/01/2000
Heavy/Highway:		
Master Mechanic....	\$ 24.00	\$ 24.55
CLASS A*.....	22.65	23.20
CLASS B.....	21.77	22.32
CLASS C.....	18.49	19.04

PIPELINE: Master mechanic, Class A and Class B rates apply.

*Additional 1.00 per hr for Crane with boom & jib over 100 ft.

*Additional 2.00 per hr for Crane with boom & jib 150 ft & over.

Additional 2.50 per hr for EPA or DEC classified toxic or hazardous waste work

and employee is required by regulations to use or wear personal protection.

OVERTIME PAY: See (B, E, Q) or OVERTIME PAGE

HOLIDAY:

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

O000129
OSWEGD1999A

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5,6,) on HOLIDAY PAGE

APPRENTICES: (1000) hour terms at the following rate.

	1st	2nd	3rd	4th
99/2000	\$11.33	12.46	15.86	16.99

SUPPLEMENTAL BENEFITS:(per hour paid)

Journeyman/Apprenticed		\$11.80	\$ 12.25
before 4/01/98			
Apprentice indentured	1st	6.05	6.30
after 4/01/98	2nd	7.55	7.80
	3rd	7.85	8.10
	4th	8.30	8.55

6-545h

MARINE CONSTRUCTIONWAGES (per hour)

	7/01/1999	10/01/1999
Hydraulic Dredge:		
Class A:		
Leverman.....	\$ 25.18	\$ 25.78
Engineer, Derrick Op.	22.34	22.61
Chief Mate on Dredge.	22.01	22.28
Class C:		
Maint. Eng.....	21.83	22.07
Mate.....	20.35	20.57
Boat Captain.....	20.50	20.72
Class D:		
Deckhand.....	16.58	16.74
Fireman, Oiler.....	17.23	17.39
Shoreman.....	16.58	16.74
Tug Boats:		
Class A:		
Tug Master.....	22.69	23.09
Tug Chief Engineer...	21.10	21.47
Class C:		
Tug Captain.....	22.69	23.09
Tug Engineer.....	21.10	21.63
Class D:		
Tug Deckhand.....	16.80	16.96
Dipper and Clamshell Dredges:		
Class A:		
Operator.....	25.64	26.26
Engineer.....	22.83	23.12
Class C:		
Maint. Engineer.....	21.83	22.07
Mate.....	20.35	20.57
Boat Master, Welder..	21.49	21.74
Boat Captain.....	20.50	20.72
Class D:		

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----
 OOO0129
 OSWEGO

 1999A

Oiler.....	17.23	17.39
Deckhand.....	16.80	16.96

OVERTIME PAY: See (B, F, R) on OVERTIME PAGE.

HOLIDAY:

PAID: See (5, 6, 8, 10, 15) on HOLIDAY PAGE.

OVERTIME: See (5, 6, 8, 10, 15) on Overtime Page

The following SUPPLEMENTAL BENEFITS apply to ALL classifications of the above HYDRAULIC, DIPPER, CLAMSHELL DREDGES and TUG BOATS.

SUPPLEMENTAL BENEFITS: (per hour worked)

All Class A & B	\$ 4.81 (OVERTIME \$ 0.80 EXTRA) plus 8% of wage
All Class C	\$ 4.51 (OVERTIME \$ 0.65 EXTRA) plus 8% of wage
All Class D	\$ 4.21 (OVERTIME \$ 0.50 EXTRA) plus 8% of wage

4-25a

MARINE CONSTRUCTION

WAGES (per hour)

	7/01/1999	10/01/1999
Drill Boat:		
Class A:		
Engineer.....	\$ 23.24	\$ 23.54
Blaster.....	23.51	23.81
Driller.....	23.23	23.55
Boat Capt.....	19.34	19.53
Class C:		
Welder/Machinist..	23.03	23.30
Class D:		
Oiler/Helper.....	20.23	20.46
Deckhand.....	15.83	15.97
Core Driller.....	18.33	18.56
Helper.....	16.41	16.56

OVERTIME PAY: See (B, P, R,) on Overtime Page.

HOLIDAY:

PAID: See (5, 6, 8, 10, 15) on Holiday Page.

OVERTIME: See (5, 6, 8, 10, 15) on Overtime Page.

SUPPLEMENTAL BENEFITS: (per hour worked)

Class A & B	\$ 4.08 plus 8% of wage	\$ 4.38 plus 8% of wage
Class C	\$ 3.59 plus 8% of wage	\$ 3.79 plus 8% of wage

Prevailing Rate Schedule

New York State

Department of Labor

-----Case Number-----

0000129
OSWEGO

1999A

Class D	\$ 3.11 plus 8% of wage	\$ 3.21 plus 8% of wage
Overtime Benefits Time and one half		
A & B add.....	\$ 1.06	\$ 1.21
C add.....	0.82	0.92
D add.....	0.58	0.63
Double Time		
A & B add.....	\$ 2.12	\$ 2.42
C add.....	1.63	1.83
D add.....	1.15	1.25

4-25/3

BIDDING & CONTRACT REQUIREMENTS

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.01 BORINGS AND SUBSURFACE DATA

It shall be the Contractor's obligation to satisfy himself as to the nature, character, quality and quantity of subsurface conditions likely to be encountered. Any reliance upon the subsurface information made available by the Owner or the Engineer shall be at the Contractor's risk. The Contractor agrees that he shall neither have nor assert against the Owner or Engineer any claim for damages for extra work or otherwise or for relief from any obligation of this Contract based upon the failure by the Owner or Engineer to obtain or to furnish additional subsurface information or to furnish all subsurface information in the Owner's or Engineer's possession or based upon any inadequacy or inaccuracy of the information furnished.

Certain subsurface information may be shown on separate sheets or otherwise made available by the Owner or Engineer to Bidders, Contractors and other interested parties. Neither such information nor the documents on which it may be shown shall be considered a part of the Contract Documents or Contract Drawings, it being understood that such information is made available only as a convenience, without express or implied representation, assurance, or guarantee that the information is adequate, complete, or correct, or that it represents a true picture of the subsurface conditions to be encountered, or that all pertinent subsurface information in the possession of the Owner or Engineer has been furnished.

It shall be the obligation of the Contractor to inquire of the Owner and Engineer whether pertinent subsurface information has been obtained by the Owner with respect to the work.

Subsurface information contained in the remedial investigation and feasibility study will be made available to potential bidders during normal business hours.

Barton & Loguidice, P.C.
290 Elwood Davis Road
Liverpool, New York 13088
(315) 457-5200

00160-2

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.02 PRE-CONSTRUCTION CONFERENCE

A pre-construction conference will be held after award of the Contract, but prior to commencement of construction, at the office of the Engineer, and the Contractor shall have an authorized representative of his firm present at this meeting.

00160.03 POWER OF ATTORNEY

Attorneys-in-fact who sign Bid Bonds or Contract Bonds must file with each bond a certified and effectively dated copy of their power of attorney.

00160.04 LAWS AND REGULATIONS

The Bidder's attention is directed to the fact that all applicable Federal and State laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

00160.05 NON-COLLUSIVE BIDDING CERTIFICATION

A Non-Collusive Bidding Certification form as bound in these documents must be executed and accompany the Bid.

00752.03 Contractor's Insurance

- i. Insurance shall provide that the policies shall not be changed or cancelled until thirty (30) days after written notice has been given to the Owner.
- ii. The additional named assureds pursuant to Article 00752.03C are as follows:

The People of the State of New York

- iii. The contractual liability details pursuant to Article 00752.03D are as follows:

The People of the State of New York

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.06 CHANGES AND AMPLIFICATIONS TO GENERAL CONDITIONS

00752.06 INDEMNIFICATION

The Contractor agrees to defend, indemnify and save harmless the County from any and all claim(s) arising out of services per formed by the Contractor hereunder, including those specifically arising out of the negligent acts or omissions (of contractors, officers, employees and agents, if applicable) including any cost for legal services in the defense of any said claim(s). The Contractor will have complete responsibility for health/disability and liability/malpractice insurance.

00753.05 LIABILITY FOR INJURIES OR DAMAGE

In Paragraph 3, the first sentence, between "and the Engineer" and "and their employees and agents" ADD "and the State of New York".

00755.04 TAXES

Purchases by the County of Oswego are not subject to any Federal, State or County Sales Tax. Exemption certificates will be executed upon request.

00756.04 APPROVED WORK SCHEDULES

The Contractor shall submit a bar graph type work schedule to the Engineer within three weeks after award of the Contract to allow for review and comment by the New York State Department of Environmental Conservation and New York State Department of Health. The work schedule shall be updated monthly, or as ordered by the Engineer and the Contractor shall furnish updated copies to the Engineer.

00160-4

SECTION 00160

ADDITIONAL INSTRUCTIONS

00100.07 CHANGES AND AMPLIFICATIONS TO GENERAL REQUIREMENTS

01019.01 PRE-BID INSPECTION & EXAMINATION

A mandatory Pre-Bid Site Meeting will be held at 10:00 A.M. on June 15, 2000 at the Oswego County DPW offices. Only attendees can bid on the work. The mandatory Pre-Bid will allow bidders to visit the exclusion zone area.

01510 WATER

The Contractor shall be responsible for any required water. The Owner makes no guarantee of the quantity or quality of the water available on site. The Contractor shall supply any additional water and all potable water from an off-site source at no additional cost to the Owner.

00160.08 MANDATORY PROVISIONS FOR TITLE 3 CONTRACTS

The following are mandatory Contract provisions to be included in all New York State Department of Environmental Conservation Regulated Superfund Remediation (Title 3) Municipal/Consultant-Service Contracts.

Mandatory Provisions

NON-DISCRIMINATION REQUIREMENT

1. In accordance with Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, age, disability or marital status.

To the extent that such services are to be provided pursuant to the Contract, the following paragraph is required:

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.08 MANDATORY PROVISIONS FOR TITLE 3 CONTRACTS - Continued

Furthermore, in accordance with Section 220-e of the Labor Law, if this is a Contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this Contract shall be performed within the State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex or national origin: a) discriminate in hiring or promotion of any individual who is qualified and available to perform the work; or b) discriminate against or intimidate any employee hired for the performance of work under this Contract.

WAGE AND HOUR PROVISIONS

2. If this is a public work Contract covered by Article 8 of the Labor Law or a building service Contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law.

RECORD KEEPING REQUIREMENT

3. The Contractor shall maintain all books, documents, papers, and other evidence directly pertinent to the performance of work under this Contract in accordance with generally acceptable accounting principles and practices consistently applied, and 40 CFR Part 30 in effect during the term of this Contract. The Municipality, the Department of Environmental Conservation, the State Comptroller, the State Attorney General, the State Department of Labor, and, in the event of Federal funding, the USEPA, the Comptroller General of the United States, the United States Department of Labor or any of their authorized representatives shall have access to all such books, records, documents and other evidence for the purpose of

00160-6

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.08 MANDATORY PROVISIONS FOR TITLE 3 CONTRACTS - Continued

inspection, audit and copying for a period of six years following final payment or the termination of this Contract whichever is later, and any extensions thereto. These books, records, documents and other evidence shall be accessible within the State of New York to the agencies identified above for the time period stated above. "Termination of this Contract", as used in this clause, shall mean the later of completion of the work of the Contract or the end date of the term stated in the Contract.

CONFLICT OF INTEREST

4. To the best of the Contractor's knowledge and belief, the Contractor warrants that there are no relevant facts or circumstances which could give rise to an organizational conflict of interest, as herein defined, or that the Contractor has disclosed all such relevant information to the Municipality.

An organizational conflict of interest exists when the nature of the work to be performed under this Contract may, without some restriction on future activities, either result in an unfair competitive advantage to the Contractor or impair the Contractor's objectivity in performing the work for the Municipality.

The Contractor agrees that if an actual, apparent or potential organizational conflict of interest is discovered at any time after award, whether before or during performance, the Contractor will immediately make a full disclosure in writing to the Municipality and the State Department of Environmental Conservation. This disclosure shall include a description of actions which the Contractor has taken or proposes to take, after consultation with the Municipality, to avoid, mitigate, or minimize the actual or potential conflict.

Remedies - The Municipality may terminate this Contract in whole or in part, if it deems such termination necessary to avoid an organizational or personal conflict of interest, or an unauthorized disclosure of information. If the Contractor was aware of a potential conflict of interest prior to award, or discovered an actual or potential conflict after award and did not disclose or misrepresented relevant

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.08 MANDATORY PROVISIONS FOR TITLE 3 CONTRACTS - Continued

information to the Municipality, the Municipality may terminate the Contract, or pursue such other remedies as may be permitted by law or this Contract. The terms of other applicable Contract provisions regarding termination shall apply to termination by the Municipality pursuant to this clause.

The Contractor further agrees to insert in any subcontract hereunder, provisions which shall conform to the language of this clause.

- (a) In addition to the requirements of the above clauses with respect to "Organizational Conflicts of Interest", the following provision with regard to employee personnel performing under this Contract shall apply until the earlier of the termination date of the affected employee(s) or the duration of the Contract.

The Contractor agrees to notify the Department and the Municipality immediately of any actual, apparent or potential personal conflict of interest with regard to any employee, subcontractor employee, or consultant working on or having access to information regarding this Contract, as soon as the Contractor becomes aware of such conflict. A personal conflict of interest is defined as a relationship of an employee, subcontractor employee, or consultant with an entity that may impair or appear to impair the objectivity of the employee, subcontractor employee, or consultant in performing the Contract work. The Municipality will notify the Contractor of the appropriate action to be taken.

- (b) To the extent that the work under this Contract requires access to proprietary or confidential business or financial data of other companies, and as long as such data remains proprietary or confidential, the Contractor shall protect such data from unauthorized use and disclosure and agrees not to use it to compete with such companies.

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.08 MANDATORY PROVISIONS FOR TITLE 3 CONTRACTS - Continued

- (c) The Contractor shall certify annually that, to the best of the Contractor's knowledge and belief, all actual, apparent or potential conflicts of interest, both personal and organizational, have been reported to the Department and the Municipality. Such certification must be signed by a senior executive of the Contractor and submitted in accordance with instructions provided by the Municipality. Along with the annual certification, the Contractor shall also submit an update of any changes in the conflict of interest plan submitted with its proposal for this Contract. The initial certification shall cover the one-year period from the date of Contract award, and all subsequent certifications shall cover successive annual periods thereafter. The certification is to be submitted no later than 45 days after the close of the previous certification period covered.
- (d) The Contractor recognizes that employees in performing this Contract may have access to data, either provided by the Department or the Municipality or first generated during Contract performance, of a sensitive nature which should not be released without Department/Municipality approval. Therefore, the Contractor agrees to obtain confidentiality agreements from all employees working on requirements under this Contract including subcontractors and consultants. Such agreements shall contain provisions which stipulate that each employee agrees that the employee will not disclose, either in whole or in part, to any entity external to the Department, Department of Health or the New York State Department of Law, any information or data provided by the Department or first generated by the Contractor under this Contract, any site-specific cost information, or any enforcement strategy without first obtaining the written permission of the Municipality. If a Contractor, through an employee or otherwise, is subpoenaed to testify or produce documents, which could result in such disclosure, the Contractor must provide immediate advance notification to the Municipality/Department so that the Department can authorize such disclosure or have the opportunity to take action to prevent such disclosure. Such agreements shall be effective for the life of the Contract and for a period of five (5) years after completion of the Contract.

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.08 MANDATORY PROVISIONS FOR TITLE 3 CONTRACTS - Continued

- (e) The Contractor agrees to insert in each subcontract or consultant agreement placed hereunder (except for subcontracts or consultant agreements for well drilling, fence erecting, plumbing, utility hookups, security guard services, or electrical services) provisions which shall conform substantially to the language of this clause, including this paragraph (e), unless otherwise authorized by the Municipality.

If this is a Contract for work related to action at an inactive hazardous waste site, the following paragraph shall apply:

- (f) Due to the scope and nature of this Contract, the Contractor shall observe the following restrictions on future hazardous waste site contracting for the duration of the Contract.
- (1) The Contractor will be ineligible to enter into a Contract for remedial action projects for which the Contractor has developed the statement of work or the solicitation package.
 - (2) The Contractor, during the life of the work assignment and for a period of five (5) years after the completion of the work assignment, agrees not to enter into a Contract with or to represent any party with respect to any work relating to remedial activities or work pertaining to a site where the Contractor previously performed work for the Department and/or Municipality under this Contract without the prior written approval of the Department.
 - (3) The Contractor agrees in advance that if any bids/proposals are submitted for any work for a third party that would require written approval of the Municipality/Department prior to entering into a Contract because of the restrictions of this clause, then the bids/proposals are submitted at the Contractor's own risk, and no claim shall be made against the Municipality/Department to recover bid/proposal costs as a direct cost whether the request for authorization to enter into the Contract is denied or approved.

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.08 MANDATORY PROVISIONS FOR TITLE 3 CONTRACTS - Continued

AFFIRMATIVE ACTION

5. (a) The Contractor agrees to be bound by the provisions of New York State Executive Law, Article 15-A, Sections 312, 313 and 316.

The Contractor is required to make good faith efforts to solicit the meaningful participation of minority and women owned business enterprises identified in the Directory of Certified Businesses provided by the New York State Department of Economic Development's Division of Minority and Women's Business Development.

- (b) The Contractor agrees to include the requirements set forth in paragraph (a) above and the paragraphs (c), (d), and (e) and (f) below in every subcontract in such a manner that the provisions will be binding upon each subcontractor as to work in connection with such Contract. For the purpose of this paragraph, a "subcontract" shall mean an agreement providing for a total expenditure in excess of \$100,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon in which a portion of Contractor's obligation under the State Contract is undertaken or assumed.

- (c) The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, and will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. For purposes of this Article, affirmative action shall mean recruitment, employment, job assignment, promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation.

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.08 MANDATORY PROVISIONS FOR TITLE 3 CONTRACTS - Continued

- (d) At the request of the contracting agency, 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 will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein.
- (e) The Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the Contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.
- (f) The Contractor also agrees to incorporate into any Contract with subcontractors, contractual provisions applicable to record keeping, reporting, notice requirements and actions determined to be necessary by the Department to implement the requirements of the Minority/Women Business Enterprise-Equal Employment (M/WBE-EEO) utilization plan, and of Executive Law Article 15-A, regulations promulgated thereunder, and other applicable law and regulations.

00160.09 JOB COORDINATION MEETINGS

Job Coordination Meetings with the Superintendent and all contractors and subcontractors shall be conducted bi-weekly as a minimum or as requested by the New York State Department of Environmental Conservation.

00160-12

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.10 STAGING PLAN

- A. Prior to commencement of work, the Contractor shall develop and submit methods and sequencing of all intended operations hereinafter referred to as the Staging Plan. The Staging Plan shall include, but not be limited to, methods, plans, and drawings necessary for staging trailers and equipment, stockpiling materials, designating work zones and requirements for other construction activities. Construction activities shall not be initiated until the methods and sequencing of all operations are reviewed by the Engineer.

00160.11 DUST CONTROL PROGRAM

- A. The control of fugitive dust created as a result of this project shall be the obligation of each Contractor. Notwithstanding the requirements of the Contract Documents, each Contractor shall also comply with the requirements of OSHA 29 CFR 1910.1000 TAGM 4031. A Dust Control Program shall be prepared and implemented by the Contractor which shall include, but not be limited to, the following:

1. Preparation of a Dust Control Plan including mitigation measures, control of operations, emergency measures to be used, monitoring requirements, action levels, etc.
2. Required particulate monitoring.
3. Implementation of mitigation efforts including reasonable suppression techniques.
4. Implementation of remedial action when particulate action levels are breached.
5. Quality Assurance/Quality Control (QA/QC) to assure accuracy of monitoring program.

- B. The results of monitoring for dust shall be provided to the Engineer on a daily basis.

5.00

132.164

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.12 CONTRACTOR'S OFFICE

- A. The Contractor shall erect, furnish and maintain a field office with a telephone, at the site during the entire period of construction. The Contractor or an authorized agent shall be present at said office at all times or at a definite time while work is in progress. Readily accessible copies of the Contract Documents, the latest approved working drawings, Contractor annotated record drawings, Contractor's Dust Control Program, HASP, Staging Plan, and other documents necessary or instrumental in completing the project shall be kept at said field office. This office shall be account for proper sanitary facilities.

00160.13 TEMPORARY CONSTRUCTION ACCESS ROADS

- A. The Contractor shall construct and maintain all temporary access roads required for construction activities under this Contract. All temporary construction access roads shall be removed following construction.

00160.14 WORK BY OWNER

The Owner will be completing portions of the Volney Landfill Site Remediation project with Oswego County work force entities. Specific work tasks the County will self perform include but are not limited to: Project Sign, Site Clearing, Survey and Control, Dust Control, Health and Safety Plan Implementation, Maintenance of Traffic, Site Specific Erosion Sedimentation Control, Construction Water Management, Strip Topsoil, Site Grading (with regard to landfill cap), Geotextile Placement, Granular Fill Placement, Protective Cover Placement, Installation of Ditches, Topsoil and Seed and Final Gravel Site Access Roads. For coordination purposes Oswego County will assume the project lead for scheduling. It is anticipated that this project will be completed in four phases. A preliminary schedule is available upon written request for Bidding purposes. All on site Contractors will be required to coordinate their schedules with the Owner as outlined in the General Conditions 00756.04 - Approved Work Schedules, as Oswego County will assume the role of the General Contractor for scheduling activities only. The County anticipates completing this project in approximately four phases. Contractors for all bid projects should anticipate mobilization and demobilization necessary for the County's phasing sequences.

00160-14

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.15 GAS VENT SEQUENCING

The Contractor shall be aware of the sensitivity of landfill gas odors migrating from the site during construction activities. A plan for minimizing all potential landfill gas odors through construction completion shall be submitted to the Engineer prior to initiation of gas vent work. As a minimum the plan shall address:

- Waste disposal from drilling activities
- Capping of gas vents prior to project completion
- Placement of vents into operation
- Sequencing of all activities
- Monitoring of potential migrating gas odors

Oswego County will remove spoil material from drilling activities and dispose of material on the landfill site. All waste disposal from drilling activities to be buried on the landfill site.

00160.16 ENGINEER'S FIELD OFFICE TRAILER

DELETE General Requirement Section 01590 in its entirety.

00160.17 HEALTH & SAFETY

Oswego County has prepared a Health & Safety Plan for its construction activities. This plan is available for review by all contractors. Each contractor is responsible for their own health and safety while on site. Each contractor must adhere to the requirements of the County's Health & Safety Plan in addition to the requirements of their own plan.

00160.18 BIDDING PROVISIONS

A Bidder may bid on any single contract or combination of contracts. Each contract will be awarded to the lowest responsive, responsible Bidder. No "or equals" or substitutions will be evaluated during the bid period.

SECTION 00160

ADDITIONAL INSTRUCTIONS

00160.19 PROJECT SIGN

DELETE General Requirement Section 01580 in its entirety.

00160.20 CONTRACT DOCUMENTS HIERARCHY

The following documents shall constitute integral parts of this Agreement, the whole to be collectively known and referred to as the Contract Documents or the Contract, and in the case of discrepancies among any parts of the Contract Documents, preference shall be given in the following order.

- a. Addenda (later dates taking precedence over earlier dates)
- b. Additional Instructions
- c. General Conditions & General Requirements
- d. Advertisement
- e. Information for Bidders
- f. Bid
- g. Payment Items
- h. Technical Specification Sections
- i. Contract Drawings (detailed drawings taking precedence over general drawings)

00160.21 ENVIRONMENTAL MONITORING DURING GAS VENT DRILLING

Contract 1B is required to continuously monitor downwind air during drilling activities for odors, VOC's and H₂S at the downwind property boundary limit. All monitoring data shall be submitted to the Engineer on a daily basis for review. An air monitoring plan must be submitted to the Engineer prior to work activity. The air monitoring plan shall be developed and implemented by a Certified Industrial Hygienist in accordance with the existing Oswego County Health & Safety Plan.

00160.22 SURVEYED LINER QUANTITIES

Contract 1A is required to submit in place liner quantities to the Engineer prepared by a licensed surveyor. Final payment quantities will be based upon surveyed quantities.

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00301

BIDDER'S CHECKLIST

(All pages of this color to be completed by Bidder PRIOR to Bid Submission)

Bid Prices, Page 00370-1 to 00370-5: All blanks appropriately filled in ink with both words and figures.

Bid Proposal, Pages 00371-1 thru 00371-2: All blanks appropriately filled and signed.

State and Federal Requirements: Each of the following forms must be executed:

NON-COLLUSIVE BIDDING CERTIFICATION, Page 00480-1: Requires Bidder's signature.

STATEMENT OF SURETY'S INTENT, Page 00481-1: Requires completion and signature by Surety's Representative.

BID SECURITY, Page 00499-1: Attach Bid Security to page labeled "BID SECURITY" (ATTACH HERE - CERTIFIED CHECK, CASH OR BID BOND).

NOTE: To Bid all Contracts, the Bidder must fill in all pages this color.

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00370

BID FOR CONSTRUCTION OF CONTRACT NO. 1A - LINER SYSTEMS

TO THE COUNTY OF OSWEGO:

Pursuant to and in compliance with your Advertisement for Bids and the Information for Bidders relating thereto, the undersigned hereby offers to furnish all plant, labor, materials, supplies, equipment and other facilities and things necessary or proper for or incidental to the construction and completion of Contract No. 1A - Liner Systems, required by and in strict accordance with the applicable provisions of all Contract Documents for the following unit and lump sum prices:

DESCRIPTION	ESTIMATED QUANTITY	UNIT OR LUMP SUM PRICE		TOTAL AMOUNT
		WORDS	FIGURES	
SECTION 1 - LUMP SUM ITEMS		_____		
Mobilization/Demobilization (Payment Section 02000)	Lump Sum	Dollars	\$ _____	\$ _____
		Cents		
SECTION 2 - UNIT PRICED ITEMS		_____		
Polyvinyl Chloride (PVC) Lining Material (Payment Section 02595.4)	1,874,000 S.F.	Dollars	\$ _____	\$ _____
		Cents		
Low Linear Density Polyethylene (LLDPE) Lining Material (Payment Section 02598.4)	1,874,000 S.F.	Dollars	\$ _____	\$ _____
		Cents		

SECTION 00370

BID FOR CONSTRUCTION OF
CONTRACT NO. 1A - LINER SYSTEMS

DESCRIPTION	ESTIMATED QUANTITY	UNIT OR LUMP SUM PRICE		TOTAL AMOUNT
		WORDS	FIGURES	
Geotextile (Payment Section 02233.4)	2,155,000 S.F.	_____	\$ _____	\$ _____
		Dollars		
		Cents		

ALTERNATIVE 1: Total (including items 02000, 02595.4 and 02233.4)	ALTERNATIVE 1: TOTAL BID \$ _____ (Price in Figures)
ALTERNATIVE 2: Total (including items 02000, 02598.4 and 02233.4)	ALTERNATIVE 2: TOTAL BID \$ _____ (Price in Figures)

BIDDING & CONTRACT REQUIREMENTS

SECTION 00370

BID FOR CONSTRUCTION OF CONTRACT NO. 1B - GAS VENTS

TO THE COUNTY OF OSWEGO:

Pursuant to and in compliance with your Advertisement for Bids and the Information for Bidders relating thereto, the undersigned hereby offers to furnish all plant, labor, materials, supplies, equipment and other facilities and things necessary or proper for or incidental to the construction and completion of Contract No. 1B - Gas Vents, required by and in strict accordance with the applicable provisions of all Contract Documents for the following unit and lump sum prices:

DESCRIPTION	ESTIMATED QUANTITY	UNIT OR LUMP SUM PRICE		TOTAL AMOUNT
		WORDS	FIGURES	
SECTION 3 - LUMP SUM ITEMS				
Mobilization/Demobilization (Payment Section 02001)	Lump Sum	_____	\$ _____	\$ _____
		Dollars		

		Cents		
SECTION 4 - UNIT PRICED ITEMS				
Rotary Drilled Landfill Gas Vent Wells (Payment Section 02677.4)	1,600 L.F.	_____	\$ _____	\$ _____
		Dollars		

		Cents		
Landfill Gas Vents (Payment Section 13052.4)	2,700 L.F.	_____	\$ _____	\$ _____
		Dollars		

		Cents		

00370-4

SECTION 00370

BID FOR CONSTRUCTION OF
CONTRACT NO. 1B - GAS VENTS

DESCRIPTION	ESTIMATED QUANTITY	UNIT OR LUMP SUM PRICE		TOTAL AMOUNT
		WORDS	FIGURES	
Landfill Gas Vent Flares (Payment Section 15884.4)	40 each	_____	\$ _____	\$ _____
		Dollars		
		Cents		
Augered Hole Abandonment (Payment Section 15999)	150 L.F.	_____	\$ _____	\$ _____
		Dollars		
		Cents		
		TOTALS	GRAND TOTAL BID	
			\$ _____	
			(Price in Figures)	

BIDDING & CONTRACT REQUIREMENTS

SECTION 00370

BID FOR CONSTRUCTION OF CONTRACT NO. 1C - FENCING

TO THE COUNTY OF OSWEGO:

Pursuant to and in compliance with your Advertisement for Bids and the Information for Bidders relating thereto, the undersigned hereby offers to furnish all plant, labor, materials, supplies, equipment and other facilities and things necessary or proper for or incidental to the construction and completion of Contract No. 1C - Fencing, required by and in strict accordance with the applicable provisions of all Contract Documents for the following unit and lump sum prices:

DESCRIPTION	ESTIMATED QUANTITY	UNIT OR LUMP SUM PRICE		TOTAL AMOUNT
		WORDS	FIGURES	
SECTION 5 - LUMP SUM ITEMS		_____		
Fencing	Lump Sum	_____	\$ _____	\$ _____
(Payment Section 02444.4)		Dollars		
		Cents		

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00371

BID

The signer of this Proposal as Bidder declares that the only person, persons, company or parties interested in the proposal are named in this Proposal; that the Bid is made without any connection with any person making another Bid for the same Contract; that the Bid is in all respects fair and without collusion or fraud; that no officer, agent or employee of the Owner is directly or indirectly interested in the Bid; and that he has carefully examined the annexed form of Contract and Contract Documents.

In accordance with Section 139-d of the State Finance Law, Section 103-d of the General Municipal Law, or Section 2878 of the Public Authorities Law, the Bidder further certifies that: (a) the Bid has been arrived at by the Bidder independently and has been submitted without collusion with any other vendor of materials, supplies or equipment of the type described in the invitation for Bids; and (b) the contents of the Bid have not been communicated by the Bidder nor, to its best knowledge and belief, by any of its employees or agents, to any person not an employee or agent of the Bidder or its surety on any bond furnished herewith prior to the official opening of the Bid. Section 620 of the Penal Law makes violation of this statute a crime punishable as perjury.

If written notice of the acceptance of this Bid is mailed, telegraphed or delivered to the undersigned within forty-five (45) days after the date of opening of the Bids, or any time thereafter before this Bid is withdrawn, the undersigned will, within five (5) days after the date of such mailing, telegraphing, or delivering of such notice, execute and deliver a contract in the form of Contract attached hereto.

The undersigned hereby designates as his office to which such notice of acceptance may be mailed, telegraphed or delivered:

The undersigned further agrees to comply with the requirements as to conditions of employment, wage rates and hours of labor set forth in the Contract Documents.

This bid may be withdrawn at any time prior to the scheduled time for the opening of bids or any authorized postponement thereof.

SECTION 00371

BID

Accompanying this Bid, is a Bid security in the form of a certified check*, cash*, or a bid bond* for the sum of _____ (\$_____) Dollars. In case this Bid is accepted by the Owner, and the undersigned shall fail to execute a contract with and give the required bonds to the Owner within five (5) days after the date of a written notice by the Owner to the undersigned so to do, this Bid security shall be forfeited and will be retained by the Owner as liquidated damages.

Dated _____, 20__ ** _____

Signature of Bidder

Print Name of Signer of Bid _____

Address _____

* Cross out designations not applicable.

** Insert bidder's name; if a corporation, give the state of incorporation using the phrase "a corporation organized under the law of"; if a partnership, give the name of the partners, using also the phrase "co-partners trading and doing business under the firm name and style of"; if an individual using a trade name, give individual name, using also the phrase "an individual doing business under the firm name and style of".

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00480

NON-COLLUSIVE BIDDING CERTIFICATION

- (a) By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his knowledge and belief:
1. The prices in this bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly, disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
 3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
- (b) A bid shall not be considered for award nor shall any award be made where (a) 1., 2., and 3., above have not been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where (a) 1., 2., and 3., above have not been complied with the bid shall not be considered for award nor shall any award to be made unless the head of the purchasing unit of the political subdivision, public department, agency or official thereof to which the bid is made, or his designee determines that such disclosure was not made for the purpose of restricting competition.
- (c) The fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of paragraph (a) of this certification.
- (d) Any bid hereafter made to any political subdivision of the State or any public department, agency or official thereof by a corporate bidder for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, or local law, and where such bid contains the certification referred to in subdivision one of the section, shall be deemed to have been authorized by the board of directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation.

FIRM: _____

By: _____

Title: _____

(CORPORATE SEAL IF ANY)

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00481

STATEMENT OF SURETY'S INTENT

To: _____

We have reviewed the Bid of _____
(Contractor)

of _____
(Address)

for _____
(Project)

Bids for which will be received on _____
(Bid Opening Date)

and wish to advise that should this Bid of the Contractor be accepted and the Contract awarded to him, it is our present intention to become surety on the Performance Bond and Labor and Materials Payment Bond required by the Contract.

Any arrangement for the bonds required by the Contract is a matter between the Contractor and ourselves, and we assume no liability to you or third parties if for any reason we do not execute the requisite bonds.

We are duly authorized to transact business in the State of New York, and we appear on the U.S. Treasury Department's most current list (Circular 570 as amended).

Attest:

Surety's Authorized Signature(s)

Attach Power of Attorney

(Corporate seal if any. If no seal, write
"No Seal" across this place and sign.)

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00499

BID SECURITY

(ATTACHED HERE - CERTIFIED CHECK, CASH OR BID BOND)

END OF SECTION

BIDDING & CONTRACT REQUIREMENTS

SECTION 00570

AGREEMENT

This CONTRACT, in six (6) copies, made and entered into this ____ day of _____, 20__, by and between the _____, a municipal corporation, organized and existing under the laws of the State of New York, with its principal office and place of business located at _____, hereinafter designated as "Owner", Party of the First Part,

and _____

_____ of _____

County of _____ State of _____

hereinafter designated as the Contractor, Party of the Second Part.

WITNESSETH: That the parties hereto, each in consideration of the Agreements on the part of the other herein contained, have mutually agreed, and hereby mutually agree, the Party of the First Part for itself and its successors, and the Party of the Second Part for itself, himself or themselves and its successors, his or their executors, administrators and assigns as follows:

Article 1. DESCRIPTION. Under this Agreement and Contract, the Contractor shall furnish all materials and perform all work required to furnish and install complete Contract No. ____ - General Construction for Volney Landfill Site Remedial Action.

Article 2. In consideration of the payments to be made as hereinafter provided, and of the performance by the Owner of all matters and things to be performed by the Owner as hereinafter provided, the Contractor agrees, at his own sole cost and expense to perform all the labor and services, and to furnish all the labor and materials, plant and equipment necessary to complete, and to complete in good, substantial, workmanlike and approved manner, the work described under Article 1 hereof, within the time hereinafter specified and in accordance with the terms, conditions and provisions of this Contract and with the instructions, order and directions of the Engineer made in accordance with this Contract.

SECTION 00570

AGREEMENT

Article 3. The Owner agrees to pay and the Contractor agrees to accept, as full compensation for all work done and materials furnished, and also for all costs and expense incurred, and loss or damages sustained by reason of the action of the elements or growing out of the nature of the work, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all risks of every description connected with the work, and for all expenses incurred by, or in consequence of, the suspension or discontinuance of the work as herein specified, and for well and faithfully completing the work, and the whole thereof, as herein provided, and for maintaining the work in good condition until the final payment is made, the prices stipulated in the proposal hereto attached.

Article 4. CONTRACT DOCUMENTS. The following Documents shall constitute integral parts of the Agreement, the whole to be collectively known and referred to as the Contract: Advertisement For Bids, Information for Bidders, Wage Rates, Additional Instructions, Bid Documents, Agreement, Performance Bond, Labor & Materials Payment Bond, Insurance Certificates, General Conditions, General Requirements, Specifications, Contract Drawings, and all interpretations of, or addenda to the CONTRACT DOCUMENTS issued by the Owner or the Engineer with the approval of the Owner.

The Table of Contents, Indices, Headings, Titles contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect, limit or cast light on the interpretations of the provisions to which they refer.

Article 5. Contractor agrees to comply with all requirements of the Contract Documents and with all provisions of law and implementing regulations. If the Contractor shall fail to comply with any of the terms, conditions, provisions, or stipulations of this Contract, then the Owner may make use of any or all remedies at law or in equity, or as provided in the Contract and shall have the right and power to proceed in accordance with the provisions thereof.

Article 6. The following alterations and addenda have been made and included in this Contract before it was signed by the parties hereto:

SECTION 00570

AGREEMENT

Article 7. This agreement shall be construed and enforced in accordance with the laws of the State of New York.

Article 8. The Contractor agrees:

- (a) He hereby voluntarily and irrevocably submits himself to the jurisdiction and venue of any court of competent jurisdiction over the subject matter of this Contract located within the State of New York in which any litigation is brought based on or arising out of this Contract.
- (b) Any litigation brought by the Contractor based on or arising out of this Contract shall be brought only in the Supreme Court of the State of New York within the County in which the Owner is located.
- (c) Any legal process or notice connected with any litigation may be served on the Contractor by United States registered mail, postage pre-paid, addressed to the Contractor at his address stated in this Contract or at the Address stated in this Contract for the furnishing of notices to the Contractor or at the Contractor's last known address, and that service in such manner shall constitute good and valid service of process upon the Contractor.
- (d) The Contractor hereby waives any defense which might be available to it in any such litigation based on or alleging lack of jurisdiction or venue, or, if process is served in the manner provided in Subparagraph (c) immediately above, invalid service of process, and that he will duly enter his appearance in any such action.
- (e) This Contract may be presented in court as conclusive evidence of the foregoing agreement.

SECTION 00570

AGREEMENT

IN WITNESS WHEREOF, the parties to this Agreement have hereunto set their hands and seals and have executed this Agreement in six (6) copies the day and year first above written.

_____ (OWNER)

(Seal)

By: _____

CONTRACTOR

(Seal)

By: _____

SECTION 00570

AGREEMENT

(ACKNOWLEDGMENT OF OFFICER OF OWNER ATTESTING CONTRACT)

State of _____)
) SS:
County of _____)

On this _____ day of _____, 20____, before me personally came and appeared _____ to me known, who, being by me duly sworn, did depose and say that he is the _____ of the _____ described in and which executed the foregoing instrument; that he knows the seal of said Owner; that one of the impressions appearing on said instrument is a true and correct impression of such seal; and that he affixed it thereto and attested the same over his signature by virtue of the authority in him vested.

(ACKNOWLEDGMENT OF CONTRACTOR, IF A CORPORATION)

State of _____)
) SS:
County of _____)

On this _____ day of _____, 20____, before me personally came and appeared _____ to me known, who, being by me duly sworn, did depose and say that he resides at _____; that he is the _____ of _____, the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

SECTION 00570

AGREEMENT

(ACKNOWLEDGMENT OF CONTRACTOR, IF A PARTNERSHIP)

State of _____)
) SS:
County of _____)

On this ____ day of _____, 20____, before me personally came and appeared _____ to me known and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument, and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(ACKNOWLEDGMENT OF CONTRACTOR, IF AN INDIVIDUAL)

State of _____)
) SS:
County of _____)

On this ____ day of _____, 20____, before me personally came and appeared _____ to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same.

SECTION 00570

AGREEMENT

(ACKNOWLEDGMENT OF CONTRACTOR, IF A LIMITED LIABILITY COMPANY)

State of _____)
) SS:
County of _____)

On this ____ day of _____, 20____, before me personally came and appeared _____, to me known, who being by me duly sworn, did depose and say that he resides at _____; that he is the _____ of _____, the limited liability company described in and which executed the foregoing instrument; that he knows the seal of said limited liability company; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the managing members of said limited liability company, and that he signed his name thereto by like order.

SECTION 00570

AGREEMENT

(Certification of Owner's Attorney)

I, the undersigned, the duly authorized and acting legal representative of _____
_____ do hereby certify as follows:

I have examined the foregoing Contract and surety bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions and provisions thereof.

By: _____
Owner's Attorney

(Date)

END OF SECTION

BIDDING & CONTRACT DOCUMENTS

SECTION 00610

PERFORMANCE BOND

(ATTACH PERFORMANCE BOND HERE)

00620-1

BIDDING & CONTRACT REQUIREMENTS

SECTION 00620

LABOR & MATERIALS PAYMENT BOND

(ATTACH LABOR & MATERIALS PAYMENT BOND HERE)

BIDDING & CONTRACT REQUIREMENTS

SECTION 00650

CERTIFICATE OF INSURANCE

(ATTACH INSURANCE CERTIFICATES HERE)

GENERAL CONDITIONS

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.01 DEFINITIONS OF WORDS AND TERMS

Wherever the following words, or corresponding pronouns are used in this Contract, they shall have the meaning given herein:

CONTRACT, OR CONTRACT DOCUMENTS: each of the various documents referred to in the Agreement, both severally and as a whole, including all additions, deletions, modifications and interpretations incorporated therein or appended thereto by or with approval of the Owner prior to the execution of the Contract.

OWNER: the party of the first part to this Contract, or any duly authorized agents or officers empowered to act therefor.

CONTRACTOR: the party of the second part to this Contract, or the legal representatives or agents appointed by said party for the performance of the work.

ENGINEER: the firm of Barton & Loguidice, P.C., Consulting Engineers, 290 Elwood Davis Road, Box 3107, Syracuse, New York 13220, engaged by the Owner to provide Engineering services in connection with the work of this Contract, or its representatives duly authorized in writing to act therefor.

SURETY: the person, persons, firm or corporation who executes the Contractor's Performance Bond and Labor & Materials Payment Bond.

SUBCONTRACTOR: any person, other than employee of the Contractor, or any firm or corporation who contracts to act for or in behalf of the Contractor in performing any part of the work in connection with the Contract, exclusive of one who furnishes only materials or equipment.

PROJECT: the entire facility or improvement to which the Contract relates.

SITE: the area or areas bounded by the property lines shown on the Plans, and other areas that may be similarly designated.

00750-2

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.01 DEFINITIONS OF WORDS AND TERMS - Continued

THE WORK: all labor, equipment and materials required, either expressly or by implication, to be furnished by the Contractor under this Contract or in connection with Change Orders or Supplemental Agreements thereto.

SUPPLEMENTAL AGREEMENT: an alteration or modification of the Contract Documents, made after execution of the Contract and agreed to in writing by the Contractor and the Owner.

CHANGE ORDER: a written order from the Owner to the Contractor directing an alteration or modification of the nature, scope or type of the work.

BOND OR PERFORMANCE BOND: the guarantee signed by the Surety, that the Contractor will complete all the work as required by the Contract.

LABOR & MATERIALS PAYMENT BOND: the guarantee, signed by the Surety, that the Contractor will pay for all Labor and Material required by the Contract.

SPECIFICATIONS: also referred to as **DETAIL SPECIFICATIONS** or **TECHNICAL SPECIFICATIONS**. The written directions, requirements, descriptions of materials, equipment, construction systems, standards and workmanship as applied to the work and specifically including Division 1 - Division 16 of the Contract Documents.

PLANS, DRAWINGS OR CONTRACT DRAWINGS: only those drawings listed as such in the Contract Documents with all Addenda thereto.

SHOP DRAWINGS, SETTING DRAWINGS, WORKING DRAWINGS, CONSTRUCTION DRAWINGS: drawings prepared, or caused to be prepared, by the Contractor, Sub-contractors, or by their equipment or material suppliers, in their behalf, including standard or stock equipment drawings, necessary to the performance of the work in addition to the Contract Drawings, or as may be required by the Engineer to be submitted for review.

ADDITIONAL DRAWINGS, SUPPLEMENTARY DRAWINGS: drawings, in addition to the Contract Drawings, which may be prepared and issued by the Engineer as part of the instructions to or requests of the Contractor in connection with the work of the Contract or appertaining to changes in the work.

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.01 DEFINITIONS OF WORDS AND TERMS - Continued

ADDENDUM, ADDENDA: additional Contract provisions, deletions or changes issued by the Owner prior to the receipt of bids.

WRITTEN NOTICE: all written and authoritatively signed communications required in the normal conduct of the work or required to obtain compliance with the Contract provisions or preserve the rights of any party to the Contract. Written notice shall be considered as served when either delivered in person or deposited in a post-paid wrapper in a regularly maintained U.S. Mailbox and addressed to the person, firm or corporation intended to receive such notice, or to his appropriate agent, to the last business address of such known to the server. If mailed, the period of notice shall run from the time of the postal cancellation. It shall be incumbent upon each party to the Contract, and the Engineer, to advise the other parties to the Contract, and the Engineer, of any change in his business address until completion of the Contract and the expiration of all guarantee periods connected therewith.

DIRECTED, ORDERED, REQUIRED, DESIGNATED, PERMITTED, GRANTED, INSTRUCTED, CONSIDERED NECESSARY, APPROVED, SATISFACTORY, ACCEPTABLE: words referring to action or satisfaction of the Engineer, unless another meaning is specifically stated. The same shall apply to words of like import.

AS SHOWN, AS SHOWN ON THE PLANS: words referring to lines, numbers, or statements, or combinations thereof, on the Contract Drawings, unless another meaning is specifically stated.

ELEVATION: or any abbreviation of the word "elevation", followed by figures, shall refer to the distance in feet above the datum established by the Engineer for the Project.

ACT OF GOD: an earthquake, flood, excessive wind or other unusual natural occurrence. Rain, snow, wind, flood, lightning or other natural phenomenon of normal intensity for the locality shall not be included in the meaning of the term.

APPROVED EQUAL, EQUAL: in the Contract Documents or Contract Drawings wherever brand names are specified and followed by the phrase "or approved equal", this phrase shall be modified to read "or equal".

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.02 REFERENCES TO OTHER SPECIFICATIONS AND CODES

References in these Specifications to published specifications and codes of private and governmental technical societies and agencies shall mean the latest specification for the item or operation involved. Abbreviations of these organizations used in these Specifications may include the following:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AGA	American Gas Association
AGCA	Associated General Contractors of America
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AMCA	American Mechanical Contractors Association
ANSI	American National Standards Institute
APWA	American Public Works Association
ARI	American Refrigeration Institute
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration & Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CEMA	Conveyor Equipment Manufacturers Association
CIPRA	Cast-Iron Pipe Research Association
FM	Factory Mutual System
HEI	Heat Exchange Institute
HI	Hydraulics Institute
IEEE	Institute of Electrical and Electronics Engineer
IPCEA	Insulated Powers Cable Electric Association
NAFM	National Association of Fan Manufacturers

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.02 REFERENCES TO OTHER SPECIFICATIONS AND CODES -
Continued

NBC	National Building Code
NBFPU	National Board of Fire Protection Underwriters
NBCA	National Bituminous Concrete Association
NCPI	National Clay Pipe Institute
NEC	National Electrical Code
NELA	National Electrical Lamp Association
NEMA	National Electrical Manufacturers Association
NETA	National Electrical Testing Association
NFPA	National Fire Protection Association
NSWMA	National Solid Wastes Management Association
NYSDOT	New York State Department of Transportation, Standard Specifications (Construction and Materials)
NYSECC	New York State Energy Conservation Code
OSHA	Occupational, Safety and Health Act
PCA	Portland Cement Association
SAE	Society of Automotive Engineers
SMACNA	Sheet Metal & Air Conditioning Contractors National Association
SSPC	Steel Structures Painting Council
UL	Underwriter Laboratories', Inc.
USEPA	United States Environmental Protection Agency

END OF SECTION

GENERAL CONDITIONS

SECTION 00751

POWERS AND DUTIES OF ENGINEER

00751.01 RESPONSIBILITY OF THE ENGINEER

The Engineer shall decide questions which may arise as to the quality and acceptability of materials furnished, work performed, rate of progress of work, interpretation of Drawings and Specifications and all questions as to the acceptable fulfillment of the Agreement on the part of the Contractor. The duties and responsibilities of the Engineer as set forth herein shall not be extended except through written consent of the Engineer and the Owner.

- A. **Observation of the Work:** The Engineer will make periodic visits to the site to observe the progress and the quality of the executed work. All materials and each part or detail of the work shall be subject at all times to observation by the Engineer and the Owner, and the Contractor will be held strictly to the intent of the Contract Documents in regard to quality of materials, workmanship, and the diligent execution of the Contract. Observations may be made at the site or at the source of material supply, whether mill, plant or shop. The Engineer 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 his observations and construction review.
- B. **Acceptability of Work:** The Engineer's decision as to the acceptability or adequacy of the work shall be final and binding upon the Contractor. The Contractor agrees to abide by the Engineer's decision relative to the acceptability of the work.
- C. **Engineer's Decisions:** All claims of the Owner or the Contractor shall be presented to the Engineer for decision which shall be final except in cases where time and/or financial considerations are involved.
- D. **The Engineer shall not be responsible for the Contractors or any Sub-contractor's construction means, methods, controls, techniques, sequences, procedures or construction safety or his failure to complete the work in accordance with the Contract Documents.**

00751-2

SECTION 00751

POWERS AND DUTIES OF ENGINEER

00751.01 RESPONSIBILITY OF THE ENGINEER - Continued

- E. Oral Agreements: No oral order, objection, claim or notice by any party to the others shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever, other than by a definitely agreed waiver or modification thereof in writing, and no evidence shall be introduced in any proceedings of any other waiver or modification.

00751.02 INSPECTION OF WORK

Inspection services, performed by the Engineer pursuant to this Contract, whether of material or work, and whether performed prior to, during or after completion of construction, are performed solely for the purpose of determining general conformity of the work with the Contract Plans and Specifications.

Nothing contained herein shall create, or be deemed to create:

- A) any duty upon the Engineer to supervise the construction procedures and safety procedures followed by any Contractor or Sub-contractor or their respective employees or by any other persons at the job site, or
- B) any liability whatsoever by the Engineer to any employees or any Contractor or Sub-contractor or to any other person.

00751.03 NO WAIVER OF RIGHTS

No inspection or approval by the Owner, the Engineer, or any of their employees, nor any order, measurement or certification by the Engineer, nor payment for, nor acceptance of the whole or any part of the work by the Owner or the Engineer, nor any order of the Owner for payment of money, nor any possession taken by the Owner, nor any extension of time shall operate as a waiver of any provision of the Contract, or of any right to damage herein provided or of any power herein reserved. Neither shall a waiver of any breach of the Contract be construed to be a waiver of any other or subsequent breach. All remedies in the Contract shall be construed

SECTION 00751

POWERS AND DUTIES OF ENGINEER

00751.03 NO WAIVER OF RIGHTS - Continued

as being cumulative, in addition to each and every other remedy herein contained. The Owner shall have any and all legal and equitable remedies and recourse which he would in any case have.

END OF SECTION

GENERAL CONDITIONS

SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.01 GUARANTEES, PERFORMANCE BONDS, LABOR AND MATERIALS PAYMENT BONDS AND GUARANTEES

The Contractor shall furnish Performance and Labor and Materials Payment Bonds each in an amount not less than the full amount of the accepted bid. The Performance Bond shall guarantee faithful performance of the work in compliance with all Contract Documents. The Labor and Materials Payment Bonds shall guarantee the payment of all persons performing labor or furnishing materials in connection therewith. The Bonds shall be in a form approved by the Owner and dated the same as the executed Agreement. The Surety company or companies shall be designated by the Contractor and shall be authorized to transact business in New York State, and if this is a Federally aided project, shall appear on the U.S. Treasury Department's most current list (Circular 570 as amended). The premium for these Bonds shall be paid by the Contractor and shall be included as a part of his Bid. An Attorney-in-fact who signs Performance or Labor and Materials Payment Bonds shall file with each Bond or copy thereof a certified copy of his Power-Of-Attorney to sign such Bonds.

Cash in the form of United States currency or a certified check payable to the Owner in the full amount of the accepted Bid, deposited with the Owner, will be accepted in lieu of both Bonds. Such deposit shall serve as the Performance, and Labor and Materials Payment Bonds for all purposes specified, and the Contractor agrees that such deposit, or such portion thereof as may be required to satisfactorily complete the work, shall be forfeited to the Owner.

The Owner reserves the right to order or approve additions to, omissions from, or changes in the work without notice to the Surety.

The Contractor guarantees all the work, materials and equipment called for in the Contract against defects in materials or workmanship for a period of twelve months following the date of the Notice of Substantial Completion. Under this guarantee, the Contractor shall make good, at his own expense and without delay, any failure of any part due to poor or faulty materials, construction or installation, or to the failure of any equipment to satisfactorily perform the work required of it by the Specifications. The Contractor shall also make good any damage to any part of the Project, the environment or other property of the Owner caused by such failure.

00752-2

SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.01 GUARANTEES, PERFORMANCE BONDS, LABOR AND MATERIALS
PAYMENT BONDS AND GUARANTEES - Continued

Any work replaced or rebuilt during the above-mentioned guarantee period shall be similarly guaranteed for a 12-month period starting from the date of acceptance of the repair, reconstruction or replacement.

The Contractor's Performance and Labor and Materials Payment Bonds specified in the above paragraph shall fully cover all guarantees specified.

00752.02 ADDITIONAL SECURITY

At any time the Owner may become dissatisfied with the Surety or Sureties who furnished the Performance Bond and the Labor and Materials Payment Bonds, or if for other reasons the Bond(s) shall, in the opinion of the Owner, cease to be adequate security to the Owner, the Contractor shall, within five days after notice from the Owner, substitute a new Bond(s) acceptable to the Owner in form, amount and Surety. The premium on such Bond(s) shall be paid by the Contractor. No payments on any Monthly Estimate shall become due and none shall be made until the new Surety shall have been approved and the Bond(s) executed and accepted.

00752.03 CONTRACTOR'S INSURANCE

The Contractor, at his own expense, shall procure and maintain until one year after the date of the Notice of Certificate of Substantial Completion or one year after the Contractor or any Subcontractor last performs any work under the Contract if the Project is abandoned or deferred, insurance for liability for damages required by law of the kinds and in the amounts stated herein and as may be modified by provisions in the Additional Instructions, through insurance companies authorized to operate in New York State. The insurance shall cover all operations necessary to complete the work, whether performed by the Contractor or Subcontractors. Before starting work, the Contractor shall furnish the Owner one duplicate original policy and five certificates of insurance for each and every type of insurance required. The policies and certificates shall be in form and content satisfactory to the Owner, shall show compliance by the Contractor with the provisions herein contained, and shall provide that the policies shall not be cancelled or altered until after 30 days written notice to the Owner. Property damage insurance shall in all cases include coverage for XCU hazards, (explosion, collapse and underground operations).

SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.03 CONTRACTOR'S INSURANCE - Continued

All liability insurance required by this Contract shall be maintained in force during the term of this Contract and until one year after the date of the Notice of Substantial Completion or one year after the Contractor or any Subcontractor last performs any work under the Contract if the Project is abandoned or deferred.

Unless specifically required otherwise elsewhere in the Contract Documents, commercial general liability insurance policies shall be provided in amounts not less than:

Bodily Injury and Property Damage Liability:	\$1,000,000 Each Occurrence \$2,000,000 General Aggregate \$2,000,000 Products Aggregate
Personal Injury Liability:	\$1,000,000 Each Occurrence

The kinds and amounts of insurance required are:

A. Worker's Compensation Insurance

A policy covering the Contractor's obligations in compliance with the Worker's Compensation Law (Chapter 41 of the Laws of 1914, as amended) covering all operations of the work, whether performed by the Contractor or by Subcontractors. This Contract shall be null and void, and of no effect unless the Contractor provides during the life of the Contract compensation coverage for the benefit of his employees, and those of his Subcontractors, in compliance with the Worker's Compensation Law (State Finance Law, Section 142). The Contractor shall require each Subcontractor to also comply with these requirements, unless the Subcontractor's employees are adequately covered by the Contractor's policy. If any employees are not covered by the Worker's Compensation Law due to being engaged in a hazardous type of work, the Contractor shall provide adequate Employer's General Liability Insurance for their protection.

SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.03 CONTRACTOR'S INSURANCE - Continued

B. Commercial General Liability Insurance

This policy shall cover all damages arising during the policy period, and shall include but not be limited to:

1. Contractor's Liability Insurance issued to and covering the liability for damages imposed by law upon the Contractor with respect to all work performed by him under the Contract.
2. Contractor's Liability Insurance issued to and covering the liability for damages imposed by law upon each Subcontractor with respect to all work performed by him under the Contract.
3. Contractor's Protective Liability Insurance issued to and covering the liability for damages imposed by law upon the Contractor with respect to all work under the Contract performed for the Contractor by Subcontractors.
4. Completed Operations Liability Insurance issued to and covering the liability for damages imposed by law upon the Contractor and each Subcontractor arising during the period between the date of the Notice of Certificate of Substantial Completion and one year thereafter.
5. Product Liability Insurance issued to and covering the liability for damages imposed by law upon the Contractor arising, after physical possession of the products has been relinquished, out of the Contractor's products or reliance upon a representation or warranty with respect thereto.
6. Contractual Liability Insurance issued to and covering the liability for damages imposed by law upon the Contractor, assumed under this Contract.

- C. Owners Protective Liability Insurance issued in the name of the Owner to and covering the liability for damages imposed by law upon the Owner and the Engineer with respect to all operations under the Contract by the Contractor or his

SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.03 CONTRACTOR'S INSURANCE - Continued

Subcontractors, including supervisory acts and omissions of the Owner. If so stated in the Additional Instructions, this insurance shall also name as additional assured or assureds the party or parties specified in the Additional Instructions.

The limit for this coverage shall be \$1,000,000 per occurrence and aggregate.

- D. Contractual Liability Insurance issued to and covering the liability imposed by the Contract upon the Owner and the Engineer for work performed on private lands with respect to the work of the Contract by the Contractor or his Subcontractors. Such insurance is specified in more detail in the Additional Instructions.
- E. Automobile Liability Insurance covering all claims against the Contractor, Subcontractors, Engineer and Owner as the result of work under the Contract.

The limit for this coverage shall be \$1,000,000 per occurrence.

- F. Property Insurance - Fire & Extended Coverage

The Contractor shall provide and maintain, at his own expense, a standard Property Insurance - Fire & Extended policy including special peril and theft to insure all work of the Contract against any loss or damage. The value of the insurance shall at all times be equal to or greater than the full value of the work (on-site & off-site) shall be in the names of both the Owner and the Contractor, payable to the Owner, and any proceeds thereof shall be retained by the Owner as security for the performance by the Contractor in making good any loss, damage or injury. Upon such satisfactory performance by the Contractor, the proceeds shall be paid by the Owner to the Contractor.

- G. Umbrella Liability Insurance coverage shall be provided for a limit of at least \$4,000,000 and shall cover over the areas of Commercial General Liability, Contractual Liability and Automobile Liability coverage.

END OF SECTION

GENERAL CONDITIONS

SECTION 00753

STATUS OF CONTRACTOR

00753.01 REPRESENTATIONS OF CONTRACTOR

The Contractor warrants and represents that:

- A. He is familiar with all Federal, State, County and Municipal laws, ordinances, regulations and codes pertinent to the work and those employed in connection therewith, including any special acts relating to the work or the Project.
- B. He has carefully examined all the Contract Documents and the Site and has, thereby satisfied himself as to: the location and nature of the work; the quantity, quality and nature of both surface and subsurface structures and materials apt to be encountered; the quantity, quality and types of plant, equipment and other facilities necessary for the performance of the work; the general and local conditions; and all other matters which may in any way affect the work or his performance under the Contract.
- C. Such work, both temporary and permanent, required under the Contract can be satisfactorily constructed and used for its intended purpose, without injury to any person or damage to any property.
- D. He is financially solvent and experienced in and competent to perform the work of the Contract.
- E. If a corporation foreign to the State of New York, he is aware of the provisions of Article 13 of the General Corporation Law, with specific reference to the requirements in Section 210 that certain corporations may not do business in this State without first obtaining a certificate of authority from the Secretary of State.
- F. If a corporation, he is aware of the provisions of Article 145 of the Education Law, with specific reference to the requirements and prohibitions of Section 7209 relating to the practice of professional engineering, or the use of the word "engineer" or "engineering" in a corporate name.

00753-2

SECTION 00753

STATUS OF CONTRACTOR

00753.02 ADDRESS OF CONTRACTOR

Both the address given in the bid and the Contractor's office at or near the Site, if such is established, are designated as places to either of which letter, notices, or other communications to the Contractor may be mailed or delivered. The delivery at either place, or the depositing, in a post-paid wrapper addressed to either place, in any regularly maintained U.S. Post Office Box, of any letter, notice, or other communication shall be deemed sufficient service thereof upon the Contract. If at any time during the life of the Contract, it is necessary to change either address, the Contractor shall give written notice to the Owner, the Surety and the Engineer.

Nothing herein shall act to prevent or invalidate the personal delivery in hand of any letter, notice or other communication to the Contractor.

00753.03 PATENTS

The Contractor shall pay, as part of this Contract, all costs and fees required to obtain the legal right to use patented equipment, designs, or procedures to be used, as part of the work on this Contract.

The Contractor shall defend, indemnify, keep and save harmless the Owner from all costs, damages, liabilities, judgments and expenses, including reasonable attorney fees which may in any way arise against the Owner because of the use of any patented material, equipment or process furnished or used in the performance of the work or because of the use of patented designs supplied by the Contractor and accepted by the Owner.

If any claim, suit or action at law or inequity of any kind involving any such patent is brought against the Owner, the Owner may retain from any moneys due or to become due to the Contractor an amount considered sufficient by the Owner to protect itself against loss until such action is settled and satisfactory evidence to that effect has been supplied to the Owner.

00753.04 CONTRACTOR'S OBLIGATIONS

The Contractor shall furnish all the plant, machinery, labor, equipment, material, tools, appliances, shoring, bracing and scaffolding necessary to the proper and safe completion of the work in the manner specified, shown and directed within the time specified. He shall suitably cover the work whenever necessary, and otherwise protect it from damage from any cause whatsoever.

SECTION 00753

STATUS OF CONTRACTOR

00753.04 CONTRACTOR'S OBLIGATIONS - Continued

If in the opinion of the Engineer the Contractor's procedures or appliances appear at any time, either before or during progress of the work, to be inadequate or insufficient to provide the quality of the work, or the rate of progress specified, he may order the Contractor to improve their character and increase their sufficiency, and the Contractor shall comply therewith. However, failure of the Engineer to issue such an order shall not relieve the Contractor of his obligations to secure the safety, quality or progress of the work, and the Contractor alone shall be responsible for the safety, adequacy and efficiency of his methods, plant and appliances.

00753.05 LIABILITY FOR INJURIES OR DAMAGE

The Contractor shall be solely responsible and liable for the safety and protection of all persons, including but not limited to the Owner, Engineer, Contractor and Subcontractor and their employees, suppliers and visitors, and shall be solely responsible and liable for the safety and protection of property, including but not limited to the Site and its appurtenances and equipment, and he shall be solely responsible for all physical injuries, including death, to any such persons and for all damage to any such property and its appurtenances, which occurs on account of the work, or because of any negligence, fault or default of the Contractor, a Subcontractor or any of their officers, employees or agents.

The Contractor shall have on the project site at all times, while work is in progress, at least one person skilled in safety and health procedures and familiar with State and Federal safety and health regulations whose responsibility shall be to observe methods and procedures. He shall have the duty and authority to stop and/or correct all unsafe and unhealthy conditions.

The Contractor shall fully protect, defend, indemnify and save harmless the Owner and the Engineer and their employees and agents against all liability, costs, judgments, damages, penalties and expenses, including reasonable attorney fees in connection with any claims relating to or arising out of the work, whether such claims, damages or injury are attributable to the negligence of the Contractor, his officers, his Subcontractor's, employees or agents or otherwise. The liability of the Contractor is absolute and is not dependent upon any question of negligence on the part of the Contractor, his employees, officers or agents.

SECTION 00753

STATUS OF CONTRACTOR

00753.06 GENERAL INDEMNIFICATION

The Contractor shall fully protect, defend, indemnify and hold harmless the Owner and Engineer and their agents against all liability, judgments, damages, cost and expense, including reasonable attorneys fees, arising from any and all claims relating to labor and material furnished in connection with the work because of the failure, omission or neglect of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of the above may be liable, to perform any of the acts, covenants or other matters required of him under the Contract.

00753.07 CONTRACTOR'S CLAIM FOR DISPUTED WORK

If the Contractor believes he or his Subcontractor or anyone directly or indirectly employed by any of them has sustained damage for disputed work, for which he claims he should be compensated, he shall give written notice to the Engineer, describing the nature and circumstances of the disputed work, within seven days after sustaining such damage. The Contractor shall also file with the Engineer, within 30 days of the date on which the alleged damage occurred, an itemized statement of the character and amounts of such damage. Unless both statements shall be filed as so required, the claim for compensation shall be considered invalid and the Contractor shall not be entitled to any payment therefor.

The Contractor shall proceed diligently with performance of the disputed work pending final resolution of his claim for damages.

During the progress of such disputed work, the Contractor shall provide to the Engineer daily records and make reports of all labor, material and equipment used in connection with such work and the cost thereof as specified in Section 00757.03.

If the Owner determines that the work in question is Contract work and not a Changed condition, he shall direct the Contractor to continue the disputed work, and the Contractor must promptly comply.

If the Owner determines that the work in question is not Contract work and is a Changed condition, he shall direct the Contractor to continue the work and shall have prepared a Change Order in accordance with Section 00757.03.

SECTION 00753

STATUS OF CONTRACTOR

00753.08 NO CLAIMS AGAINST INDIVIDUALS

No claim shall be made by the Contractor or his Subcontractor or anyone directly or indirectly employed by any of them against any officer, employee or agent of the Owner and the Engineer for, or because of, anything done or failure to be done in connection with the work.

00753.09 CONTRACTOR'S TITLE TO MATERIALS

Neither the Contractor nor any Subcontractor shall purchase any materials, equipment or supplies for work subject to any chattel mortgage or under a conditional sale agreement or other agreement by which an interest is retained by the seller. The Contractor shall obtain and maintain good and clear title to all materials and supplies used by him in the work until attachment to or incorporation in the work.

Nothing in the Contract shall be construed as vesting in the Contractor any property right in materials or equipment specified after they shall have been attached to or incorporated in the work or the ground, nor in materials and equipment for which partial payments have been made. All such materials and equipment shall become the property of the Owner upon such attachment or incorporation.

00753.10 TITLE TO OLD MATERIALS

All materials removed from existing structures or construction, and all materials or articles of intrinsic or historic value found in excavations or on the Site shall be brought to the attention of the Engineer, and if he shall so order, shall become or remain the property of the Owner, and shall be carefully preserved for future use. If not claimed by the Owner, such materials or articles shall be removed from the Site and disposed of by the Contractor at his own expense.

END OF SECTION

GENERAL CONDITIONS

SECTION 00754

CONTRACTOR'S ORGANIZATION & STAFF

00754.01 SUPERINTENDENTS, FOREMEN & AGENTS

The Contractor shall at all times, except during periods of shut-down or work suspension that have been approved or directed, have a competent superintendent, foreman or other representative on the Site, who shall see that the work is performed in accordance with the Contract Documents and directions of the Engineer given thereunder, and who shall have authority to act for the Contractor and to receive and carry out orders from the Engineer, and who shall receive materials and equipment shipped to the Contractor. The Contractor shall be responsible for the acts of his superintendents, foremen, agents and employees during the life of the Contract.

00754.02 COMPETENCY & CHARACTER OF EMPLOYEES

The Contractor shall employ only competent and skillful persons to perform the work. This provision shall apply equally to common laborers and skilled craftsmen or tradesmen.

Whenever the Engineer informs the Contractor that any person on the work is, in the Engineer's opinion, incompetent, intemperate, unfaithful, insufficiently skillful, or disorderly, or refuses to carry out the provisions of the Contract, or to stop doing unsatisfactory work when so ordered, or who uses threatening or abusive language to the Owner, the Engineer, or any authorized representative(s) thereof, such person shall be discharged from the work by the Contractor and shall not again be employed without written consent of the Engineer.

00754.03 CONTRACTOR'S FIELD OFFICE

Unless waived by provisions within Additional Instructions, the Contractor shall provide, furnish and maintain for his own use a field office, with telephone, on the Site during the entire period of construction. The Contractor shall obtain approval of the Engineer of the type, size and location of such office, shanties or other temporary structures on the Site, prior to their erection.

00754-2

SECTION 00754

CONTRACTOR'S ORGANIZATION & STAFF

00754.03 CONTRACTOR'S FIELD OFFICE - Continued

The Contractor will receive no direct payment for providing, maintaining or removing the Contractor's Field Office specified above, and compensation for same shall be included, as part of his overhead, in the prices to be paid for the various items in this Contract.

END OF SECTION

GENERAL CONDITIONS

SECTION 00755

PERMITS, TAXES, ACCESS, OTHER CONTRACTS

00755.01 LAWS, REGULATIONS & PERMITS

The Contractor shall procure at his own expense all necessary permits from the Federal, State, County, Town, municipal or other public agencies that may be involved in the work or the Project or have jurisdiction thereover, and shall serve all notices required by law or ordinance and pay all fees and charges incidental thereto. He shall at all times keep himself fully informed of all laws, ordinances and regulations which in any way affect the work, the materials, methods and equipment used in the work, the conduct of the work, and persons engaged or employed on the work, and of all orders, instructions and decrees of bodies, agencies or tribunals having any authority or jurisdiction over the work or the Project.

If the Contractor should discover any discrepancy or inconsistency in any Contract Documents relating to any permit, law, ordinance, regulation, code, order, decree or instruction, he shall immediately report the same in writing to the Engineer.

The Contractor shall at all times observe and comply with all such existing and all laws which come into existence during the execution of the Contract, as well as permits, codes, decrees, ordinances, regulations, orders and instructions, and shall cause his superintendents, foremen, employees and agents to do likewise.

00755.02 REQUIRED LEGAL PROVISIONS DEEMED INCLUDED

All clauses and provisions of law required by law to be included in the Contract shall be deemed to be included herein, and the Contract shall be interpreted, administered and enforced as though they were included. If, through oversight or otherwise, any such clause or provision is not included, or is not correctly included, the Contract shall immediately be physically amended or corrected, at the request of either party, to provide the necessary compliance.

The inclusion in the Contract Documents of any portion of any law or ordinance or code, regulation, decree, order, permit, instruction or interpretation emanating from a public body or agency, shall not be construed to mean that all such laws or legal requirements deemed necessary, in effect, or applicable to all or any portion of the work or the Contract have been included.

00755-2

SECTION 00755

PERMITS, TAXES, ACCESS, OTHER CONTRACTS

00755.03 UNLAWFUL REQUIREMENTS DEEMED EXCLUDED

If the Contract Documents contain any unlawful provision not an essential part of the Contract and which shall not appear to have been a controlling or material inducement to the making of the Contract by the parties thereto, such provision shall be construed to be of no effect and shall, upon written notice by either party, be deemed stricken from the Contract without affecting the binding force of the remainder on both parties.

00755.04 TAXES

The Contractor shall pay all sales, use, excise, transportation and other taxes and fees for which he is liable under the Contract. The cost of such taxes and fees shall be included in the price, or total of several prices, given in the Bid on which the Agreement is based, and no separate payment will be made therefor.

00755.05 ACCESS TO WORK AND CONTRACTOR'S RECORDS

The Owner and the Engineer, and their employees, agents and representatives, shall have access to the work, the Site, and the premises used by the Contractor, and the Contractor shall provide and maintain safe and suitable facilities therefor. Subcontractors, and any other parties who may contract with the Owner to do work on the Site shall, for all purposes which may be required by their contracts, have the same privileges and facilities.

Whenever requested, the Contractor shall give the Engineer access to invoices, bills of lading, trip tickets, lists of employees, survey notes and other such data connected with the work.

END OF SECTION

GENERAL CONDITIONS

SECTION 00756

TIME ELEMENTS

00756.01 COMMENCEMENT & COMPLETION

The Contractor shall begin performance of the work within the time specified in the Information for Bidders, and shall substantially complete the work within the time specified in the Information for Bidders.

00756.02 TIME OF ESSENCE

Since the provisions of this Contract relating to the commencement and completion of the work are to enable the Owner to construct and place in use an improvement or facility in accordance with a pre-determined program, such provisions are of the essence of this Contract. It is agreed that the Owner will suffer damages if the work is not completed in the time specified.

00756.03 PROGRESS

The rate of progress shall be as uniform as practicable and such that all the work will be completed within the time specified, or within any time extensions that may be granted by the Owner.

The Engineer will notify the Contractor in writing if, at any time, he is of the opinion the work is unnecessarily delayed and will not be completed on time. The Contractor shall, within 10 days after receipt of such notice, take such action as will, in the opinion of the Engineer, improve the rate of progress to an extent that will insure completion of the work within the time specified. If the Contractor shall fail or refuse to take such steps within 10 days, the Owner may notify the Contractor to stop work or terminate the Contract in accordance with the provisions of Article 00760.01, OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT.

00756.04 APPROVED WORK SCHEDULES

Unless waived by provision in the Information for Bidders, within three weeks after award of the Contract, the Contractor shall submit to the Engineer for approval three copies of his proposed work schedule. The schedule shall show the Contractor's proposed relative order

00756-2

SECTION 00756

TIME ELEMENTS

00756.04 APPROVED WORK SCHEDULES - Continued

and sequence of commencement and completion of all salient portions of the work, including the delivery and installation of equipment, and shall give the estimated dates of commencement and completion of the various portions of the work.

If more than one Contract is to be awarded on the same phase of the project, the General Contractor shall provide the Engineer with additional copies of his work schedule after the schedule shall have been approved. The Engineer will transmit these to the other Contractors for reference in the preparation of their proposed work schedules and submittal of same for approval. In such case each Contractor other than the General Contractor shall submit his proposed schedule for approval within three weeks after receipt of a copy of the General Contractor's approved schedule.

Each Contractor shall adhere to the approved schedule for his Contract. If a Contractor causes one or more other Contractors to be damaged by failing to adhere to his schedule, he shall save harmless the Owner and the Engineer from any and all actions and charges of the other Contractors against the Owner or the Engineer as the result of such failure.

See also Article 01012.01, COLLATERAL WORK.

00756.05 WORK SUSPENSION

When, in the opinion of the Engineer, good cause of suspension of the work exists, the Contractor shall suspend the work or any portion thereof, upon written order of the Engineer, for such period of time as the Engineer may direct. If the reason for suspension is beyond the control of the Contractor, the time within which the work is required to be completed shall be extended by the number of calendar days the work is suspended.

00756.06 TIME EXTENSIONS

Should the work be obstructed or delayed through the neglect, delay or default of any other Contractor on the Project, or by an Act of God, or by a general strike, or by delay on the part of the Owner in performing any work or furnishing any material or equipment stated in the Contract to be furnished by the Owner, or by any Supplementary Agreement or Change Order issued by the Owner, the Contractor shall have no claim for damages against the Owner or the Engineer, other than the price or prices agreed upon under Supplemental Agreement, or Change

SECTION 00756

TIME ELEMENTS

00756.06 TIME EXTENSIONS - Continued

Order, but shall be entitled to such an extension of time for completion of the work as the Engineer certifies is equitable because of such obstruction, delay, Supplemental Agreement, or Change Order, provided that claim for a time extension is made by the Contractor, in writing within seven days from the end of the time when the alleged cause therefore shall have occurred. Time necessary for Shop Drawing review, for changes to meet actual conditions, and delays incurred by seasonal and weather limitations for the locality should be normally anticipated and are neither compensatory nor eligible for extensions of time. See also ARTICLE 01012.01, COLLATERAL WORK, and 00757.03, CHANGE ORDERS AND PAYMENT OR CREDIT THEREFOR.

00756.07 ENGINEERING AND INSPECTION CHARGES

When the work embraced in the Contract is not substantially completed on or before the date specified therein, or within any time extensions granted by the Owner, engineering and inspection expenses incurred by the Owner in connection with the work from the specified or extended date of substantial completion until the date of actual Substantial Completion shall be charged to the Contractor. The date of actual substantial completion shall be determined as the date of issuance of the Notice of Substantial Completion.

Supplementary Agreements or Change Orders added to the original Contract, as well as extenuating circumstances beyond the control of the Contractor, will be given due consideration by the Owner prior to assessing engineering and inspection charges against the Contractor.

In addition, should the Contractor apply for and receive dispensation to work more than eight hours per day or forty hours per week by the Industrial Commissioner, the Contractor will be charged the associated overtime premium rate for the Engineer's on-site inspection representative(s).

Should the remaining minor punch list items not be completed within sixty (60) days of the Notice of Substantial Completion or within any time extensions granted by the Owner, the Contractor shall pay the Owner for any engineering and inspection expenses incurred by the Owner from the specified or extended date of minor punch list completion until when such punch list items are fully complete.

00756-4

SECTION 00756

TIME ELEMENTS

00756.07 ENGINEERING AND INSPECTION CHARGES - Continued

These additional engineering and inspection charges shall be in the form of agreed-upon damages to the Owner and shall be deducted from moneys due or to become due the Contractor.

00756.08 PER DIEM CHARGES FOR DELAY

For each calendar day or fraction thereof that any work except minor punch list items as listed on the Notice of Substantial Completion shall remain uncompleted after the Contract time specified for the substantial completion of the work in the Information For Bidders or extensions thereof granted by the Owner, the Contractor shall pay the Owner agreed-upon damages as follows, unless modified in the Additional Instructions:

Original Contract Amount		Agreed-Upon Damages Per Calendar Day
From More Than	To and Including	
\$ 0	\$ 25,000	\$ 50
\$ 25,000	\$ 50,000	\$ 100
\$ 50,000	\$ 100,000	\$ 200
\$ 100,000	\$ 500,000	\$ 300
\$ 500,000	\$ 2,000,000	\$ 500
\$ 2,000,000	\$ 5,000,000	\$ 600
\$ 5,000,000	\$10,000,000	\$ 800
\$10,000,000		\$1,000

The date of actual Substantial Completion shall be determined as the date of issuance of the Notice of Substantial Completion.

Such sums shall be in addition to engineering and inspection charges as provided for in ARTICLE 00756.07 and shall not be in the nature of a penalty, but agreed-upon damages to the Owner in such case and shall be a part of the consideration of the Contract.

The sums and charges specified above shall be deducted from moneys due or to become due the Contractor and the amount still owing, if any, shall be paid on demand by the Contractor or the Surety. Such payments shall not relieve the Contractor or the Surety from any other obligation under the Contract.

SECTION 00756

TIME ELEMENTS

00756.08 PER DIEM CHARGES FOR DELAY - Continued

Before assessing engineering and inspection charges, or per diem charges for damages, the Owner will give due consideration to any and all Supplementary Agreements and Change Orders as well as extenuating circumstances beyond control of the Contractor including any delays due to any preference, priority or allocation order duly issued by the Government. Such charges will be assessed, however, in cases in which the Owner considers the Contractor liable as the result of slow work, inefficient operation, insufficient labor, equipment or material, the removal and replacement of poor work, or other unwarranted reasons.

END OF SECTION

GENERAL CONDITIONS

SECTION 00757

CHANGES IN THE WORK

00757.01 RIGHT TO ALTER CONTRACT

The Owner may at any time alter or modify the Contract Documents, and the Contractor shall conform to such alterations or modifications after the Owner and the Contractor shall have entered into a Supplementary Agreement in writing therefor. The Contractor shall perform no work and furnish no material in connection with the alterations or modifications, nor shall he receive any additional payment therefor, unless and until such a Supplementary Agreement has been executed, as required by law. The Owner and the Contractor agree that alterations and modifications thus made shall in no way comprise the validity or coverage of the original Contract or Bond, or the liability of the signers thereof. All work performed under any such Supplementary Agreement shall be subject to all the provisions of the original Contract not expressly altered or modified.

00757.02 MINOR CHANGES

When ordered by the Engineer, the Contractor shall make minor changes in the location of the work, installation of equipment, and other things called for in the Contract, at no additional cost to the Owner. Such minor changes shall be limited to matters that do not alter the character, quantity or cost of the work as a whole. The Engineer shall be the sole judge of what constitutes a minor change.

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR

The Owner, without invalidating the Contract, may make changes by altering, adding to or deducting from the work the contract sum being adjusted accordingly. All such work shall be executed in conformity with the terms and conditions of the original Contract, unless otherwise provided in the order for same. Any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

No instructions, either written or verbal, shall be construed as an order for changes unless it be in the form of a Change Order, bearing the signed approval of the Owner and the signed acceptance of the Contractor, except in the case of disagreement as to value of changes, when the Contractor's signature to the order will not be mandatory. Change Order shall describe or

SECTION 00757

CHANGES IN THE WORK

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR - Continued

enumerate the work to be performed and state the price, if any, to be added to or deducted from the Contract sum. If the nature of the work is such that a Change Order, as above, cannot be issued until the work has been advanced sufficiently to obtain exact quantities, said work will be authorized in writing by the Owner, with the accompanying statement that a Change Order will be issued when the necessary information is at hand.

Except as provided in the above paragraph, no change shall be made, unless in pursuance of a Change Order, and no claim for an addition to the Contract sum shall be valid unless so ordered. If the Contractor believes that any instructions, by drawing or otherwise, involves extra cost under his Contract, he shall give the Owner and the Engineer written notice and then proceed as indicated in Article 00753.07, Contractor's Claim for Disputed Work.

The value of any Change Order shall be determined by one or more of the following methods and in the following order:

- A. By prices specifically named in the specifications or proposals.
- B. By acceptance of agreed unit prices based on estimated cost plus overhead and profit as applicable.
- C. By estimate of the actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
- D. By actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
- E. By estimate of the value as deducible from the approved detailed estimate.

SECTION 00757

CHANGES IN THE WORK

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR - Continued

Overhead shall be defined as an allowance to compensate for all costs, charges and expenses, direct or indirect, except for the actual cost of labor and material as defined by the following paragraph. Overhead shall be considered to include, but not be limited to insurance (other than as mentioned in the following paragraph) bond or bonds, field and office supervisors and assistants above the level of foreman, use of small tools and minor equipment, incidental job burdens, general office expense, etc.

Actual cost of labor and material shall be defined as the amount paid for the following items, to the extent determined reasonable and necessary.

1. Cost of materials delivered to the job site for incorporation into the Contract work.
2. Wage paid to workmen and foremen and wage supplements paid to labor organizations in accordance with current labor agreements.
3. Premiums or taxes paid by the Contractor for Worker's Compensation Insurance, unemployment insurance, FICA tax and other payroll taxes as required by law, net of actual and anticipated refunds and rebates.
4. Sales tax paid as required by law.
5. Allowance for use of construction equipment (exclusive of hand tools and minor equipment), as approved for use by the Engineer. The rate on self-owned equipment used for periods of under one week will be the Associated Equipment Distributor's published monthly rate divided by 22 days to establish a daily rate and divided again by eight hours to establish an hourly rate. Equipment used for periods of 5 days or more will be billed at a rate equal to 45% of the published monthly rate. In the alternative, the Engineer may approve for reimbursement a rate representing the allocable costs of ownership. Self-owned equipment is defined to include equipment rented from controlled or affiliated companies. Rented equipment will be paid for at the actual rental cost.

SECTION 00757

CHANGES IN THE WORK

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR - Continued

Gasoline, oil and grease required for operation and maintenance will be paid for at the actual cost. When, in the opinion of the Contractor, and as approved by the Engineer, suitable equipment is not available on the Site, the moving of said equipment to and from the Site will be paid for at actual cost.

6. When the material furnished under item (1) is used material, its value shall be prorated to the value of new material, but should be no more than its cost. When, in the opinion of the Engineer, the salvage value of salvageable material furnished under item (1) exceeds the cost of salvage, a suitable credit shall be given the Owner.

Regardless of the method used to determine the value of any change, the Contractor will be required to submit evidence satisfactory to the Engineer to substantiate each and every item that constitutes his proposal of the value of the change. The amounts allowed for overhead and profit shall not exceed the applicable percentages as established in the two following paragraphs.

If the work is done directly by the Contractor, overhead in an amount of 10% may be added if method B, C or D is used, and to the cost of the labor and materials plus overhead there may be added 10% for profit. The percentages for overhead and profit may vary according to the nature, extent and complexity of the work involved, but in no case shall exceed the percentages set forth in this paragraph and in the following paragraph. No percentages for overhead and profit will be allowed on payroll taxes or on the premium portion of overtime pay.

If the work is done by a Sub-contractor, Sub-contractor's overhead in the amount of 5% may be added to cost of labor and materials; if method B, C or D is used and to the cost of labor and materials plus overhead there may be added 10% for the Sub-contractor's profit. To this amount there may be added 10% for the Contractor's combined overhead and profit. No percentage for overhead and profit will be allowed on payroll taxes or on the premium portion of overtime pay. However, to the extent that the aggregate dollar value of changes under a contract exceeds \$75,000, the 10% overhead applied to total costs of labor and materials incurred by the prime Contractor shall be reduced to 5%, and the combined overhead and profit of 10% applied to sub-contract billings shall be reduced to 5%. In addition, on all individual Change Orders in excess of \$75,000, the overhead shall be no more than 5% of the total actual cost of labor and materials incurred by the prime Contractor, and the combined prime Contractor's overhead and profit allowance applied to Sub-contract billings shall be no more than 5%.

SECTION 00757

CHANGES IN THE WORK

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR - Continued

The Owner shall determine by which of the foregoing methods the value of any changes shall be computed.

00757.04 CORRECTION OF WORK

Any materials, plant or equipment delivered to the Site for use in the work which may be disapproved by the Engineer as unsuitable or not in keeping with the Specifications shall be immediately removed by the Contractor from the Site.

If any portion of the work is damaged in any way, or if defects or faults develop before the Inspection at Substantial Completion and issuance of a Certificate of Substantial Completion, or before the expiration of the 12-month guarantee period, the Contractor shall repair, replace or otherwise make good the damage or defects to the satisfaction of the Engineer, regardless of whether the work may have previously passed the specified inspections and tests. No additional payment will be made for such remedial work.

Failure on the part of the Engineer to condemn defective work shall not imply acceptance of the work, nor act to release the Contractor from his obligations to repair, replace or otherwise make good the work at his own expense, notwithstanding that such work may have been estimated for payment or that partial or full payments may have been made therefor.

00757.05 EMERGENCY POWERS UNIMPAIRED

The provisions of this Section 00757 shall not detract from the authority of the Contractor or the Engineer to act in case of emergency, as provided elsewhere in the Contract Documents.

END OF SECTION

GENERAL CONDITIONS

SECTION 00758

ASSIGNMENT & SUBCONTRACTS

00758.01 SUBCONTRACTS

Should the Contractor desire to subcontract any portion of the work, he shall first submit to the Engineer a statement outlining the nature and amount of the work proposed to be subcontracted and the name of the person, firm or corporation he proposes as Subcontractor. If requested by the Engineer, the Contractor shall also provide a statement as to the proposed Subcontractor's experience, financial ability, insurance certificates, or other qualifications for the nature and scope of the work proposed to be undertaken.

The proposed Subcontractor shall not enter upon the Site nor perform any work, either on or off the Site, until written approval of the Subcontractor has been granted by the Engineer and the Surety.

Subcontracts shall in no way, directly or indirectly, release, compromise or modify the responsibility of the Contractor or the Surety for the satisfactory and full completion of the work. The Owner shall not be liable to any Subcontractor for any lien on structures to be constructed as part of the work or claim on moneys due the Contractor or any other lien, claim or damages whatsoever. The approval of the Engineer and the Surety of a Subcontractor shall in no way create a contractual obligation between the Owner and the Subcontractor.

In the event a Subcontractor shall disregard the directions of the Engineer, or fail in any other way to abide by all conditions of the Contract, the Contractor shall, upon written order of the Engineer, require the Subcontractor to discontinue work under the Contract.

The Contractor shall be responsible for the coordination of all of his Subcontractors engaged upon the work, both in connection with his own work and the work of other contractors, if any, working collaterally on the Project.

The divisions or sections of the various Contract Documents and Bid Items are not intended to define portions of the work to be divided among Subcontractors, nor to influence the Contractor to award Subcontracts, nor to limit or enlarge the work performed by any trade, unless a Subcontractor experienced in providing a certain specialized type of work is specifically required in the Contract.

00758-2

SECTION 00758

ASSIGNMENT & SUBCONTRACTS

00758.02 LIMIT OF SUBCONTRACTS VALUE

The Owner reserves the right to limit the total value of all Subcontracts to fifty (50) percent of the total Contract price.

00758.03 ASSIGNMENT

In accordance with the provisions of Section 109 of the General Municipal Law of the State of New York, the Contractor shall not assign, convey, transfer, sublet or otherwise dispose of this Contract, or of his right, title or interest therein, or his power to execute such Contract, to any other person or corporation without the prior written consent of the Owner.

If the Contractor shall, without such consent of the Owner, assign, convey, transfer, sublet or otherwise dispose of this Contract to any other person or corporation, the Owner may revoke and annul the Contract, in which instance the Owner shall be relieved and discharged from any and all liability and obligations to the Contractor arising from the Contract, and to the persons or corporation to which the Contract shall have been assigned, conveyed, transferred, sublet or otherwise disposed of, and the Contractor and his assignees, conveyees, transferees or sublessees shall forfeit and lose all moneys theretofore earned under such Contract, except so much as they may be required to pay his employees.

Nothing herein shall prevent an assignment by the Contractor for the benefit of his creditors made pursuant to the laws of the State of New York.

00758.04 PAYMENT

Payment to Subcontractors and/or material men, shall be in accordance with Section 106b of the General Municipal Law of the State of New York.

END OF SECTION

GENERAL CONDITIONS

SECTION 00759

PAYMENTS

00759.01 ESTIMATED QUANTITIES

The Contractor agrees that the estimated quantities given in the Bid are only for the purpose of comparing bids and that he is satisfied with and will at no time dispute the said estimates as a means of comparing the aforesaid bids, that he will make no claim for loss of profits or anticipated profits because of any difference between the said estimated quantities and the quantities of the various classes of work actually furnished or performed, that the Owner shall not be held responsible if any of the said estimated quantities should be found to not even approximate those actually measured during performance of the work, and that the Engineer may direct an increase, decrease or omission of the quantities of any class or part of the work as may be deemed necessary or desirable.

00759.02 PRICES ALL-INCLUSIVE

The price or prices herein agreed to shall be for the work complete, and shall include the furnishings of all labor, tools, plant, equipment and materials therefor, whether required directly or indirectly, unless otherwise specified.

00759.03 LUMP SUM PRICES

A lump sum price stated in the Bid for an item shall be for the work complete as described in the Specifications for the corresponding item and shall include the cost of all labor, tools, plant, equipment and materials, specified or implied, incidental to the work of the item complete and ready for the service intended.

Within three weeks after execution of the Contract, the Contractor shall submit to the Engineer for approval three copies of a detailed schedule showing the breakdown of all lump sum bid prices in the Contract. The schedule shall indicate the quantities and amount estimated for each part of the work. The schedule shall be apportioned by the Contractor for labor and for materials, if so requested by the Engineer. The Contractor shall revise the schedule until it is satisfactory to the Engineer. The approved breakdown will be used in the preparation of monthly estimates and payments to the Contractor.

00759-2

SECTION 00759

PAYMENTS

00759.04 UNIT PRICES

A unit price stated in the Bid for an item of the work specified to be measured for payment by units of volume, weight, area, length or number shall be paid for each unit of the net amount of the work of the item actually performed or furnished and incorporated in the finished work in accordance with the Specifications, Plans and as directed, as measured along the payment lines specified or shown, local custom to the contrary notwithstanding. It is agreed that the planimeter shall be considered an instrument of precision for the measurement on drawings and plans of areas in connection with the estimation of quantities in cases where geometric methods would be comparatively laborious.

00759.05 MONTHLY ESTIMATES AND PAYMENTS

Unless otherwise noted in the Additional Instructions or the Specifications once each month, on a day of the month selected by him, the Engineer will make an estimate of the value of the work done during the previous month, provided such value exceeds one thousand dollars. The Engineer shall submit this Monthly Estimate to the Owner for payment. The Owner will pay the Contractor each month, within 30 days of the date of the Monthly Estimate, a sum equal to ninety-five (95) percent of the Monthly Estimate, retaining five (5) percent of each estimate until the work or major portions thereof is substantially completed.

The work will be considered Substantially Complete when the work of the Contract including all alterations or modifications (see Section 00757 - CHANGES IN THE WORK) is at least ninety-nine (99) percent complete and the estimated value of minor items to be completed is equal to or less than one (1) percent.

The Engineer will include in the Monthly Estimates the delivered cost of equipment and non-perishable materials on site and off site which have been tested or inspected by the Engineer and approved by him for incorporation in the work. Only equipment and materials for which the Contractor furnishes the Engineer receipted invoices as evidence that he has unconditional title thereto will be included. Such invoices shall be furnished the Engineer at least ten days in advance of the established date of preparation of Monthly Estimates.

SECTION 00759

PAYMENTS

00759.05 MONTHLY ESTIMATES AND PAYMENTS - Continued

The Contractor shall provide and maintain insurance for the said equipment and materials (on site and off site) as specified in 00752.03.

Payments made for materials and equipment delivered will in no way affect the Contractor's responsibilities regarding the same.

00759.06 WITHDRAWAL OF RETAINED PERCENTAGE

Pursuant to Section 106 of New York State General Municipal Law and notwithstanding any inconsistent provisions of any general, special or local law under any contract made or awarded by any political subdivision, or any officer, board or agency thereof, or of any district therein, the Contractor may, from time to time, withdraw the whole or any portion of the amount retained from payments to the Contractor pursuant to the terms of the Contract, upon depositing with the Fiscal Officer of the Political Subdivision or district therein (1) bonds or notes of the United States of America, or obligations, the payment of which is guaranteed by the United States of America, or (2) bonds or notes of the State of New York, or (3) bonds of any political subdivision of the State of New York, of a market value equal to the amount withdrawn. The Fiscal Officer of the Political Subdivision or of a district therein, from time to time shall pay the same, when and as collected, to the Contractor who deposited such obligations. When the deposit is in the form of coupon bonds, the coupons shall be delivered to the Contractor as they respectively come due. The Contractor shall not be entitled to interest or income on, or the coupons of, any obligations so deposited by him, the proceeds of which shall have been used or applied by the Political Subdivision or district therein pursuant to the terms of the Contract. The Fiscal Officer shall be entitled to charge a reasonable fee for such service.

00759.07 OWNER'S RIGHT TO WITHHOLD PAYMENTS

The Owner may withhold from the Contractor such portions of any approved payments due him as the Owner may judge necessary to:

- A. Protect the Owner from loss due to defective work not remedied;

00759-4

SECTION 00759

PAYMENTS

00759.07 OWNER'S RIGHT TO WITHHOLD PAYMENTS - Continued

- B. Assure the payment of just claims then due and unpaid for labor or materials;
- C. Protect the Owner from loss due to injury to persons or damage to the work or property of other Contractors, Sub-contractors, or others caused by acts of neglect of the Contractor or his Sub-contractors. The Owner shall have the right as agent for the Contractor to apply moneys so withheld as the Owner may deem proper to secure such protection or satisfy such claims, and such payments shall be deemed made for the account of the Contractor.

00759.08 INSPECTION AT SUBSTANTIAL COMPLETION

The Engineer will make an Inspection of the work as soon as possible after the Contractor gives written notice that the work is substantially complete. The Contractor shall assist the Engineer, as may be required, in making the Inspection. Cost to the Contractor, if any, to assist the Engineer in making the Inspection shall be included in the appropriate bid item as selected by the Contractor and no additional payment will be made to the Contractor for his work. After making the Inspection, the Engineer will notify the Contractor in writing of the results, including particulars regarding any part of the work which, in his opinion, is incomplete or requires correction or additional cleaning. The Contractor shall make good any incomplete or defective work before again asking for another Inspection. If in the opinion of the Engineer the work is substantially complete, the Engineer shall issue in writing a Notice of Substantial Completion. Said Notice will list those minor items requiring completion before Final Payment. (See also ARTICLE 00757.04, CORRECTION OF WORK.)

00759.09 CERTIFICATE OF SUBSTANTIAL COMPLETION

Upon issuance of the Notice of Substantial Completion by the Engineer, and the submission by the Contractor of a written statement from Surety that the Performance Bond (Labor & Materials Payment Bonds included) in the amount of one hundred (100) percent of the value of the Contract is in force for a period of one year following the date of Notice of Substantial Completion, the Engineer will file a Certificate of Substantial Completion with the Owner and the Contractor, certifying that the work is substantially complete and setting forth the amount of work performed and compensation earned by the Contractor. All prior estimates of the amount and value of work performed shall be subject to correction in this certification.

SECTION 00759

PAYMENTS

00759.10 PAYMENT AT SUBSTANTIAL COMPLETION

Within 30 days after the filing of the Certificate of Substantial Completion the Owner will pay the Contractor one hundred (100) percent of the full value of the work certified therein, less twice the value of any minor work remaining to be completed and all prior payments and advances to or for the account of the Contractor, and the amount necessary to satisfy any claims, liens or judgements against the Contractor which have not been discharged.

00759.11 FINAL PAYMENT

The Contractor shall fully complete the remaining minor items within sixty (60) days of the issuance of the Notice of Substantial Completion.

Upon certification by the Engineer that the remaining items of the Contract including all corrections, alterations and/or modifications have been completed and that no repairs, renewals or replacements are required of the Contractor, or that, if required, such remedies have been effected, the Engineer shall prepare a Final Payment request recommending to the Owner payment to the Contractor of the amount retained at the time of substantial completion less any amount necessary to satisfy any claims, liens or judgements against the Contractor which have not been discharged.

Within 30 days after the receipt from the Contractor of acceptable affidavits, certificates or waivers as evidence that no right to any claim or lien exists, the Owner will pay the remainder of the Contract as indicated in the Final Payment.

See also Article 00150.05, VERIFICATION OF AMOUNTS DUE FOR WAGES AND SUPPLEMENTS.

00759.12 ACCEPTANCE OF FINAL PAYMENT

Acceptance by the Contractor of the Final Payment shall serve as a release to the Owner of all claims and of all liability to the Contractor for all things done or furnished in connection with the work, and for any and all acts of neglect of the Owner or others relating to or because of the work, except the Contractor's claim for interest upon the Final Payment, if this payment is unduly delayed. No payment whatsoever shall operate to release the Contractor or the Surety from their obligations under the Contract or Bond.

00759-6

SECTION 00759

PAYMENTS

00759.13 GUARANTEE INSPECTION

On or about one year from and after the date of the Notice of Substantial Completion, the Engineer will again inspect the work. The Contractor shall assist the Engineer, as may be required, to make the one year inspection. Cost to the Contractor, if any, to assist the Engineer in making the one year inspection shall be included in the appropriate bid item as selected by the Contractor and no additional payment will be made to the Contractor for this work. The Contractor shall provide any and all repairs, renewals or replacements which may be revealed as necessary in this Guarantee Inspection and which, in the opinion of the Engineer, are the responsibility of the Contractor. Should the Contractor fail to comply with written instructions of the Engineer regarding these remedies, the Owner will cause the remedies to be made by others and will pay the cost which will be reimbursed by the Contractor and/or his Surety.

The Contractor and his Surety agree that the Contractor's Performance Bond (Labor & Materials Payment Bonds included) shall cover fully all guarantees as specified herein and in ARTICLE 00752.01.

00759.14 ACCEPTANCE OF PORTIONS OF THE WORK

The Owner reserves the right to accept for his service and use any portion of the work at any time during the life of the Contract without prejudice to the Owner in enforcing any provisions of the Contract.

The Owner may accept the portion or portions of the work which is substantially complete under the following agreed procedures:

- A. The Contractor will be notified by the Engineer in advance as to what portion or portions of the work the Owner intends to accept for his use and service.
- B. The retained percentage for the Substantially Completed portion or portions of work shall be released in accordance with ARTICLE 00759.09.
- C. The guarantee period applicable to that portion or portions of the work shall start from the date of acceptance.
- D. The remaining minor items of the portion or portions of substantially completed work shall be finished or corrected to the satisfaction of the Engineer.

SECTION 00759

PAYMENTS

00759.14 ACCEPTANCE OF PORTIONS OF THE WORK - Continued

- E. The Owner will assume responsibility for maintenance, heat, utilities and insurance on accepted portion or portions of the work.
- F. All applicable provisions specified in this Section for work deemed substantially complete shall apply.

00759.15 REPAIR OR REPLACEMENT OF DAMAGED, DEFECTIVE OR FAULTY WORK

If any portion of the work is damaged in any way, or if defects or faults develop before the inspection at Substantial Completion, or before the expiration of the 12-month guarantee period, the Contractor shall repair, replace or otherwise make good the damage or defect to the satisfaction of the Engineer, regardless of whether the work may have previously passed the specified inspections and tests. No additional payment will be made for such remedial work.

Failure on the part of the Engineer to condemn defective work shall not imply acceptance of the work, nor act to release the Contractor from his obligations to repair, replace or otherwise make good the work at his own expense, notwithstanding that such work may have been estimated for payment or that partial or full payments may have been made therefor.

00759.16 PAYMENT TO SUB-CONTRACTORS BY CONTRACTOR

Within fifteen calendar days of the receipt of the payment from the Owner, the Contractor shall pay the Sub-contractors, and/or material men a sum equal to the value of the work performed less any amount necessary to satisfy claims, liens or judgements that have been discharged less any amount retained as hereafter described.

- A. The retained amount shall not exceed more than 5% on each payment except that 10% of each payment may be retained, if the Sub-contractor(s) and/or material men failed to provide a Performance Bond (Labor & Materials Payment Bonds included) in the full amount of the Sub-contract.
- B. The Contractor shall not retain any money from Sub-contractor(s) and/or material men, after receipt of the Certificate of Substantial Completion payment.

00759-8

SECTION 00759

PAYMENTS

00759.16 PAYMENT TO SUB-CONTRACTORS BY CONTRACTOR - Continued

Within fifteen calendar days of the receipt of the payment from the Contractor, the Sub-contractor(s) and/or material men shall pay each of his Sub-contractors and/or material men in same manner as the Contractor has paid the Sub-contractor(s) and/or material man.

The Owner shall not be under any obligation to see that the Contractor makes any payment to a Sub-contractor and/or material men.

END OF SECTION

GENERAL CONDITIONS

SECTION 00760

CONTRACT TERMINATION

00760.01 OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

The Owner, by seven days written notice to the Contractor and without prejudice to any other rights or remedies it may have, may terminate the employment of the Contractor and his right to proceed, either as to the entire work or any portion thereof on which delay shall have occurred, and may take possession of and complete the work by contract or otherwise, as the Owner may deem expedient, in the event of any of the following:

- A. If the Contractor shall refuse or fail, after being warned by the Engineer, to supply enough competent workmen, equipment or proper materials, or
- B. If the Contractor shall refuse or fail to perform the work or any part thereof with sufficient diligence to insure its completion within the time specified, or shall fail to complete the work within said period, or
- C. If the Contractor shall fail to promptly pay persons supplying labor or materials for the work, or
- D. If the Contractor shall fail or refuse to regard laws, ordinances, permits or orders from the Engineer or otherwise substantially violate any provision of this Contract, or
- E. If the Contractor shall be adjudged bankrupt or make an assignment for the benefit of creditors, or
- F. If a receiver or liquidator shall be appointed for the Contractor or for any of his property and shall not be dismissed within 20 days after such appointment, or the proceedings in connection therewith shall not be stayed on appeal within the said 20 days.

If the Owner so terminates or stops the Contractor, the Contractor shall not be entitled to receive any further payment until the work is completed. If the unpaid balance of moneys to be paid the Contractor hereunder shall exceed the cost of completing the work, including the cost of

00760-2

SECTION 00760

CONTRACT TERMINATION

00760.01 OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT -
Continued

additional administrative, managerial, engineering, and inspection services and or delay, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor and the Surety shall be liable to the Owner for the excess.

If the right of the Contractor to proceed is terminated as provided herein, the Owner may take possession of and use in completing the work such materials, plant, equipment, supplies and appliances as may be on the Site and necessary to the work, provided that the termination was not made pursuant to paragraphs "E" or "F" above.

00760.02 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

In the event the work shall be halted by order of a Court or any other public authority having jurisdiction for a period of 90 days or more without act or fault of the Contractor or any Sub-contractor, the Contractor, upon 10 days written notice to the Owner, may terminate the Contract or discontinue performance of the work. In either case the liability of the Owner to the Contractor shall be determined as provided in ARTICLE 00760.01, except that the Contractor shall not be obligated to pay to the Owner any excess of the cost of completing the work over the unpaid balance of the payments to be made to the Contractor hereunder.

00760.03 OTHER TERMINATION PROVISIONS

In addition to the provisions set forth in this Section 00760, specific references relating to termination or cancellation of the Contract are contained elsewhere herein. These include but are not limited to:

00150.02	NON-DISCRIMINATION
00752.03.A	WORKER'S COMPENSATION INSURANCE
00756.03	PROGRESS
00758.03	ASSIGNMENT

END OF SECTION

GENERAL CONDITIONS

SECTION 00761

DESCRIPTION & DELINEATION OF THE WORK

00761.01 INTENT OF PLANS AND SPECIFICATIONS

The intent of the Plans, Specifications and other Contract Documents is to provide for the work outlined and delineated therein, complete in every detail for the purpose designated. The Contractor agrees to furnish everything necessary for the work as intended, any omission in the Plans or Specifications notwithstanding.

The Contractor shall furnish all materials, tools, plant equipment and labor, except those specifically set forth herein as to be furnished by the Owner, required to construct and place in complete and satisfactory working order the work contemplated by the Contract Documents. The mention in any part of the Specifications of any specific liability, duty or responsibility of the Contractor will not be construed as a restriction, limitation or waiver of any general liability, duty or responsibility of the Contractor, such mention being merely for explanatory purposes. The Contractor shall be solely responsible for the adequacy of his plant, tools and equipment, approval of the Engineer notwithstanding.

The Contractor shall do the work in a manner judged to best promote rapid construction consistent with due regard for the safety of life and the preservation of property, the satisfaction of the Engineer, and the intent of the Contract Documents.

The Contractor shall:

- a) make all necessary excavations or embankments.
- b) do all clearing and grubbing.
- c) place all sheeting, shoring, bracing and supports.
- d) furnish all underdrains.
- e) provide draining, pumping bailing, ditching and diking for surface or below ground water.
- f) provide all things necessary to protect, support and maintain structures, utilities, drains, conduits, culverts, trees, fences, poles, walls, earth banks, shrubbery, sidewalks, railways, roadways and drives.
- g) repair all damage done to items in (f) above.
- h) do all fencing, lighting and watching.
- i) drive all piles and construct all foundations.

00761-2

SECTION 00761

DESCRIPTION & DELINEATION OF THE WORK

00761.01 INTENT OF PLANS AND SPECIFICATIONS - Continued

- j) construct all concrete, brick, stone, tile and timber work.
- k) place all iron and steel work and reinforcement.
- l) lay all water pipes, sewers, drains and conduits and make all connections to or between such.
- m) resurface and repave all streets, sidewalks, roads or drives open cut or damaged.
- n) refill all trenches and excavations.
- o) provide all fences, bridges, fills, detours and signs for maintenance of travel in public ways.
- p) make all connections to or between existing structures and utilities.
- q) construct all buildings and structures.
- r) furnish and install equipment.
- s) clean up and dispose of all rubbish and surplus materials.

00761.02 INTERPRETATION OF PLANS & SPECIFICATIONS

The Engineer shall interpret the Plans and Specifications, and any Change Orders or Supplemental Agreements. Anything shown on the Plans but not included in the Specifications, or mentioned in the Specifications but not shown on the Plans, shall have the same effect as if set forth in both. In the event of a conflict between the Plans and Specifications, the Specifications shall govern. The attention of the Engineer shall be called to any discrepancies, as required by ARTICLE 01340.06.

00761.03 CONTRACT DRAWINGS

The location, nature and many details of the work are shown on the Contract Drawings. The work shall be constructed as shown on these Plans and such other drawings as may be issued during the life of the Contract by the Engineer, or furnished by the Contractor and approved by the Engineer.

The purpose of the Contract Drawings together with other Contract Documents, is to provide Bidders with sufficient information to prepare adequate and equitable Bids and to provide an adequate and equitable basis for the Agreement. The Contract Drawings may or may not provide sufficient detail for the actual construction of all segments of the work as shown and

SECTION 00761

DESCRIPTION & DELINEATION OF THE WORK

00761.03 CONTRACT DRAWINGS - Continued

specified. The Contractor shall furnish Construction Drawings or other drawings, as specified or requested, or, as may be required to adequately delineate for his workmen all details necessary for the work.

The Contract Drawings were prepared on 24" x 36" tracings. Reduced-size prints may have been prepared for the convenience of Bidders and others. During construction, the Contractor shall obtain data and information from full-size prints in preference to reduced-size prints.

Unless otherwise stated in the Information For Bidders, the Contractor will be furnished, free of charge, three copies of the Contract Documents, including three sets of Contract Drawings. Any other copies of the Contract Documents which the Contractor may desire can be obtained by him from the Engineer at the cost of duplication thereof.

The Contractor shall keep at least one set of Specifications and one full-size set of Plans on the Site, and shall at all times give the Engineer and the Owner access thereto.

00761.04 ADDITIONAL OR SUPPLEMENTAL DRAWINGS

The Engineer may prepare Additional Drawings or Supplemental Drawings during the course of the work, in connection with minor changes, Change Orders, Supplemental Agreements, or to augment or amplify the Contract Drawings or other drawings, or as part of orders or instructions, and the Contractor shall abide by such drawings in the same manner as specified for the Contract Drawings.

Drawings required by the Contractor are discussed in Article 01340.01.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01012

COLLATERAL WORK

01012.01 COLLATERAL WORK

The Owner may award other contracts in connection with the Project, the work under which may proceed concurrently with the work of this Contract. In this event the Contractor shall coordinate his operations with those of the other contractors, and shall cooperate with them in the arrangement for the storage of materials and performance of the work.

The Contractor and his Sub-contractors shall keep themselves informed of the progress of the work of other contractors and sub-contractors and shall notify the Engineer immediately of defective workmanship or insufficient progress on the part of others, where such will interfere with his own operations. Either failure of the Contractor to keep himself informed of the progress of work under other contracts on the Site, or failure of the Contractor to give proper notice of same, shall be deemed as acceptance by him of the status of the work under other contracts as it may affect his own work.

See also ARTICLE 00756.04, APPROVED WORK SCHEDULES, and ARTICLE 00756.06, TIME EXTENSIONS.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01015

CONTRACTOR USE OF PREMISES

01015.01 AREA AVAILABLE FOR CONTRACTOR'S USE

The Contractor shall confine his operations to those portions of the Owner's property, and to the right-of-ways or easements, temporary or permanent, acquired or designated for the work of the Contract as shown on the Drawings. Private property adjacent the Site shall not be entered upon or used by the Contractor for any purpose without the written consent of the Owner thereof. A copy of such consent shall be filed with the Engineer.

When required, the Contractor shall provide and maintain fences at his own expense, along the roadways and around the grounds occupied by him for the protection of adjoining property and all persons lawfully using same. Fences shall be of materials and construction suitable in the opinion of the Engineer for their intended purpose.

All work within or abutting private property shall be performed in such ways as to create the minimum of inconvenience and disturbance to the private property and its users. Excavated materials or supplies of any kind shall not be stored on off-site public or private property without written consent of the Owner thereof, and all walks and drives shall be kept open to uninterrupted passage. A copy of each such written consent shall be filed with the Engineer.

Materials delivered upon public streets shall be neatly stored between the sidewalk and the curb or ditch line, and at least 10 feet from any fire hydrant. A passageway of at least three feet shall be preserved on the sidewalk line.

01015.02 TRAVEL NOT OBSTRUCTED

The Contractor shall not needlessly hinder or inconvenience travel on any public or private way, nor shall he wholly obstruct same without written permission of the Owner. If he is permitted to obstruct a traveled way, the Contractor shall provide plain and appropriately worded signs and adequate barricades and lighting at the nearest cross streets, and at each end of the obstructed portion, announcing such obstruction and directing traffic to and along an approved detour.

01015-2

SECTION 01015

CONTRACTOR USE OF PREMISES

01015.02 TRAVEL NOT OESTRUCTED - Continued

Unless otherwise specified or permitted, all entrances and exits of fire houses, industrial plants, commercial buildings and public buildings shall be kept open and maintained in passable condition at all times. The Contractor shall give notice to the owner of each traveled way before interfering therewith.

01015.03 CLEANING UP

The Contractor shall remove from the Site and dispose of, at his own expense, all rubbish, refuse and unused materials, as the work progresses. If such work is neglected, the Engineer will give written notice thereof to the Contractor. If the work is not performed within five days thereafter, the Owner will employ other persons to do such work, and the expense thereof shall be deducted from any monies due or to become due the Contractor.

The Contractor shall clean and leave free from obstruction all pipes, buildings, manholes and other structures. This work shall be coordinated with the Engineer's Inspection at Substantial Completion, or as directed. All rubbish, refuse, unused materials, plant and equipment shall be removed from the Site, and the entire Site shall be left in a neat condition. All equipment installed in the work by the Contractor shall be cleaned and left in a bright and new-appearing condition.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01019

SITE CONDITIONS

01019.01 PRE-BID INSPECTION & EXAMINATION

The Contractor warrants and represents that he visited the Site prior to submitting his Bid, and that he has satisfied himself as to the location and nature of the work and the quantity, quality, type and nature of both surface and subsurface structures and materials apt to be encountered.

See also 00753.01.B.

01019.02 BORINGS

Any data on subsurface conditions that may have been obtained by the Owner prior to the advertisement for bids, through test borings, test pits, seismic explorations, or other means, was obtained by the Owner for his sole use and only for his own purposes. Any such data, known or recalled as of the date of advertisement for bids, are shown on separate drawings or in separate schedules and reports which are not any part of the Contract Documents. All such data are made available to Bidders, the Contractor and other interested parties only as a convenience and without express or implied representation, assurance or guarantee that any of the information is complete, correct, or adequate or representative of a true or typical picture of subsurface conditions on the Site.

The Contractor, both during his status as Bidder and after execution of the Contract, shall satisfy himself as to the nature, character, quality and quantity of above ground and below ground conditions apt to be encountered. Any reliance on data made available by the Owner shall be at the Contractor's sole risk.

No claim whatsoever shall be made by the Contractor against the Owner or Engineer for or on account of such data available, or neglected to be made available, by the Owner or Engineer.

01019-2

SECTION 01019
SITE CONDITIONS

01019.02 BORINGS - Continued

The Contractor at any time, and any holder of Contract Documents during the period between advertisement for and receipt of bids, will be permitted to make test borings, test pits, soundings or similar subsurface investigations on the Site. Prior to making these investigations the Contractor and/or any holder of Contract Documents must notify the Engineer when and where he proposes to make such investigations.

The locations where test boring samples, if any, may be examined is given in the Additional Instructions.

See also ARTICLES 00753.01.B, 00753.07, 00759.01, 01019.04 and 01019.06.

01019.03 PROTECTION OF EXISTING STRUCTURES

The Contractor shall at all times have on the Site suitable and sufficient plant and materials to adequately protect, support and sustain any and all existing structures and facilities, whether above or below ground, and shall use same as may be necessary or required to protect, support and sustain any and all such structures as may become weakened, endangered, undermined or uncovered.

He shall, at his own expense, support and sustain in their places and protect from direct or indirect damage all water, gas, steam, air or other mains or pipes, sanitary and storm water sewers and drains, conduits, subways, service connections, buildings, poles, wires, fences, pavements, sidewalks, curbs, railways, trees and other structures and property and appurtenances thereto on or in the vicinity of the Site, and shall assume all liability for damage thereto, including damage arising out of settlement or lateral movement of walls of excavations, whether occurring during performance of the work or the 12-month period of guarantee.

In the event of damage or danger to any such structure or facility the Contractor shall immediately notify the Engineer, and shall promptly repair or protect the structure as the Engineer may direct.

SECTION 01019
SITE CONDITIONS

01019.04 EXISTING STRUCTURES BELOW GROUND

The Contract Drawings show the location and character of certain existing subsurface structures and facilities apt to be encountered in excavations or located in such proximity to the work as to require precautions for their protection. The sizes, materials, locations and depths shown are only approximate, and the Contractor shall satisfy himself as to the accuracy and completeness of such information. The Contractor shall not be relieved from any of his obligations, nor be entitled to claim for damages or additional compensation, sustained or arising out of inadequacy or inaccuracy of the information given.

01019.05 ABANDONED STRUCTURES

Any structures, facilities or appurtenances therefor which are abandoned or become so by reason of the work, shall, at the Contractor's expense, be broken up and filled with approved material, if directed by the Engineer.

01019.06 LATENT SUB-SURFACE CONDITIONS

In the event that latent sub-surface conditions are found to materially differ from those on which the Plans and Specifications are based, the Contractor shall immediately notify the Engineer before they are disturbed. After prompt investigation, the Engineer will determine what changes, if any, should be made in the Plans and Specifications because of the revealed conditions, and shall instruct the Contractor accordingly. Any change in the cost of the work resulting therefrom shall be adjusted as provided in Section 00757.

01019.07 ADJUSTMENT OR CHANGES OF EXISTING STRUCTURES

If, in the opinion of the Engineer, an underground pipe or other structure requires realignment or relocation, and such realignment or relocation was not included in the Plans or Specifications, the Engineer will issue a Change Order for such work, and the Contractor shall be compensated therefor as provided in Section 00757. The Contractor shall strip or uncover and support or sustain the structure at his own expense prior to such Change Order, as part of his work under the original Contract, and he shall not be entitled to claim for damage or delay due to its presence or discovery.

01019-4

SECTION 01019

SITE CONDITIONS

01019.07 ADJUSTMENT OR CHANGES OF EXISTING STRUCTURES -
Continued

Wherever existing utilities come within limits of the work, the Contractor shall notify both the Engineer and the Utility before in any way disturbing same. Any work of realignment, relocation, removal or extension of the utilities shall be done as mutually agreed by the Utility, the Contractor and the Engineer. The Contractor shall maintain satisfactory drainage of the excavation at all times from revelation of the structure until completion of its realignment or readjustment. Interruption of service by utilities shall be kept to a minimum.

The Contractor shall not cause nor permit interference with or hindrance to any municipal department, individual, public service corporation, or other company in protecting its structures and facilities, nor in removing, replacing or relocating same.

01019.08 MAINTENANCE AND RESTORATION OF SERVICE

The Contractor shall, at his own expense, provide for the maintenance of flow in all water courses and all sanitary and storm sewers, drains, connections and appurtenances thereto. The contents of sewers, drains or service connections shall not be permitted to flow into excavations, sewers or other parts of the work without written permission of the Engineer, and the Contractor shall, at his own expense, immediately remove from the Site and adequately dispose of all offensive matter, in an approved manner.

The flow of water, and normal water pressure, in all water mains, conduits and service connections encountered on the Site, shall be provided for and maintained by the Contractor at his own expense. When water mains or service connections must be disturbed to the extent that service must be shut off, the Contractor shall give at least 24 hours notice to the Utility and all customers served by the lines involved. Such notice shall give the estimated times of shut-off, and restoration of service. If fire hydrants are involved, the fire department serving the area shall be similarly notified.

In the event of accidental disruption of water service, it shall be deemed an emergency, and the Contractor shall proceed with the necessary repairs immediately and continuously, giving this work priority over all other operations, until service has been satisfactorily restored. The Contractor shall give immediate notice of such break or service interruption to the Engineer, the Utility, and all customers affected, and shall supply, at his own expense, assistance in supplying

SECTION 01019

SITE CONDITIONS

01019.08 MAINTENANCE AND RESTORATION OF SERVICE - Continued

an emergency source of water when necessary by means of temporary lines, tank trucks, or other means. All lines and connections shall be restored to the satisfaction of the Engineer and the Utility.

All portions of the foregoing provisions regarding water service which are applicable to sewer, gas, telephone or other services shall apply also to maintenance and emergency repair of such services.

01019.09 POLES & POSTS ON SITE

Poles or posts of any Utility located within the lines of the work which, in the opinion of the Engineer, will impede progress of the work, shall be supported or removed and replaced by the Contractor at his own expense and in accordance with the requirements of the Utility involved. The Contractor shall remove, relocate, replace or support all other poles and posts at his own expense and to the satisfaction of the Engineer.

The Contractor shall employ no equipment which will unduly interfere with wires or other overhead facilities.

01019.10 NOTIFICATION OF OTHER PARTIES

In addition to notices to Utilities and others required elsewhere herein, the Contractor shall give written notice of his proposed construction operations to the owners of all public and private utilities at least seven days in advance of breaking ground in any area in which a utility is located. Copies of each such notice shall be simultaneously sent to the Engineer.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01051

LAYOUT OF WORK

01051.01 SERVICES PROVIDED BY ENGINEER

The Engineer will establish principal base lines, bench marks and primary control points for the major types of work of the Contract as the work proceeds.

Unless otherwise noted in the Additional Instructions or Specification, the Engineer will also establish such additional lines, grades and elevations as he deems necessary and will include the following:

- A. Structures & Buildings: Corner stakes at all principal corners of exterior walls or foundations. Two bench marks in the vicinity of the structure or building.
- B. Sewers: Offset grade line stakes, on one side, with stations approximately forty linear feet on centers.
- C. Water Mains & Force Mains: When laid to grade, the same as for sewers. When not laid to grade, none.
- D. Roads & Runways: Offset center line grade stakes, on one side, with stations approximately fifty linear feet on centers.
- E. Embankments: Slope stakes on both sides at approximately one hundred linear feet on centers, with additional stakes at principal breaks in grade.
- F. Tunnels & Borings: Center line and offset baseline on the surface, on starting end. Also one progress check every fifty linear feet of long tunnels.
- G. Other Types of Construction: The Engineer will provide control stakes as he deems necessary for the Contractor to properly layout his work.
- H. On Traverse or Cross-country type of construction, such as pipelines and roads, a temporary center line will be staked for clearing purposes if necessary.

01051-2

SECTION 01051

LAYOUT OF WORK

01051.01 SERVICES PROVIDED BY ENGINEER - Continued

- I. The Engineer will issue a grade letter for pipeline and road construction which is to be laid or installed to a predetermined grade. All other stakes will have the information marked on a witness stake beside the hub.

01051.02 SERVICES PROVIDED BY CONTRACTOR

The Contractor shall provide all the necessary materials for control points, including all: stakes, hubs, lath, grade boards, cleats, nails and such other materials as may be required.

The Contractor shall also provide such non-technical assistance as may be required in the establishment of marks, other than primary or basic controls, such as clearing sight lines and driving stakes.

The Contractor shall erect and establish all grade boards, batter boards and construction control lines from the points set by the Engineer.

The Contractor shall layout the work to best suit his methods of operations, using the Engineer's control points to assure the construction will be in the position the design anticipated.

01051.03 OBLIGATIONS OF THE CONTRACTOR

The Contractor shall carefully preserve and protect all stakes, marks, monuments and points established by the Engineer, and shall reimburse the Owner for any and all additional engineering costs incurred because of the replacement or reestablishment of any such items which may be moved, removed, obliterated or destroyed due to his construction operations. When directed, the Contractor shall provide suitable barricades for the protection of points.

The Contractor shall bear the entire cost of rectifying work improperly done due to his own negligence in preserving and protecting marks, or to moving or removing same without approval of the Engineer.

SECTION 01051

LAYOUT OF WORK

01051.03 OBLIGATIONS OF THE CONTRACTOR - Continued

He shall inform the Engineer a reasonable time in advance of his operations of the times and places he proposes to work, so that lines, grades and elevations may be established and necessary measurements for record and payment may be made with the minimum of inconvenience or delay to either himself or the Engineer. No additional compensation will be paid the Contractor for any delay caused by insufficient notice.

01051.04 LINES, GRADES AND ELEVATIONS

The terms "invert" or "grade" used in the Contract Documents in connection with pipes, sewers, channels, flumes and similar structures shall mean the inside bottom of the pipe or other surface on which the liquid flows along the center line of the completed work. "Subgrade" refers to the bottom line or surface to which excavations are necessarily made to construct the work as shown or specified, exclusive of any additional depth of excavation required for any special foundation.

The term "Grade Letter" shall mean a written instruction from the Engineer giving the amount of cut or fill from offset stakes set by the Engineer to the invert or grade.

All work shall be constructed in accordance with the lines and grades shown, specified or directed. The Contractor shall be responsible for maintaining alignment and grade between points established by the Engineer.

01051.05 MASONRY CHASES, OPENINGS AND INSERTS

If the Owner awards other contracts for collateral work on the Site, it shall be the obligation and responsibility of the General Contractor to provide all openings and chases in his work to fit both his own work and that of the other contractors. The General Contractor shall provide all openings shown on the Contract Drawings, or reasonably implied thereby, as confirmed or modified by Additional Drawings or drawings submitted by Contractors and approved by the Engineer.

Where pipes or conduits pass through slabs or walls, the sleeves or opening forms shall be provided by the installer of the pipes or conduits but shall be placed by the General Contractor.

01051-4

SECTION 01051

LAYOUT OF WORK

01051.05 MASONRY CHASES, OPENINGS AND INSERTS - Continued

If hanger inserts or similar items are required, they shall be furnished by the installer of the pipe or other equipment for which the hangers are intended, but shall be placed by the General Contractor.

Any expense resulting from mislocated, defective, or ill-timed work shall be borne by the Contractor responsible therefor. No Contractor shall alter the work of another Contractor without the consent of the Engineer and knowledge of the Contractor involved, and no Contractor shall endanger any work by cutting, excavating or other operations.

01051.06 PAYMENT FOR LAYOUT OF WORK

The cost to the Contractor of providing the services and materials specified in this Section 01051 shall be included in the price, or total of prices, given in the Bid on which the Agreement is based, and no separate payment will be made therefor. Any cost to the Owner for additional engineering layout work, as set forth in ARTICLE 01051.03, will be deducted from monies due or to become due the Contractor.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01064

SAFETY AND HEALTH

01064.01 SAFETY AND HEALTH REGULATIONS

The Contractor shall comply with the U.S. Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standard Act (PL 91-54), latest revisions.

In order to protect the general public and the lives and health of his employees under the Contract, the Contractor shall comply with all pertinent provisions of the latest issues of the Federal Register, Bureau of Labor Standards, Safety and Health Regulations; New York State Industrial Code Rule 30 pertaining to Tunneling Operations; New York State Industrial Code Rule 23 pertaining to Trenching Operations; and the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under this Contract. In case of a conflict between the above noted authorities, the most stringent shall prevail.

The Contractor shall have on the project site at all times, while work is in progress, at least one person skilled in safety and health procedures and familiar with State and Federal safety and health regulations whose responsibility shall be to observe methods and procedures. He shall have the duty and authority to stop and/or correct all unsafe and unhealthy conditions.

01064.02 SAFETY AND FIRST AID

The Contractor shall at all times exercise caution in his operations and shall be responsible for the safety and protection of all persons on or about the Site. All hazards shall be avoided or guarded in accordance with the provisions of the Manual of Accident Prevention in Construction of the AGCA, unless such provisions contravene local law. The safety provisions of all applicable laws, codes and ordinances shall be observed.

The Contractor shall provide and maintain at the Site, at each location where work is in progress, as part of his plant, an approved first aid kit. Ready access thereto shall be provided at all times when men are employed on the work.

01064-2

SECTION 01064

SAFETY AND HEALTH

01064.02 SAFETY AND FIRST AID - Continued

The Contractor shall take due precautions against infectious diseases, and shall arrange for the immediate isolation and removal from the Site of any employee who becomes ill or is injured while engaged on the work.

01064.03 DUST HAZARDS

- (a) If, in the construction of the work covered by the Contract, a harmful dust hazard is created for which appliances or methods for the elimination of dust have been approved by the Board of Standards and Appeals, such appliances or methods shall be installed and maintained and effectively operated by the Contractor at his expense.
- (b) The Contract shall be void and of no effect unless the Contractor complies with the provisions of this subdivision of the Contract and Labor Law Section 222-a.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01340

SUBMITTALS

01340.01 DRAWINGS FURNISHED BY THE CONTRACTOR

The Contractor shall prepare, or cause to be prepared by his suppliers or Subcontractors, and submit to the Engineer for review, Shop Drawings, Setting Drawings, Working Drawings and Construction Drawings as may be specified or directed or necessary to the performance of the work. Deviations from the drawings and specifications shall be called to the attention of the Engineer at the time of the first submission of Shop Drawings, or other drawings, for consideration. Corrections or comments made on the Shop Drawings during review do not relieve the Contractor from compliance with the requirements of the Contract Drawings and Specifications.

Within thirty days of the execution of the Agreement, the Contractor shall submit five copies of a complete list of products proposed for the work tabulated by Specification Section, including manufacturer or fabricator, model number or other identifying designation.

Shop, Setting or Working Drawings shall be submitted for each type and model of fabricated materials and equipment. They shall provide complete and accurate working dimensions, weights, assembly and sectional views, details necessary to coordinating the work, anchor bolt and installation plans and instructions, parts lists and descriptions, materials and finishes lists, lists of any tools and spare parts required, diagrams of control wiring and piping, the location, sizes and types of connections to other work or other items, and any other data required to comply with the Contract or provide the workmen and the Engineer with information necessary to complete and inspect the work.

Electrical equipment drawings and data shall show physical dimensions, installation details, elementary and connection diagrams for each motor controller, interconnection diagrams for all equipment, identification of components external to electrical equipment, the coordination of control circuits, and definition of the contract arrangement and control action of the primary and final control elements.

01340-2

SECTION 01340

SUBMITTALS

01340.01 DRAWINGS FURNISHED BY THE CONTRACTOR - Continued

If the Contractor proposes to furnish and install equipment requiring a layout or arrangement materially changed from that shown on the Contract Drawings as illustrative of one acceptable arrangement, he shall submit, for review, drawings showing the proposed arrangement and the appertaining changes to wiring, piping, structures and other equipment.

See also ARTICLE 01340.08, ADDITIONAL ENGINEERING COSTS.

01340.02 TRANSMITTAL, IDENTIFICATION AND RESUBMITTAL

The Contractor shall accompany all drawings and other data submitted to the Engineer with a letter of transmittal in duplicate. Unless otherwise specified elsewhere herein, all other correspondence with the Engineer shall also be in duplicate.

All drawings shall be suitably identified with the name of the Project, Contract Number, Contractor name, name of the equipment or materials manufacturer, specification section designation and item number (if applicable) date, and initials indicating approval of such submittal by the Contractor under the applicable specification.

The Contractor shall submit to the Engineer for review five copies of all drawings and other data, plus the number of copies he wishes returned bearing the Engineer's review stamp, comments, or request for changes, but in no case shall the total number of copies so submitted be less than six. If the Engineer makes comments or corrections, they will be noted on the drawings, or explained in a letter of transmittal, or both, and all but three copies will be returned to the Contractor for revision or other requested action. The Contractor shall make any requested revisions or additions and resubmit the drawings in the same manner as for the initial submittal. If requested by the Engineer, the Contractor shall supply additional copies of submitted data.

The Engineer's review stamp shall indicate one of the following:

1. No Exceptions Taken
2. Make Corrections Noted
3. Amend and Resubmit
4. Rejected - See Remarks

SECTION 01340

SUBMITTALS

01340.02 TRANSMITTAL, IDENTIFICATION AND RESUBMITTAL - Continued

Upon return of a submittal marked "No Exceptions Taken" or "Make Corrections Noted", the Contractor may order, ship or fabricate the materials so noted. A submittal marked "Make Corrections Noted" should not be resubmitted for further review. Submittals marked "Amend and Resubmit" include extensive corrections or corrections of major importance affecting other items and require the submittal to be amended and resubmitted for a final review. Submittals marked "Rejected - See Remarks" are reserved for materials or equipment which are unacceptable. The Contractor shall resubmit for materials or equipment which are acceptable and in accordance with the Specifications.

More than one resubmittal per material or equipment will be considered an additional cost to the Engineer which shall be reimbursed by the Contractor. Refer to Article 01340.08 for method of reimbursement.

01340.03 DELAY THROUGH TARDY SUBMITTAL

All submittals shall be made on such a schedule and at such time as to permit adequate review. The Contractor shall make due allowance for possible revisions and resubmittals. Delays caused by tardy submittal of drawings or data for review shall be the responsibility of the Contractor. No work covered by submitted drawings, or drawings specified to be submitted, shall be performed until such drawings and data have been reviewed.

See also ARTICLE 00756.04, APPROVED WORK SCHEDULES.

01340.04 CONTRACTOR RESPONSIBLE FOR ACCURACY

The Contractor shall be responsible for the accuracy and completeness of the drawings and other data he submits, for their conformity to the Plans and Specifications, and for the proper fit and clearance of all construction work.

The Owner retains for the Engineer the option to refuse to review submitted data that are improperly identified or incomplete or which have not been checked by the Contractor for compliance with the Contract Documents.

01340-4

SECTION 01340

SUBMITTALS

01340.05 ADDITIONAL INSTRUCTIONS

The Engineer may from time-to-time issue additional instructions to the Contractor as may be necessary to amplify, augment, modify or clarify the Contract Documents. These may be in the form of drawings, specifications, interpretations, orders and instructions, and may be in connection with or made a part of a Supplemental Agreement, Change Order, or Minor Change.

See also SECTION 00757, CHANGES IN THE WORK.

01340.06 DRAWINGS TO BE CHECKED BY CONTRACTOR

The Contractor shall check all dimensions, quantities and representations in the Specifications, Contract Drawings, Additional Drawings and all Supplemental Agreements, Change Orders and Instructions, and shall immediately notify the Engineer of any and all errors, omissions, or discrepancies therein which he may find. The Contractor will not be permitted to take advantage of any such error, omission or discrepancy in any Contract Document or subsequent document, as full instructions will be provided by the Engineer in such case.

01340.07 SUBSTITUTES AND "OR-EQUAL" ITEMS

Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item, the Specification or description is intended to establish the type, function and quality required. Unless the Specification or description contains or is followed by words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment may be accepted by the Engineer under the following circumstances:

"Or-Equal": If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and acceptance of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed equal items.

SECTION 01340

SUBMITTALS

01340.07 SUBSTITUTES AND "OR-EQUAL" ITEMS - Continued

Substitute Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, it will be considered a proposed substitute item. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by the Engineer will include the following or as the Engineer may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall first make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice Contractor's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for work on the project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish additional data about the proposed substitute.

01340.08 ADDITIONAL ENGINEERING COSTS

In the event that the Contractor fails to submit acceptable Shop Drawings (i.e., Shop Drawings which are returned marked "No Exceptions Taken" or "Make Corrections Noted") within two submittals, further review of the Shop Drawings will be considered an Additional cost. Similarly, all Engineering Costs associated with the review of a substitution will be considered an Additional cost.

01340-6

SECTION 01340

SUBMITTALS

01340.08 ADDITIONAL ENGINEERING COSTS - Continued

Additional Engineering Costs include redesign, additional Shop Drawing reviews, investigations, consultant fees and revisions to the Contract Documents required because of the proposed substitution. Additional Engineering Costs will be the total of:

- a. Billing Rates Schedule
- b. Direct Expenses Plus 10%
- c. Consultant Fees Plus 10%

Additional Engineering Costs shall be deducted from Contractor Payments by the Owner, in accordance with the Agreement for Engineering Services between the Owner and the Engineer.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01506

WORK UNDER UNUSUAL CONDITIONS

01506.01 WORK AFTER DARK

Unless specifically required elsewhere herein, the Contractor shall perform no work after dark except in emergencies. When time permits, he shall inform the Engineer in advance of such work and shall obtain the Engineer's approval. When time does not permit advance notice to the Engineer, he shall inform the Engineer at the earliest possible moment.

The placing of concrete shall be so scheduled as to be started early enough in daylight hours to allow sufficient time for the completion of the section under construction before dark, including the work of finishers.

When, in order to minimize interference with existing structures or utilities, or maintain traffic, it may, in the opinion of the Engineer, be expedient or necessary to do work after dark, such work shall be performed by the Contractor at no additional cost to the Owner, and the Contractor shall provide adequate lighting therefor.

01506.02 WORK ON SUNDAYS OR HOLIDAYS

Unless specifically required elsewhere herein, the Contractor shall do no work on Sundays or locally recognized legal Holidays except in an emergency, and then shall confine his operations to only the work considered necessary to be performed at such time.

01506.03 WORK IN STORMS

If required by the Engineer, masonry work and the mixing and placing of concrete shall be halted during rain storms, and all fresh work shall be immediately protected with suitable coverings. The Contractor shall keep a sufficient quantity of such coverings at the Site as part of his plant and equipment.

No paving, exterior painting, fine grading, seeding or roofing shall be done during rain or snow storms.

01506-2

SECTION 01506

WORK UNDER UNUSUAL CONDITIONS

01506.04 WORK IN COLD WEATHER

Certain Specifications contain provisions prohibiting the performance of certain work in cold weather, or outlining the conditions under which such work may be so performed. In the absence of specific mention elsewhere in the Contract Documents, the judgement of the Engineer shall govern in any case where temperature may adversely affect or prevent the performance of good work.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01510

SERVICES DURING CONSTRUCTION

01510.01 SANITARY FACILITIES

The Contractor shall provide on the Site, at his own expense, one or more toilets, suitably screened from public observation for the use of all persons employed on the work. They shall be provided, maintained and removed, when directed, by the Contractor, in such quantity, locations and manner as approved by the Engineer. Contents shall be removed and disposed of in a manner and at such times as shall be approved. Chemical toilets are to be preferred.

The Contractor shall not permit or condone the committance of nuisances on or about the Site. Any employee found violating these provisions shall be discharged in accordance with the provisions of ARTICLE 00754.02.

The Contractor shall comply with any and all sanitary regulations as may have been established for the locality.

If the Owner awards other contracts for collateral work on the Project, the provision of sanitary convenience shall be the responsibility of the General Contractor, and all such facilities shall be made available to other Contractors and all Subcontractors until the date of the Certificate of Substantial Completion of the General Contract. Each Contractor, however, shall be individually responsible for the acts of his employees and Sub-contractors, and for all provisions of this Section after completion of the General Contract.

01510.02 WATER

The Contractor shall provide at all times sufficient drinking water from an approved source and by approved means, for all persons having reason to be on the Site in connection with the work.

If an ample supply is owned or controlled by the Owner, and is available at or near the Site, such supply will be made available to the Contractor, subject at all times to the requirements of the Owner established therefor, and at a cost to the Contractor as determined by the current schedule of charges filed by the Utility for all customers. Permission to use the water must be obtained in writing.

01510-2

SECTION 01510

SERVICES DURING CONSTRUCTION

01510.02 WATER - Continued

If water is obtained from a public or private supply not owned or controlled by the Owner, the Contractor shall make such arrangement for service with the owners thereof as they may require.

Non-potable water for other than drinking purposes may be obtained at the Site from the ground or surface sources, at the Contractor's own expense. The water must, however, be suitable for the purpose intended and shall be approved by the Engineer. The Specifications, for instance, contain requirements for water for making concrete and mortar.

If the Owner awards other contracts for collateral work on the Project, it shall be the responsibility of the General Contractor to obtain potable water for drinking purposes, and such water shall be made available to all Contractors, until the date of the Certificate of Substantial Completion for the General Contract. Each Contractor, however, shall be individually responsible for providing potable water for his own employees and his Sub-contractors after completion of the General Contract.

If the General Contractor provides water, whether potable or non-potable, for his own purposes during construction of the work, besides drinking water, such water shall be made available to other Contractors and their Sub-contractors during the life of the General Contract. Removal of temporary facilities shall be by the General Contractor, but such installation and meters shall remain until need therefor by each Contractor has ceased, or until the date of the Certificate of Substantial Completion of the General Contract. Each Contractor shall provide his own services after completion of the General Contract.

01510.03 TEMPORARY HEAT

If the Owner awards other contracts for collateral work on the Project, it shall be the obligation and responsibility of the General Contractor to provide and maintain temporary heat in all above ground structures, and in all below ground structures other than manholes and similar pipeline appurtenances, by means of portable electric, oil or gas-fired appliances. The General Contractor shall provide and pay for all fuel and electric power used by such appliances, and any wiring or connections required, and shall provide suitable smoke pipes or other devices to prevent the deposit of smoke or soot on building components or equipment.

SECTION 01510

SERVICES DURING CONSTRUCTION

01510.03 TEMPORARY HEAT - Continued

After their installation by the Heating & Ventilating Contractor, the permanent heating system facilities may be used for temporary heating purposes, the operation thereof, and any temporary wiring or piping required and all power consumed shall be the obligation and responsibility of the General Contractor, who shall also be responsible to the Heating & Ventilating Contractor for the repair of any damage of work of the Heating & Ventilating Contract suffered as the result of use by the General Contractor.

After enclosure of all spaces to be heated, except for doors, windows and similar apertures, temporary enclosures for all apertures shall be provided. Temperatures in the entirety of such spaces shall be continuously maintained at not less than 50°F between October 15 and May 15, unless written permission is granted otherwise by the Engineer. The General Contractor shall securely install on each floor of each building near the center of the building, a suitable thermometer. Either the temporary or the permanent heating system shall be available for around-the-clock use during the season specified above.

The Owner will supply all heat after the date of the Certificate of Substantial Completion of the General Contract.

No portion of the Temporary Heat provisions herein contained shall be construed to waive or modify any provisions regarding maintenance of air or materials temperatures for the protection of the work contained elsewhere in the Contract Documents.

01510.04 TEMPORARY ELECTRIC LIGHT AND POWER

If the Owner awards other contracts for collateral work on the Project, it shall be the obligation and responsibility of the General Contractor to provide and maintain temporary facilities for furnishing light and power necessary for operations under the General Contract, and to make all necessary arrangements therefor, including all required conductors, outlets and connections, ordering the meter, paying all fees and inspection charges and pay for all power bills until the date of the Certificate of Substantial Completion of the General Contract.

01510-4

SECTION 01510

SERVICES DURING CONSTRUCTION

01510.04 TEMPORARY ELECTRIC LIGHT AND POWER - Continued

The facilities shall be available to other Contractors and their Sub-contractors for their use in connection with their work. The installation and meters shall remain until need for same by each Contractor has ceased, or until the date of the Certificate of Substantial Completion of the General Contract. Each Contractor shall provide his own services after completion of the General Contract.

It shall be the responsibility of the General Contractor to provide, prior to the completion of his Contract, temporary power of proper voltage and capacity necessary to test and operate all equipment installed under this Contract.

01510.05 PAYMENT FOR SERVICES DURING CONSTRUCTION

The General Contractor will receive no direct payment for providing, maintaining or removing any of the temporary facilities or services specified in this Section 01510, and compensation for same shall be included in the price, or total of prices, given in the Bid on which this Agreement is based, and no separate payment will be made therefor.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01568

EROSION AND SEDIMENT CONTROL

01568.01 GENERAL

The Contractor shall control erosion and sediment caused by construction activities through the use of scheduling, phased construction and restoration, berms, dikes, dams, sediment basins, hay bale strainers, fiber mats, netting, gravel, mulches, grasses, slope drains and other erosion control devices or methods.

In the event of conflict between these specification requirements and pollution control laws, rules or regulations of other Federal, State or local agencies, the more restrictive laws, rules or regulations shall apply.

01568.02 CONTROL SCHEDULE

At the pre-construction conference, or prior to the start of the applicable construction, the Contractor shall be required to submit, for acceptance, his schedules for the accomplishment of erosion and sediment control. He shall also submit, for acceptance, his proposed method of erosion and sediment control on haul roads and borrow pits and his plan for disposal of waste materials or control details for other potential sources of pollution.

The Contractor shall schedule and conduct his operations to minimize erosion of soils and to minimize silting and muddying of streams, rivers, irrigation systems, impoundments (lakes, reservoirs, etc.) and lands adjacent to or affected by the work. Construction of drainage facilities and performance of other contract work which will contribute to the control of erosion and sedimentation shall be carried out in conjunction with earthwork operations or as soon thereafter as practicable. The area of bare soil exposed at any one time by construction operations shall be kept to a minimum.

01568-2

SECTION 01568

EROSION AND SEDIMENT CONTROL

01568.03 CONTROL MEASURES

In carrying out erosion control measures, the Contractor will be guided by, but not limited to, the following controls:

- A. When borrow material is obtained from other than commercially operated sources, erosion of the borrow site shall be so controlled both during and after completion of the work that erosion will be minimized and minimal sediment will enter streams or other bodies of water. Waste or disposal areas and construction roads shall be located and constructed in a manner that will minimize sediment entering streams.
- B. Frequent fording of live streams will not be permitted; therefore, temporary bridges or other structures shall be used wherever an appreciable number of stream crossings are necessary. Unless otherwise approved in writing by the Engineer, mechanized equipment shall not be operated in live streams.
- C. When work areas or gravel pits are located in or adjacent to live streams, such areas shall be separated from the main stream by a dike or other barrier to minimize sediment entering a flowing stream. Care shall be taken during the construction and removal of such barriers to minimize the muddying of a stream.
- D. All waterways shall be cleared as soon as practicable of falsework, piling, debris or other obstructions placed during construction operations and not a part of the finished work.

Ditches which are filled, or partly inoperative shall be cleaned and made operative before the Contractor stops work for any day, and shall be maintained in a condition satisfactory to the Engineer for the duration of the Contract.

- E. Water from aggregate washing, dewatering or other operations containing sediment shall be treated by filtration, settling basin or other means sufficient to reduce the turbidity so as not to cause a substantial visible contrast to natural conditions.
- F. Pollutants such as fuels, lubricants, bitumens, raw sewage and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or man-made channels leading thereto. Wash water or waste from concrete mixing operations shall not be allowed to enter live streams.

SECTION 01568

EROSION AND SEDIMENT CONTROL

01568.03 CONTROL MEASURES - Continued

- G. All applicable regulations of fish and wildlife agencies and statutes relating to the prevention and abatement of pollution shall be complied within the performance of the Contract.
- H. Slopes exceeding 15 percent require special treatment such as water diversion berms, straw bale sediment barriers, sodding or the use of an approved mulch tacking agent over straw or hay mulch applied over seeded areas.

The erosion and sediment control features installed by the Contractor shall be acceptably maintained by the Contractor throughout the Contract period. When it becomes necessary, the Engineer will inform the Contractor of unsatisfactory construction procedures and operations insofar as erosion control, water and air pollution are concerned. If the unsatisfactory construction procedures and operations are not corrected promptly, the Engineer may suspend the performance of any or all of other construction until the unsatisfactory condition has been corrected.

01568.04 PAYMENT

Unless a specific payment item is included in the Bid, payment for Erosion and Sediment Control shall be included in the price, or total of prices, given in the Bid on which this Agreement is based, and no separate payment will be made therefor.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01577

MAINTENANCE OF TRAFFIC

01577.01 GENERAL

This work shall consist of maintaining traffic and protecting the public from damage to person and property within the limits of and for the duration of the Contract.

01577.02 TRAVEL NOT OBSTRUCTED DURING EXCAVATION

The Contractor shall not needlessly hinder or inconvenience travel on any public or private way, nor shall he wholly obstruct same without written permission of the Owner. If he is permitted to obstruct a traveled way, the Contractor shall provide plain and appropriately worded signs and adequate barricades and lighting at the nearest cross streets, and at each end of the obstructed portion, announcing such obstruction and directing traffic to and along an approved detour.

Unless otherwise specified or permitted, all entrances and exits of fire houses, industrial plants, commercial buildings and public buildings shall be kept open and maintained in passable condition at all times. The Contractor shall give notice to the Owner of each traveled way before interfering therewith. A minimum of 24 hours notice shall also be given to local police and fire control agencies.

01577.03 BASIC MAINTENANCE AND PROTECTION OF TRAFFIC

Traffic shall be maintained over a reasonably smooth traveled way which shall be so marked by signs, delineators, guiding devices and other methods that a person who has no knowledge of conditions may safely and with a minimum of discomfort and inconvenience ride, drive or walk, day or night, over all or any portion of the highway and/or structure under construction where traffic is to be maintained.

- A. Surface. Maintain the surface condition of the traveled way so it is consistent with the appropriate speed limit.
- B. Drainage. Maintain the drainage facilities and other highway elements, old or new, including detours.

SECTION 01577

MAINTENANCE OF TRAFFIC

01577.03 BASIC MAINTENANCE AND PROTECTION OF TRAFFIC - Continued

- C. Bus Stops. Maintain existing bus stops, if any, so bus passengers are reasonably accommodated.
- D. Pedestrian Traffic. Provide adequate protection for pedestrian traffic during all phases of construction.
- E. Intersecting Highways. Provide ingress and egress to and from intersecting highways, homes, businesses and commercial establishments.
- F. Dust Control and Spillage. Control dust and keep the traveled way free from materials spilled from hauling equipment. This shall also apply to dust control and spilled material resulting from the Contractor's operations in the areas outside the Contract limits. The Contractor shall provide for the control of dust, as necessary, during the construction period. Dust shall be controlled by water spray, or as approved by Engineer. Exposed soils shall be graded, seeded and mulched as soon as practicable.
- G. Flagmen. Provide the necessary traffic control equipment and flagmen for adequate traffic control on the traveled way.
- H. Repairs. Make the necessary repairs to existing pavement and structure wearing surfaces as required to provide a reasonably smooth traveled way where vehicle operation is maintained.
- I. Responsibility to the Public. Protect the public from damage to person and property which may result directly or indirectly from any construction operation.
- J. Snow and Ice Control. Maintain the traveled way in such a condition and conduct operations in such a manner that snow and ice may be readily controlled by others as and when necessary, and in such a manner that proper drainage is provided for the melting of snow in the banks resulting from normal plowing. The Contractor shall not, however, be responsible for snow and ice control on the pavement or traveled way.

SECTION 01577

MAINTENANCE OF TRAFFIC

01577.04 PAYMENT

Unless a specific payment item is included in the Bid, payment for Maintenance of Traffic shall be included in the price, or total of prices, given in the Bid on which this Agreement is based, and no separate payment will be made therefor.

END OF SECTION



GENERAL REQUIREMENTS

SECTION 01580

PROJECT SIGN

01580.01 GENERAL

If directed in the Additional Instructions, the Contractor shall provide and erect a project sign or signs at the project site identifying the project and the applicable funding agencies participating in the project. The project sign(s) shall also indicate the title and description of the project, Owner, Engineer and Contractor. The sign(s) shall be erected within twenty-one (21) days after the construction contract is awarded, and shall be in accordance with the specifications and detailed drawing included in the Additional Instructions.

01580.02 SIGN PANEL

Each sign panel shall be constructed of 3/4" minimum thickness marine plywood rabbetted into a 2" x 4" lumber frame. All fasteners used in the construction of each sign shall be of a rustproof nature.

01580.03 PAINTING

Each sign face shall be painted with the proper paint colors for the background, lettering and emblem as specified in the Additional Instructions. All supports, trim and the back of the sign panel, shall be painted with at least two coats of the same color paint as used for each sign face. All paint used shall be exterior grade paint, suitable for use on wood signs.

01580.04 MISCELLANEOUS

Sign(s) shall be located in a prominent position and aligned as determined by the Engineer. Adequate support for the project sign(s) shall be provided by the Contractor. The bottom edge of each sign shall be a minimum of 3 feet above grade. The project sign(s) shall be maintained in good condition by the Contractor for the duration of construction. The removal of the project sign(s) from the construction site by the Contractor shall be at the completion of construction, when ordered by the Engineer.

01580-2

SECTION 01580

PROJECT SIGN

01580.05 PAYMENT

Unless a specific payment item is included in the Bid, payment for Project Sign, including fabrication, erection, maintenance and removal of each sign, shall be included in the price, or total prices, given in the Bid on which this Agreement is based, and no separate payment will be made therefor.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01590

ENGINEER'S FIELD OFFICE TRAILER

01590.01 DESCRIPTION

Unless waived by provisions within the Additional Instructions, the Contractor shall provide a field office trailer for the exclusive use of the Engineer and his assistants. The trailer shall be separate from that of the Contractor, and shall be ready for occupancy within ten days following execution of the Contract.

01590.02 FACILITIES TO BE PROVIDED

The name of the supplier and proposed layout shall be submitted to the Engineer and approved prior to delivery of the trailer.

The trailer office shall be new or in first class condition and shall be not less than 12 feet by 56 feet, excluding the tongue.

Washroom with hot water supply and toilet facilities within the trailer shall be supplied with potable water and connected to a sanitary sewage disposal system. The trailer shall be fully air conditioned. A gas or oil heat system shall be provided within the field office. A minimum of one month's fuel storage shall be provided, together with the necessary appurtenances to control heat and check fuel storage. Heating and air conditioning equipment shall be capable of maintaining an air temperature of 70°F.

An individual, unlisted, direct line telephone service shall be provided for the exclusive use of the Engineer. Telephone service, local and toll charge calls, shall be paid by the Contractor.

It shall be the responsibility of the Contractor to maintain the field office trailer and all facilities furnished with it. Maintenance shall include removal of snow, janitorial services, and adequate protection of pipes.

It shall be the Contractor's responsibility to furnish adequate heat, electric power and light to the field office trailer at his expense. Adequate lighting shall consist of a minimum, of four, two lamp, 4' fluorescent lights.

01590-2

SECTION 01590

ENGINEER'S FIELD OFFICE TRAILER

01590.02 FACILITIES TO BE PROVIDED - Continued

The following office furniture and equipment shall be furnished with the trailer:

- Two 8' flat top double desks with 2 sets of two drawer metal file cabinets in each desk.
- 1 built-in drafting table 36" x 72" with double storage cabinets underneath.
- 4 swivel chairs.
- 2 drafting stools.
- 1 four drawer, fireproof legal size filing cabinet with lock.
- 2 plan racks with space for 5 plan hangers each.
- 4 wall coat hooks.
- 2 large metal waste baskets.
- 1 refrigerator, minimum 2 cubic feet.

01590.03 LOCATION

The trailer shall be erected on an approved location convenient for inspection of the work, as directed by the Engineer. The field office trailer shall be moved once if directed by the Engineer.

01590.04 PAYMENT

Payment for the Engineer's Field Office Trailer, and all services to be provided with it, not included under other unit or lump sum price items shall be made at the price stated in the Bid.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.01 MATERIALS AND WORKMANSHIP - GENERAL REQUIREMENTS

All workmanship, materials, equipment and appliances shall comply in all respects with the applicable Specifications, unless specific exception is made.

All materials furnished or incorporated in the work shall be new, unused and of the quality and characteristics specified. Used materials may be furnished or incorporated in the work only under special circumstances and only with the Engineer's prior written approval. If the quality or characteristics of any material are not specifically set forth in the Contract Documents, the material used shall be that customarily used in first class work of a similar nature and character.

All workmanship in manufacture and construction not specifically covered in the Specifications shall be of the first class order and equal to that customarily used in first class work of a similar nature and character. The Contractor shall exercise special care during construction to make all structures watertight.

See also ARTICLE 00754.02 and 00753.08.

01640.02 SAMPLES, TESTS AND INSPECTIONS

All materials, equipment and workmanship shall be subject to inspection, examination and tests by the Engineer, or persons or corporations designated by him, at any and all times during manufacture or construction and at any place or places where manufacture or construction are performed.

If required by the Specifications, or if requested by the Engineer, the Contractor shall submit to the Engineer for examination, testing and approval, typical samples of materials and appliances. Samples shall be submitted sufficiently in advance of the time they are proposed to be used in the work so that neither rejections and re-submittals nor the time reasonably required for testing shall cause delay. Each unit, lot or batch of materials submitted shall be properly tagged or labeled and identified with the portion of the work for which they are intended. Transmittals shall be covered by a letter of transmittal in the manner specified for the submittal of drawings ARTICLE 01340.02.

01640-2

SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.02 SAMPLES, TESTS AND INSPECTIONS - Continued

All laboratory tests called for in the Specifications or requested by the Engineer shall be performed at the Contractor's expense, and the Contractor shall furnish and deliver to the laboratory all requisite samples. Documentary evidence that materials pass the required inspection and tests shall be furnished to the Engineer by the Contractor prior to the use of the materials in the work. Bureaus, laboratories and agencies used for the inspection and testing of materials, equipment and appliances shall be selected by the Contractor, who shall submit their names to the Engineer for approval prior to the performance by them of any tests.

01640.03 REMOVAL OF FINISHED WORK FOR INSPECTION

If, at any time prior to the date of the Certificate of Substantial Completion, the Engineer considers it necessary or advisable to examine any portion of the work already completed by removing or tearing out materials or coverings, or by excavating or otherwise exposing the portion of the work to be examined, the Contractor, upon receipt of a written request from the Engineer, shall promptly perform such work as is necessary so to do.

If the work in question is found to be defective, or not in conformance with the Specifications, due to the fault of or omission of the Contractor, or if any work shall be covered over without the consent or approval of the Engineer, whether or not defective, the Contractor shall bear all the expense of such removal, tearing out, excavating or exposing and of satisfactory reconstruction.

If, however, such consent or approval shall have been given, and the work exposed is found to be satisfactory and in conformance with the Specifications, the Contractor shall be compensated for the expenses of such removal, examination and reconstruction as provided in ARTICLE 00757.03.

01640.04 FIELD TESTS

The Contractor, at his own expense, shall conduct all tests specified or required by law or permit of installed equipment and materials, when ordered by and under the supervision of the Engineer. The Engineer at his own discretion may make additional field tests of materials and equipment on the Site. The Contractor shall furnish, at his own expense, the materials required for all field tests and reasonable labor and plant to assist the Engineer in conducting the tests.

SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.05 MANUFACTURERS AND SUPPLIERS

Within 30 days following the execution of the Contract, the Contractor shall submit to the Engineer the name or names of the manufacturers or vendors from whom he proposes to purchase the equipment and materials specified for the work. Following approval of the manufacturer or supplier by the Engineer, the Contractor shall submit complete and detailed drawings, bulletins, specifications and other data in connection with the equipment and materials and arrangement thereof he proposes. See also ARTICLES 01340.01 through 01340.04 and 01340.06.

No award shall be made by the Contractor, and no work in connection with the equipment or materials shall proceed prior to review of the submitted data. All items of equipment of like type shall be the product of one manufacturer, unless specified otherwise or specifically permitted by the Engineer.

01640.06 EXPERIENCE AND EQUIVALENT CLAUSES.

Unless otherwise specified, shown or permitted, all equipment and materials shall be the product of manufacturers who have built equipment or produced materials of a like or similar type, character, size and capacity for at least three years prior to submittal for approval and who, if requested by the Engineer, shall submit evidence thereof.

Wherever reference is made in the Contract Documents to any specific material, equipment, appliance or model, it is understood that any product considered to be equivalent by the Engineer may be used, and such reference is for the purpose of illustration and establishment of a standard. This provision is understood to hold true in all instances, use or omission of the term "or equal" notwithstanding.

01640.07 INSTALLATION OF EQUIPMENT

All equipment shall be installed in a neat and workmanlike manner as shown on the Plans or as directed, and shall be accurately leveled, aligned and adjusted for satisfactory operation and so installed that all necessary connections can be readily made.

01640-4

SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.07 INSTALLATION OF EQUIPMENT - Continued

The Contractor shall furnish, install and protect all necessary bearing plates, guides, rails, anchor and attachment bolts and fastenings, and all other appliances and appurtenances required for the installation of all components of the equipment specified. Adequate templates and installation drawings and instructions shall be provided. Anchor bolts shall be of the size, type and material recommended by the manufacturer or directed by the Engineer.

The Contractor shall furnish all oils and greases for initial operation, and shall provide the Engineer with a list of the lubricants used on each item of equipment. Insofar as possible, all lubricants shall be obtained from one manufacturer, approved by the Engineer and by the equipment manufacturers. Each piece of equipment shall bear a substantial metal or plastic nameplate, securely fastened in a convenient place inscribed with the name of the manufacturer, the year of manufacture, model number, serial number and basic rating data.

01640.08 TOOLS, ACCESSORIES AND MANUALS

Unless otherwise specified, the Contractor shall furnish for each type, model or size of equipment a complete set of any special tools and accessories, suitably identified, which may be required to adjust, operate, repair or maintain the equipment.

The Contractor shall also furnish and deliver to the Engineer five complete sets of bulletins, diagrams, parts lists, instructions, manuals and other data required for operation, maintenance and repair of the equipment.

01640.09 CARE AND PROTECTION OF THE WORK

During the life of the Contract, the Contractor shall be solely responsible for the care and protection of the work and for all materials, appliances, supplies and equipment to be used in the work, both during storage and after installation or incorporation in the work. He shall protect all materials to be used in the work, all work in progress, and all completed work from damage by flood, fire, freezing or other undesirable results of weather, accident, theft and vandalism. Any damage or loss shall be made good by the Contractor at his own expense before a Certificate of Substantial Completion will be issued.

See also ARTICLES 00759.07, 00759.08 and 00757.04.

SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.10 ABSENCE OF ENGINEER

The Contractor shall perform no backfilling or covering operations of any underground portions of the work until after the Engineer or his inspector shall have inspected or tested and approved the work. If such work is covered in absence of an inspector, it shall be exposed by the Contractor for inspection as specified in ARTICLE 01640.03.

END OF SECTION

SPECIFICATIONS

SECTION 02002

PAYMENT ITEM FOR MOBILIZATION/ DEMobilIZATION FOR LINER SYSTEMS

PART 1 - DESCRIPTION:

1.1 Under this Item, the Liner Systems Contractor shall furnish all labor, materials and equipment required to perform the work described below and required to implement the construction.

1.2 In addition to the applicable provisions of Sections 00100 thru and including 01640, and other Divisions of this project, the following describes the principal items of work to be performed under this payment item:

- Set up of the necessary general plant, including shops, storage areas, office and such sanitary and other facilities as are required by local or State law or regulation.
- The cost of required insurance and/or any initiation of the Contract work is also included in this Item.
- The Contractor shall pay for all of the cost associated with all utilities and maintenance of his field office trailer.
- Acquisition of permits not otherwise specified under other payment items.
- Mobilization and demobilization of all equipment and personnel not otherwise included in other payment items.
- Cost of required insurance and/or any initiation of the Contract work is also included in this Item.
- All PPE and associated safety equipment.
- All necessary health and safety requirements.

02002-2

SECTION 02002

PAYMENT ITEM FOR MOBILIZATION/
DEMOLITION FOR LINER SYSTEMS

- Costs associated with all submittals including but not limited to health and safety, dust control, staging plans and environmental monitoring.
- Decontamination of all equipment and personnel.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

PART 4 - PAYMENT

4.1 Payment: Fifty percent (50%) of the amount bid shall be made payable to the Contractor whenever he shall have completed ten percent (10%) of the Contract work. Ten percent (10%) of the work shall be considered completed when the total of payments earned, as reflected by estimates of work done, not including the amount bid for this Item, nor payments for materials delivered to the site exceeds ten percent (10%) of the total amount of the bid for this Contract. The remaining 50% of the amount bid shall be made payable to the Contractor in equal monthly payments prior to substantial completion of the work with substantial completion being as defined in the Contract Documents.

END OF SECTION

5.00

132.164

SPECIFICATIONS

SECTION 02003

**PAYMENT ITEM FOR MOBILIZATION/
DEMobilIZATION FOR GAS VENTS****PART 1 - DESCRIPTION:**

1.1 Under this Item, the Gas Vents Contractor shall furnish all labor, materials and equipment required to perform the work described below and required to implement the construction.

1.2 In addition to the applicable provisions of Sections 00100 thru and including 01640, and other Divisions of this project, the following describes the principal items of work to be performed under this payment item:

- Set up of the necessary general plant, including shops, storage areas, office and such sanitary and other facilities as are required by local or State law or regulation.
- The cost of required insurance and/or any initiation of the Contract work is also included in this item.
- The Contractor shall pay for all of the cost associated with all utilities and maintenance of his field office trailer.
- Acquisition of permits not otherwise specified under other payment items.
- Mobilization and demobilization of all equipment and personnel not otherwise included in other payment items.
- Cost of required insurance and/or any initiation of the Contract work is also included in this item.
- Costs associated with all submittals including but not limited to health and safety, dust control, staging plans and environmental monitoring during gas vent drilling.
- All PPE and associated safety equipment.

02003-2

SECTION 02003

PAYMENT ITEM FOR MOBILIZATION/
DEMOBILIZATION FOR GAS VENTS

- All necessary health and safety requirements.
- Decontamination of all equipment and personnel.
- Labor and material necessary to extend 12 existing gas vent extensions.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

PART 4 - PAYMENT

4.1 Payment: Fifty percent (50%) of the amount bid shall be made payable to the Contractor whenever he shall have completed ten percent (10%) of the Contract work. Ten percent (10%) of the work shall be considered completed when the total of payments earned, as reflected by estimates of work done, not including the amount bid for this Item, nor payments for materials delivered to the site exceeds ten percent (10%) of the total amount of the bid for this Contract. The remaining 50% of the amount bid shall be made payable to the Contractor in equal monthly payments prior to substantial completion of the work with substantial completion being as defined in the Contract Documents.

END OF SECTION

SPECIFICATIONS

SECTION 02220

EXCAVATION

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for Excavation, as shown on the Plans, specified, and/or directed.

1.1.2 Excavation, in open cut, includes the loosening, removing, transporting, storage and disposal of all materials necessary to be removed for the construction and completion of all work under the Contract. Excavations shall be made to the widths and depths shown on the Plans, specified or directed.

1.1.3 Where rock is encountered, the excavations shall be done in accordance with the applicable provisions hereof.

1.2 DEFINITIONS:

1.2.1 The term "excavation" and the term "trenching" where used, shall be deemed and understood to cover the following described work, and the price bid for any and all items including "excavation", or "trenching" shall be deemed to include and cover all of the several following detailed operations:

- The loosening, removing, transporting, storage and rehandling of all materials;
- All sheeting, sheetpiling, bracing and shoring, and the placing, driving, cutting off and removing of the same;
- All diking, ditching, fluming, cofferdamming, pumping, well-pointing, bailing, dewatering and draining or otherwise disposing of water (surface and subsurface);
- The refilling of trenches, excavations and pits, and the furnishing and placing of material over trenches, excavations and pits to the original surface of the ground or to other grades as may be shown or directed;

SECTION 02220

EXCAVATION

- The compacting of all materials used in filling or refilling by rolling, ramming, watering, puddling, etc., as may be required;
- The removing and disposing of all surplus materials from all excavations in the manner specified;
- The maintenance, accommodation and protection of travel;
- The supporting and protecting of all tracks, rails, buildings, curbs, sidewalks, pavements, overhead wires, poles, trees, vines, shrubbery, pipes, sewers, conduits or other structures or property and its appurtenances, in the vicinity of the work, whether over or underground or which appear within the excavations, and the restoration of the same in case of settlement or other injury;
- All temporary bridging and fencing and the removing of same, the temporary paving of highways, roads, driveways, and the permanent repairing or replacing and relaying of pavements, curbs, gutters and sidewalks removed, disturbed, or injured, the removing and clearing away of all construction rubbish, refuse, unused materials, plant and tools from the site;
- The dressing, topsoiling, sodding and/or seeding of all unpaved areas disturbed by the Contractor within and outside the limits of the Contract as may be necessary to leave the surface in as good condition as it was previous to the commencement of the work.

1.2.2 "Earth" includes all materials, such as sand, gravel, clay loam, pavements, ashes, cinders, muck, roots, or pieces of timber, soft or disintegrated rock, not requiring blasting, barring or wedging from their original beds, and specifically excludes all ledge or bed rock, and individual boulders or masonry larger than one-half cubic yard in volume.

1.2.3 "Backfill" includes selected materials for the backfilling or refilling of all excavations and trenches up to the original surface of the ground or to other grades as may be shown or directed.

SECTION 02220

EXCAVATION

1.2.4 "Spoil" includes surplus excavated materials not required or not suitable for backfills or embankments.

1.2.5 "Embankments" include fills constructed of selected materials above the original surface of the ground.

1.2.6 "Rock" includes ledge or bedrock requiring blasting, barring or wedging from their original beds and individual boulders or masonry larger than one-half cubic yard in volume.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS: Where used for general site fill, soil material shall be free of debris, roots, wood, scrap material, vegetable matter, refuse, soft unsound particles, frozen, deleterious, or objectionable materials.

2.2 CONTROLLED FILL: Provide where indicated and also within building lines and under concrete slabs and aprons. Fill to be granular fill as specified in Section 02222.

PART 3 - EXECUTION

3.1 ROCK EXCAVATION:

3.1.1 Rock excavation shall include the loosening, removing, transporting, storing and disposal of all materials requiring blasting, barring, or wedging for removal from their original beds. All pieces of ledge or bed rock and boulders or masonry larger than one-half (1/2) cubic yard in volume are included under rock excavation. Rock excavations shall be made to the widths and depths shown on the Plans or as directed by the Engineer. For concrete structures, rock shall be excavated only to the bottom of the structure unless otherwise shown or noted on drawings. All excavated rock which cannot be handled and compacted as earth shall not be mixed with other backfill or embankment materials except as specified herein or as directed.

SECTION 02220

EXCAVATION

3.1.2 Blasting:

3.1.2.1 Blasting shall be done with extreme care. All blasts in open cut shall be properly covered and protected with heavy timber chained together or approved blasting mats.

3.1.2.2 Charges shall be of such size that the excavation will not be unduly large and shall be so arranged and timed that adjacent rock upon or against which structures are to be built will not be shattered. Blasting shall be conducted in accordance with all applicable rules and regulations including, but not limited to, 12 NYCRR 23, 12 NYCRR 39, 12 NYCRR 53 and NYS Labor Law § 28-a. Where blasting occurs in highways under jurisdiction of NYSDOT or under jurisdiction of agencies adhering to the NYSDOT Standard Specification, the Provisions of NYSDOT Standard Specification Sections 107-05 and 203-3.05 shall also be adhered to. Where existing pipelines, conduits or structures have been exposed during excavation, such pipelines, conduits or structures shall be adequately protected from damage before proceeding with the blasting.

3.1.2.3 Any injury or damage to the work or to the existing pipelines, conduits, or structures shall be repaired or rebuilt by the Contractor at his own expense. Whenever the Engineer determines that further blasting may damage adjacent rock, pipelines or structures, blasting shall be discontinued and the rock removed by drilling, barring, wedging or other methods.

3.1.2.4 Danger signals shall be given before firing each blast. Blasting shall be done only by a person experienced in the handling and detonation of explosives, and shall be in conformity with all laws and regulations, imposed by public authorities.

3.1.2.5 Blasting shall not be carried on within three hundred (300) feet of any radio transmitter or radio frequency emission equipment such as high frequency welders, and blasting caps shall be kept in tightly-closed metal cans when in the vicinity of such equipment.

3.1.3 Explosives:

3.1.3.1 At no time shall an excessive amount of explosives be kept at the Site of the work. Such explosives shall be stored, handled and used in conformity with all applicable laws and regulations.

SECTION 02220

EXCAVATION

3.1.3.2 Accurate daily records shall be kept showing the amounts of explosives on hand, both at the Site and at any storage magazine, the quantities received and issued, and the purpose for which issued. Copies of all records shall be furnished to the Engineer.

3.1.3.3 The Contractor shall be responsible for any damage or injury to any persons, property or structures as a result of his blasting operations.

3.2 EXCAVATION FOR STRUCTURES:

3.2.1 Excavation shall be of sufficient size, and only of sufficient size, to give suitable room for the proper construction of structures and appurtenances, including allowances for sheeting, dewatering, and other similar work necessary for completion of the Contract.

3.2.2 Excavations for structures shall be made only to the lines and grades shown on the Plans, specified or directed.

3.2.3 In no case will under cutting excavation faces for extended footings be permitted. Not less than twelve (12) inches clearance shall be provided between excavation faces and brick or block masonry exterior wall surfaces which are to be plastered.

3.2.4 Subgrade for all concrete structures shall be undisturbed original earth, thoroughly compacted where noted on drawings. Where excavation below subgrade is ordered, it shall be a thoroughly compacted and consolidated lining, special lining or special backfill as directed and as specified in Section 02224. It shall be sufficiently stable to remain firm and intact during the surfacing of subgrade, laying reinforcing steel and placing concrete thereon.

3.2.5 Where necessary, a layer of Class "D" concrete of sufficient strength and thickness to withstand subsequent construction operations shall be installed below the specified subgrade elevation and the structural concrete deposited thereon. Subject to the approval of the Engineer, lining or special lining may be used for subsoil reinforcement if satisfactory results can be obtained thereby. Such material shall be applied in thin layers, each layer being entirely embedded in the subsoil by thorough tamping. All excess soil shall be removed to compensate for the displacement of the gravel or crushed stone and the finished elevation of any subsoil reinforced in this manner shall not be above the specified subgrade.

SECTION 02220

EXCAVATION

3.3 BACKFILLING AROUND STRUCTURES:

3.3.1 Backfilling around structures shall not be commenced until all lumber, refuse, rubbish and other similar materials are removed from the excavated area. Backfill around structures may be placed by machine, provided the work shall be done carefully to prevent damage to the structure. In no case shall backfill materials be allowed to fall directly on a structure, until at least twelve (12) inches of hand-placed material has been placed thereon and compacted.

3.3.2 Backfill around structures shall be deposited in horizontal layers not more than eight (8) inches in thickness and shall be thoroughly compacted. Compaction shall be by a vibrating tamper or other approved method and shall be to a minimum dry density of ninety-five (95) percent of the maximum dry weight density in pounds per cubic foot as determined by the AASHTO Standard Density Test or the Modified Proctor Compaction Test (ASTM D1557).

3.3.3 Backfilling shall be done immediately after work has been inspected and approved. No frozen material shall be used, nor shall backfilling be placed on or against frozen earth, debris or other deleterious matter not conducive to proper compaction. Backfill within building lines, under concrete slabs and aprons shall be granular fill as specified in Section 02222.

3.3.4 Backfilling against free standing walls shall be made against both sides at the same time. If backfill is required on one side only, the wall shall be adequately braced on the opposite side until properly cured to full strength.

3.3.5 Contractor shall take every necessary precaution during compaction of fill adjacent to foundations, walls, etc., that such items are not displaced from their proper location or damaged by compacting equipment. In the event damage or displacement occurs during or resulting from compaction of fill as specified above, the Contractor shall be responsible for correcting the same, to approval of the Engineer and at no expense to the Owner.

3.4 TRENCHING:

3.4.1 The alignment, depth and pipe subgrades of all pipe trenches shall be determined by overhead grade lines parallel to the pipe invert, or other grade control devices, installed and maintained by the Contractor.

SECTION 02220

EXCAVATION

3.4.2 Under ordinary conditions, excavation shall be by open cut from the ground surface. Where the depth of trench and soil conditions permit, tunneling may be required beneath crosswalks, curbs, gutters, pavements, concrete driveways, railroad tracks and other surface structures. No additional compensation will be allowed for such tunneling over the price bid for open cut excavation of equivalent depths below the ground surface unless such tunnel excavation is specifically provided for in unit or lump sum price items.

3.4.3 Trenches shall not be opened for more than three hundred (300) feet in advance of the completed pipe or sewer nor left unfilled for more than one hundred (100) feet in the rear thereof without consent of the Engineer. Excavation of the trench shall be fully completed at least twenty (20) feet in advance of the pipe laying or construction of the invert unless specifically permitted otherwise.

3.4.4 Width and Depth of Trenches:

3.4.4.1 The trenches in which pipelines are to be constructed, shall be excavated in all cases in such manner and to such depths and widths as will give suitable room for the pipelines which the trenches are to contain, for sheeting, pumping, dewatering, well-pointing and draining of water, and for removing the material not suitable for pipe subgrade.

3.4.4.2 Trenches for pipes shall be not less than six (6) inches wider than the hubs of the pipe in the clear on each side, measured over the hubs of the pipe. Width of trenches, measured at a point twelve (12) inches above the top of the pipe shall not exceed twelve (12) inches on each side. Width of trenches greater than specified above will be permitted in the vicinity of joints for welded steel pipe where access for the welding of joints is required.

3.4.4.3 Where, as required by loading conditions, the width of the lower portion of the trench, measured at twelve (12) inches above top of pipe, exceeds the maximum for the size of pipe, additional concrete cradle or concrete encasement shall be installed by the Contractor at his own expense.

3.4.4.4 Ledge rock, shale, boulders and large stones shall be removed to provide minimum bottom and side clearances, for the size of pipe being laid in each case, as follows:

SECTION 02220

EXCAVATION

<u>Size of Pipe (Inches)</u>	<u>Minimum Clearance Below Pipe (Inches)</u>	<u>Minimum Clearance At Sides (Inches)</u>
12 or smaller	4	6
15, 18, and 21	5	6
24 to 36	7	6
Over 36	9	7

Where concrete embedment or cradle is to be placed, it shall be placed directly on the rock, and the bottom clearance shall be adjusted as directed by the Engineer.

3.5 EARTH SUBGRADE PREPARATION FOR PIPES:

3.5.1 Unless otherwise permitted by the Engineer, the trench shall have a flat bottom conforming to the grade to which the pipe is to be laid.

3.5.2 Except where concrete cradle or encasement is required below the specified pipe subgrade, mechanical excavation of trenches for pipe shall not extend lower than one (1) inch above the finished pipe subgrade elevation at any point. The remainder of the trench excavation shall be made with hand tools.

3.5.3 Pipe subgrade preparation shall be performed immediately prior to installing the pipe in the trench. The trench bottom shall be accurately graded by means of hand tools in such a manner that a uniform and continuous bearing and support on solid and undisturbed ground is provided for each pipe for its entire length or between bell holes.

3.5.4 All trenches shall be so graded that the spigot end of the pipe will be accurately centered in the adjacent pipe bell when laid, without raising the pipe off the trench bottom. Regrading of a trench bottom which is too high will be permitted. Correction of a subgrade that is too low shall be done only by placing and compacting lining over the entire width of the trench and regrading.

SECTION 02220

EXCAVATION

3.5.5 The trench bottom shall be accurately graded and ready for the installation of the pipe thereon prior to excavating bell holes if and where required.

3.5.6 Each bell hole shall be excavated immediately prior to laying the pipe therefor. Bell holes shall have a length, measured at the elevation of the pipe subgrade, not in excess of nine (9) inches and shall be of sufficient size so that no part of the pipe bell will be in contact with the trench bottom or granular fill thereon.

3.6 EXCAVATION FOR CONCRETE CRADLE OR ENCASEMENT:

3.6.1 Where concrete cradle or encasement is required, the trench subgrade elevation will be determined by the required concrete section in each case. Unless otherwise authorized by the Engineer, concrete cradle or encasement shall extend across the full width of the trench as excavated, and the concrete therein shall be poured directly against vertical trench banks. In the case of concrete cradle or encasement of pipe in a sheeted trench, the concrete may be poured directly against sheeting which is to be left in place in the trench, as specified.

3.7 PIPE EMBEDMENT:

3.7.1 All pipe shall be protected from lateral displacement and possible damage resulting from superimposed backfill loads, impact or unbalanced loading during backfilling operations by being adequately embedded in suitable pipe embedment material. Except where loading or subsoil conditions require the use of concrete cradle or encasement, all pipe embedment shall be placed so as to insure adequate lateral and vertical stability of the installed pipe during pipe jointing and embedment operations. A sufficient amount of the specified pipe embedment material to hold the pipe in rigid alignment shall be uniformly deposited and thoroughly compacted on each side, and back of the bell, of each pipe laid.

3.7.2 Pipe embedment materials placed at any point below an elevation six (6) inches above the top of pipe or sewer, shall be deposited and compacted in layers not to exceed four (4) inches in uncompacted depth, and such deposition and compactions shall be done simultaneously and uniformly on both sides of the pipe. Compaction shall be by vibrating tamper or other approved method and shall be to a minimum dry density of ninety-five (95) percent of the maximum dry weight density in pounds per cubic foot as determined by the Modified Proctor Compaction Test. All such materials shall be placed in the trench with hand tools in such a manner that they will be scattered alongside the pipe and not dropped into the trench in compact masses.

SECTION 02220

EXCAVATION

3.7.3 Concrete cradle and encasement of the class specified shall be installed where and as shown on the Plans or ordered by the Engineer. Before concrete cradle or encasement is placed, the pipe shall be braced in all directions to prevent movement or flotation.

3.8 BACKFILL ABOVE PIPE EMBEDMENT:

3.8.1 The portion of pipe trenches between the top of the pipe embedment (see paragraph 3.7) and the upper limit of backfill shall be refilled with suitable materials.

3.8.2 Where trenches are within the ditch-to-ditch or curb-to-curb limits of any street, road, driveway or other recognized traveled vehicular way, or within other limits that may be specifically shown or specified for this purpose, the backfill materials shall be deposited in the trench in horizontal layers not more than eight (8) inches in thickness, and each layer shall be compacted by vibrating tamper or other approved method and shall be to a minimum dry density of ninety-five (95) percent of the maximum dry weight density in pounds per cubic foot as determined by the Modified Proctor Compaction Test (ASTM D1557).

3.8.3 Where trenches are outside the ditch-to-ditch or curb-to-curb limits of any street, road, driveway or other recognized traveled vehicular way, and outside of other limits that may be specifically shown or specified as areas in which mechanical compaction in layers is to be performed, the backfill material may be deposited in the trench by mechanical means for the full depth of the trench between the top of pipe embedment and ground surface with no special compaction. In such case the backfill materials shall be mounded over the trench to an elevation slightly above desired finished grade to allow for settlement and compaction by natural means, and the Contractor shall return to the area during his clean-up operations to remove any excess materials remaining above finished grade or add sufficient additional backfill to bring the completed work to grade. If a hazard should be created by such excess materials, or by settlement below finished grade, prior to the performance of clean-up operations, the Contractor shall remove such excess, or add additional backfill, at the time the hazard is created or when directed.

3.8.4 Any additional material added during clean-up operations, or at any other time to prevent or remove a hazard, shall be placed in horizontal layers not more than eight (8) inches in thickness, with each layer adequately compacted by mechanical means, by the Contractor at his own expense.

SECTION 02220

EXCAVATION

3.9 REMOVAL OF WATER:

3.9.1 The Contractor shall at all times during construction provide and maintain proper and satisfactory means and devices for the removal of all water entering the excavations, and shall remove all such water as fast as it may collect, in such manner as shall not interfere with the prosecution of the work or the proper placing of pipe, masonry, concrete, structures, or other work.

3.9.2 Removal of water includes the construction and removal of cofferdams, sheeting and bracing, the furnishing of materials, equipment and labor necessary therefore, the excavation and maintenance of ditches and sluice-ways and the furnishing and operation of pumps, wellpoints, and appliances needed to maintain thorough drainage of the work in a satisfactory manner.

3.9.3 Water shall not be allowed to rise over or come in contact with any masonry, concrete or mortar, until at least twenty-four (24) hours after placement, and no stream of water shall be allowed to flow over such work until such time as the Engineer may permit.

3.9.4 Unless otherwise specified, all excavations which extend down to below the ground water elevation at the sites of structures shall be dewatered by lowering and maintaining the ground water beneath such excavations at an elevation not less than that specified herein at all times when work thereon is in progress, during subgrade preparation and the placing of the structures or pipe thereon.

3.9.5 Where an upward pressure or flow of water in combination with a fine-grained subsurface material causes a quick condition, the Contractor shall install wellpoints to stabilize the subgrade. Where wellpoints are used, the ground water table shall be continuously (day and night) maintained to an elevation of not less than twenty-four (24) inches below the excavation and when subgrade is reached the ground water shall be maintained not less than twenty-four (24) inches below the subgrade. Unless otherwise permitted by the Engineer, the ground water shall be maintained not less than twenty-four (24) inches below the subgrade until completion of the backfilling to an elevation at least twelve (12) inches above natural ground water level. Wellpoint headers, points, and other pertinent equipment shall not be placed within the limits of the excavation in such a manner or location as to interfere with the laying of pipe or trenching operations or with the excavation for and construction of other structures.

SECTION 02220

EXCAVATION

3.9.6 In areas where ground water enters the excavation but does not cause a quick condition, the ground water may be removed by any practical method which does not damage the subgrade, cause the same to become unstable or interferes with construction operations.

3.9.7 The ground water control requirements specified for wellpointing operations apply to other dewatering methods.

3.9.8 Suitable stand-by pumping equipment shall be provided to insure the maintenance of the specified lowering of the water table.

3.9.9 Water pumped or drained from excavations, or any sewers, drains, or water courses encountered in the work, shall be disposed of in a suitable and environmental manner without injury to adjacent property, the work under construction, or to pavements, roads, and drives. No water shall be discharged to sanitary sewers. Sanitary sewage shall be pumped to sanitary sewers or shall be disposed of by an approved method.

3.9.10 Any damage caused by improper handling of water shall be repaired by the Contractor at his own expense.

3.10 SHEETING & BRACING:

3.10.1 The Contractor shall furnish, place and maintain such sheeting, bracing and shoring as may be required to support the sides and ends of excavations in such manner as to prevent any movement which could, in any way, injure the pipe, sewers, masonry, or other work; diminish the width necessary; otherwise damage or delay the work; or endanger existing structures, pipes or pavements; cause the excavation limits to exceed the right-of-way limits; or to occasion a hazard to persons engaged on the project or to the general public.

3.10.2 In no case will bracing be permitted against pipes or structures in trenches or other excavations.

3.10.3 The Contractor shall be solely responsible for the safety and adequacy of all sheeting and bracing. He shall make good any damage resulting from failure of supports with no additional cost to Owner.

SECTION 02220

EXCAVATION

3.10.4 Removal of Sheeting & Bracing:

3.10.4.1 In general, all sheeting and bracing, whether of steel, timber or other material, used to support the sides of trenches or other open excavations, shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a pipe or sewer shall be withdrawn, unless directed, before more than six (6) inches of earth is placed above the top of the pipe or sewer and before any bracing is removed. The voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose, or otherwise as may be approved.

3.10.4.2 The Engineer may order the Contractor to delay the removal of sheeting and bracing, if in his judgement the installed work has not attained the necessary strength to permit placing of backfill.

3.10.5 Sheeting & Bracing Left In Place:

3.10.5.1 If, to serve any purpose of his own, the Contractor files a written request for permission to leave sheeting or bracing in the trench or excavation, the Engineer may grant such permission, in writing, on condition that the cost of such sheeting and bracing be assumed and paid by the Contractor.

3.10.5.2 The Contractor shall leave in place all sheeting, shoring and bracing which are shown on the Drawings or specified to be left in place or which the Engineer may order, in writing, to be left in place. All shoring, sheeting, and bracing shown or ordered to be left in place will be paid for under the appropriate item of the Contract. No payment allowance will be made for wasted ends or for portions above the proposed cut-off level which are driven down instead of cut-off.

3.10.5.3 In case sheeting is left in place, it shall be cut off or driven down as directed so that no portion of the same shall remain within twelve (12) inches of the finished street or ground surface.

3.10.5.4 All timber sheeting and bracing to be left in place and paid for under an item of the Contract shall be new, sound and straight, free from cracks, shakes and large or loose knots, and shall otherwise conform with National Design Specifications for Stress Grade Lumber for lumber of a minimum fiber stress of 1,200 pounds per square inch.

SECTION 02220

EXCAVATION

3.10.5.5 Steel sheeting and bracing left in place and paid for under an item of the Contract shall be new and shall conform with ASTM Des: A7, with a minimum thickness of 3/8-inch.

3.10.5.6 Sheeting and bracing left in place and paid for under an item of the Contract shall be driven as the excavation progresses and in such manner as to maintain pressure against the original ground at all times. The sheeting shall be driven vertical with the edges tight together, and all bracing shall be of such design and strength as to maintain the sheeting in its proper position.

3.11 STORAGE OF MATERIAL:

3.11.1 Any sod cut during excavation shall be removed and stored during construction so as to preserve the grass growth, and shall be replaced in position upon completion of the work.

3.11.2 Topsoil suitable for final grading shall be removed and stored on the Site separately from other excavated material, and shall be replaced in position upon completion of the work.

3.11.3 All excavation materials shall be stored in locations so as not to endanger the work, and so that easy access may be had at all times to all parts of the excavation. Stored materials shall be kept neatly piled and trimmed, so as to cause as little inconvenience as possible to public travel or to adjoining property holders. All stockpiled fill material shall be stored only in those fill areas as approved by the Engineer and the New York State Department of Environmental Conservation.

3.11.4 All excavated materials shall be kept clear of all sidewalks, driveway entrances, street crossings, and any other points that may inconvenience the public. Special precautions must be taken to permit access at all times to fire hydrants, fire alarm boxes, police and fire department driveways, and other points of public convenience.

3.11.5 Where traffic is to be maintained, at least one-half (1/2) of the street width must be kept open at all times. Approved types of bridging across trenches shall be constructed and maintained where necessary. Where conditions do not permit storage of materials, the material excavated from the first one hundred (100) feet of any opening, or from such additional length as may be required, shall be removed from the street by the Contractor, at his own cost and expense, as soon as excavated. The material subsequently excavated shall be used to refill the trench where the facility has been built, provided it be of suitable character.

SECTION 02220

EXCAVATION

3.11.6 If more material is excavated from any trench, excavation, or pit than can be refilled over the completed work or stored on the street, leaving space for traffic as herein provided, or within the limits of the right-of-way, the excess material shall be spoiled at locations selected and obtained by the Contractor. A copy of the signed agreement between the property owner and Contractor granting permission to deposit spoil shall be given to the Engineer prior to placement. When the facility is complete, the Contractor shall, at his own cost and expense, bring back adequate amounts of satisfactory excavated materials as may be required to properly refill the trenches, excavations, or pits. If directed by the Engineer, the Contractor shall refill such trenches, excavations, or pits with special backfill or other suitable materials, and excess excavated materials shall be disposed of as spoil.

3.12 DRAINAGE:

3.12.1 All material deposited in roadway ditches or other water courses crossed by the line of trench or near a structure shall be removed immediately after backfilling is completed and the section grades and contours of such ditches or water course restored to their original condition, in order that surface drainage will be obstructed no longer than necessary.

3.12.2 Backfilling of trenches for pipes installed beneath or across roadways, driveways, walks and other traffic ways adjacent to drainage ditches and water courses shall not be done prior to the completion of backfilling to the original ground surface of the trench on the upstream side of such traffic-way in order to prevent the impounding of water at any point after the pipe has been laid, and all necessary bridges and other temporary structures required to maintain traffic across such unfilled trenches shall be constructed and maintained. All backfilling shall be done in such a manner that water will not accumulate in unfilled or partially filled trenches.

3.12.3 Where trenches are constructed in or across roadway ditches or other water courses, the backfill shall be protected from surface erosion by adequate and environmentally sound means. Where trenches cross such waterways; the backfill surface exposed on the bottom and slopes thereof shall be protected by means of stone or concrete riprap, at no additional cost to the Owner.

SECTION 02220

EXCAVATION

3.13 ADDITIONAL EXCAVATION:

3.13.1 In case the materials encountered at the locations and grades shown on the Plans or specified are not suitable, or in case it is found desirable or necessary to excavate additional materials to secure good support for the structure or pipeline, the excavation shall be carried to such additional limits as the Engineer may direct. The Contractor shall refill such additional excavated space with either lining, special lining, Class "D" or "E" concrete or other material, as the Engineer may direct. Additional excavation, lining, special backfill, concrete or other materials so ordered, will be paid for under the appropriate items of the Contract.

3.14 UNAUTHORIZED EXCAVATION:

3.14.1 Whenever excavations are carried beyond or below the lines and grades shown on the Plans, or as given or directed by the Engineer, all such excavated space shall be refilled with lining, special backfill, concrete or other materials as the Engineer may direct. Beneath structures, all such excavated space shall be refilled with Class "D" concrete. All refilling of unauthorized excavations shall be at the Contractor's own expense.

3.14.2 All material which slides, falls or caves into the established limits of excavations due to any cause whatsoever shall be removed and disposed of at the Contractor's own expense, and no extra compensation will be paid the Contractor for any materials ordered for refilling the void areas left by the slide, fall or cave-in.

3.15 DISPOSAL OF MATERIALS:

3.15.1 All spoil shall be transported and placed on the Site of the work at the locations and to the elevations and grades shown on the Plans, or if spoil areas are not shown, all spoil materials shall be disposed off the Site at appropriate locations selected and obtained by the Contractor and approved by the Engineer and the New York State Department of Environmental Conservation. No environmental sensitive areas shall be used for spoil areas. A copy of the signed agreement between the property owner and the Contractor granting permission to deposit spoil shall be given to the Engineer prior to placement.

SECTION 02220

EXCAVATION

3.15.2 The surface of all spoil placed on the Site shall be graded and dressed, and no unsightly mounds or heaps shall be left on completion of the work.

3.16 UNFINISHED WORK:

3.16.1 When for any reason the work is left unfinished, all trenches and excavations shall be filled and all roadways and sidewalks left unobstructed with their surfaces in a safe and satisfactory condition.

3.17 HAULING MATERIAL ON STREETS:

3.17.1 When it is necessary to haul material over the streets or pavements, the Contractor shall provide suitable tight vehicles so as to prevent deposits on the streets or pavements. In all cases where any materials are dropped from the vehicles, the Contractor shall clean up the same at least daily or as often as directed and keep the crosswalks, streets and pavements clean and free from dirt, mud, stone and other hauled material.

3.18 TEST PITS:

3.18.1 For the purpose of locating underground obstructions, the Contractor shall make such excavations in advance of the work as directed. Payment for the excavations of test pits will be made under an appropriate item of the Contract.

3.19 RESTORATION OF SURFACES:

3.19.1 The various types of street surface, gutters and culverts, disturbed, damaged or destroyed during the performance of the work under the Contractor, shall be restored and maintained as specified herein and as shown and directed.

3.19.2 Restoration of Property:

3.19.2.1 The Contractor shall restore all pavement, driveways, sidewalks, gutters, culverts, trees, shrubs, lawns, landscaped areas and any other public or private property damaged as a result of work under this Contract. The quality of materials and workmanship used in the restoration shall produce a condition equal to or better than the condition before the work began. If conditions are inferior before restoration, they shall be superior after restoration.

SECTION 02220

EXCAVATION

3.19.2.2 Payment for restoration of property shall be included in the applicable excavation items unless specifically provided for in other unit or lump sum price items.

3.19.3 Time of Replacement:

3.19.3.1 In general, permanent restoration of street surfaces will not be permitted until one month's time has elapsed after trenches have been completely backfilled as specified. A greater length of time, but not more than nine (9) months, may be allowed to elapse before permanent restoration of street surfaces is undertaken, if, in the opinion of the Engineer such additional time is required for complete shrinkage and settlement of the backfill.

3.19.3.2 If the Contractor is permitted to replace pavement at any time by the Engineer, it shall not relieve the Contractor of responsibility to make repairs to damage caused by settlement for a period of one year or as elsewhere specified.

3.19.4 Schedule of Operations:

3.19.4.1 A schedule of replacement operations shall be worked out by the Contractor, and approval of the Engineer shall be obtained. The program shall be adhered to unless otherwise approved by the Engineer.

3.19.5 Temporary Resurfacing & Repaving:

3.19.5.1 Immediately upon completion of refilling of the trench or excavation, the Contractor shall place a temporary pavement over all disturbed areas of the streets, driveways, alleys and other traveled places where the original surface has been disturbed by his operations. The temporary repavement shall be of a character satisfactory in all respects and safe for public travel.

3.19.5.2 The temporary resurfacing shall consist of a minimum of six inches (6") of well-graded broken stone with such additional depth as is necessary to withstand the traffic to which it is subjected. Where concrete pavements are removed, the broken stone shall be surfaced with "cold patch". The surface of the temporary repaving shall conform to the street grades. Mounding up of the material over the trench and covering the same with loose broken stone will not be considered as compliance with the above requirements.

SECTION 02220

EXCAVATION

3.19.5.3 For dust prevention, the Contractor shall treat all surfaces, not covered with cold patch, as approved by the Engineer. Use of calcium chloride and/or petroleum products for dust control is prohibited.

3.19.5.4 The temporary repavement shall be placed and maintained by the Contractor in a safe and satisfactory condition until such time as the permanent repaving is completed. The Contractor shall immediately remove and restore to a satisfactory condition any and all such resurfacing and repavements as shall become unsatisfactory and not in accordance with the terms and intent of the Specifications.

3.19.6 Preparation for Permanent Replacement:

3.19.6.1 After due notice and within the time specified, the temporary broken stone or gravel pavement shall be prepared as the base to receive the permanent pavement. It shall be brought to the required grade and cross section and thoroughly compacted before placing the permanent pavement. Service boxes, manhole frames and covers, and similar structures, within the area of pavement to be replaced and not conforming to the new work, shall be set to established grade by the Contractor at his expense, unless a specific item is included in the Contract.

3.19.7 Permanent Repaving:

3.19.7.1 The permanent and final repaving of all streets, driveways and similar surfaces where pavement has been removed, disturbed, settled or damaged by or on account of the work of the Contract shall be repaired and replaced by the Contractor, by a new and similar pavement at such time as directed. The top surface shall conform with the grade of existing adjacent pavement, and the entire replacement shall meet the current specifications of the local community for the particular types of pavement.

3.19.7.2 Concrete pavement and concrete base beneath asphalt, brick and other pavement surfacings supported by a concrete base, shall be replaced with Class "B" concrete.

3.19.7.3 Undamaged brick removed from brick pavement laid with sand or a bituminous filler may be reused in the pavement replacement. All broken and otherwise damaged brick, even though such brick were broken prior to removal, and all brick from grout filled pavement, shall be replaced with new brick of equal or better quality by and at the expense of the Contractor.

SECTION 02220

EXCAVATION

3.19.7.4 Where specified or approved by the Engineer, in writing, brick or block surfacing may be replaced by placing Class "B" concrete even with the adjacent wearing surface.

3.19.7.5 All pavement other than brick and concrete, and all gravel, crushed stone, and other types of roadway surfacings shall be replaced with new materials except where, in the opinion of the Engineer, materials salvaged from stone or gravel roadways have been removed, handled, and stored in such a manner that their original quality has been maintained, in which case such salvaged materials may be used to the extent available in the lower portion of the roadway surfacing after proper screening to remove dust and other excess fine material.

3.19.7.6 All such roadway surfacings shall be replaced to their original thickness at all points and such replacement shall in all cases conform in type, kind, and quality to the original when built. Where specifications covering the original construction are available, such specifications will apply to the replacement work. If not, the work shall be done in conformity with the State Department of Transportation Standard which conforms the closest to the type of surfacing being replaced, as determined by the Engineer.

3.19.8 Concrete Walks:

3.19.8.1 Concrete walks removed in connection with, or damaged as a result of, construction operations under the Contract shall be replaced with new construction; such walks shall be constructed of Class "B" concrete on a thoroughly compacted subgrade, shall have a vertical thickness of not less than four (4) inches (or thickness of the replaced walk where greater than four (4) inches), shall be constructed with vertical construction joints spaced not more than twenty-five (25) feet apart, shall be provided with expansion joints spaced not to exceed fifty (50) feet apart, and shall be sloped for drainage at right angles to the longitudinal center line in the amount of approximately 1/8-inch per foot of walk width.

3.19.8.2 Walks shall be float finished, edged with an edging tool, and grooved at construction joints and at intermediate intervals not in excess of the width of the walk. The length of blocks formed by grooving tool and distances between construction and expansion joints shall be uniform throughout the length of the walk in any one location. All walks shall be cured as specified for concrete slabs in the Section headed "Cast-In-Place Concrete".

SECTION 02220

EXCAVATION

3.19.9 Curbs, Gutters & Culverts:

3.19.9.1 The Contractor shall, at his own cost and expense, permanently repair and relay all curbs, gutters, roadway and driveway culverts, where the same have been broken, injured or disturbed by the Contractor, his agents or employees, in executing any of the work covered by the Contract or by or on account of said work. He shall restore the same in a manner, to a condition and with material, either new or old as required, similar and equal to that existing before such excavations were made.

3.19.10 Maintenance & Surfaces:

3.19.10.1 The pavements, sidewalks, curbs, driveways, gutters, culverts, restored lawns, shrubs, trees, landscaped areas and any other public or private property shall be maintained in satisfactory condition during a period of one year from and after completion and acceptance of the Contract.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - EXCAVATION - GENERAL:

4.1.1 The quantity of Excavation - General for which payment will be made shall be the number of cubic yards actually removed, measured as the volume occupied by it (including rocks) before its removal; the maximum limits of such volumes shall not exceed those defined by the drawings, specified or ordered.

4.2 PAYMENT - EXCAVATION - GENERAL:

4.2.1 For Excavation - General, not included in other unit or lump sum price items, will be made at the applicable price stated in the Bid and shall include the cost of all the several detailed operations incidental to the excavation. No additional payment will be made for excavation of rock, boulders, masonry or concrete encountered in the work. No payment will be made for material not excavated between the actual excavation and the maximum payment limits, if shown.

SECTION 02220

EXCAVATION

4.3 MEASUREMENT - EXCAVATION BELOW SUBGRADE:

4.3.1 The quantity of Excavation Below Subgrade, for which payment will be made, shall be the number of cubic yards (including rock) removed in accordance with the drawings, specified and/or ordered.

4.4 PAYMENT - EXCAVATION BELOW SUBGRADE:

4.4.1 For Excavation Below Subgrade, not included in other unit or lump sum price items, will be made at the applicable price stated in the Bid and shall include and cover all costs incidental to Excavation Below Subgrade when ordered. No additional payment will be made for excavation of rock, boulders, masonry, or concrete encountered in the work.

4.5 MEASUREMENT - EXCAVATION - TRENCHING:

4.5.1 The quantity for which payment will be made for Excavation - Trenching shall be the number of lineal feet, horizontal measurement, on the center line of the trench. The depth shall be measured on the center line of the trench from the invert or grade line to the original ground surface. Excavation - Trenching will be measured continuously through standard drop manholes, and no deduction will be made therefor. For other structures, deduction shall be made for length of trench occupied by the structures.

4.6 PAYMENT - EXCAVATION - TRENCHING:

4.6.1 For Excavation - Trenching, not included in other unit or lump sum price items, payment for Excavation - Trenching will be made at the price bid per lineal foot of Trenching for the various depths stated and shall include and cover all costs incidental to the trenching. No additional payment will be made for excavation of rock, boulders, masonry, or concrete encountered in the work. If so stated in the Additional Instructions, a percentage of the funds or unit amount to be retained under Excavation - Trenching will be withheld until all surface restoration is completed.

SECTION 02220

EXCAVATION

4.7 MEASUREMENT - EXCAVATION FOR STRUCTURES:

4.7.1 The quantity of Excavation for Structures for which payment will be made shall be the number of cubic yards actually removed, measured as the volume occupied by it (including rock) before its removal unless otherwise specified; the maximum limits of such volumes shall not exceed those defined upon drawings, specified and/or ordered.

4.8 PAYMENT - EXCAVATION FOR STRUCTURES:

4.8.1 For Excavation For Structures, not included in other unit or lump sum price items, payment for Excavation For Structures will be made at the applicable unit price stated in the Bid and shall include and cover the cost of all the several detailed operations incidental to the excavation. No additional payment will be made for excavation of rock, boulders, masonry, or concrete encountered in the work. No payment shall be made for material not excavated between the actual excavation and the maximum payment limits if shown.

4.9 MEASUREMENT AND PAYMENT - EXCAVATION - TEST PITS:

4.9.1 Measurement and Payment for Excavation - Test Pits, not included in other unit or lump sum price items will be made in accordance with the following schedule:

4.9.1.1 If a specific item for Excavation - Test Pits is included in the Bid, payment shall be made at the applicable unit price stated in the Bid.

Measurement of quantity shall be the actual number of cubic yards removed and replaced, measured as the volume occupied by it before its removal in accordance with the limits ordered by the Engineer.

4.9.1.2 If no specific item for Excavation - Test Pits is included in the Bid, Excavation - Test Pits shall be measured and paid for in accordance with the Section entitled - Measurement & Payment, Excavation - General.

4.9.1.3 If neither of the above two items are included in the Bid, Excavation - Test Pits shall be measured and paid for in accordance with the Section entitled - Measurement & Payment Excavation - Trenching.

02220-24

SECTION 02220

EXCAVATION

4.10 MEASUREMENT - EXCAVATION - ROCK:

4.10.1 Unless a specific item of Excavation - Rock is included in the Bid, no additional payment will be made for Rock encountered in the work.

4.10.2 If a specific item of Excavation - Rock is included in the Bid, measurement for payment shall be the actual volume of Rock excavated, measured within the limits specified or directed by the Engineer.

4.11 PAYMENT - EXCAVATION - ROCK:

4.11.1 For Excavation - Rock, not included in other unit or lump sum price items, payment for Excavation - Rock will be made at the price stated in the Bid, and shall include and cover all costs incidental to Excavation - Rock.

END OF SECTION

SPECIFICATIONS

SECTION 02225

SELECT FILL MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for Select Fill Materials as shown on the Plans, as specified, and/or directed.

1.1.2 Work under this Section shall include furnishing, transport, dumping and placement of Select Fill Materials in the areas and to the depths and grades shown on the engineering drawings and/or directed by the Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS:

2.1.1 Select Fill Materials shall be of the types listed below:

Type (A) - Select Fill

Type (B) - Select Fill

2.1.1.2 Type (A) - Select Fill shall consist of clean, washed, sound, medium to coarse sand or fine gravel, less than 1 inch in the maximum dimension, free from organic material and coatings, and possessing a minimum permeability of 1.0×10^{-3} cm/sec at a relative density of 90 percent. In addition, this material must have less than three percent, by weight, pass the No. 200 sieve.

2.1.1.3 Type (B) - Select Fill shall consist of clean, screened, durable, sharp-angled fragments of crushed gravel of uniform quality, conforming to New York State Department of Transportation #3/4 Stone, with the gradation shown below:

SECTION 02225

SELECT FILL MATERIALS

<u>% Passing</u> <u>By Weight</u>	<u>Sieve</u>
100	2"
90 - 100	1-1/2"
0 - 15	1"
0 - 3	#200

In addition, this material must be free of organic material and coatings.

2.1.1.3.1 A crushed particle shall be defined as one in which the total area of face fracture exceeds 25 percent of the maximum cross-sectional area of the particle. When two fractured faces are designated, the total area of each fractured face shall exceed 25 percent of the maximum cross-sectional area of the particle.

2.1.1.3.2 A naturally fractured face shall be acceptable providing that the sharp angular portion of the particle consists of sound material and is free from unsound or injurious coatings.

2.1.2 Special Considerations:

2.1.2.1 Gravels that have not been crushed may be utilized for Type (B) Select Fill.

2.1.3 Submittals:

2.1.3.1 The Contractor shall submit to the Engineer for approval a certified sieve analysis, for each type of Select Fill Material, the minimum permeability, the minimum and maximum relative densities as determined by an independent testing laboratory for the Type (A) Select Fill, at no cost to the Owner. All tests will be performed in accordance with the methods outlined in this Section.

SECTION 02225

SELECT FILL MATERIALS

PART 3 - EXECUTION

3.1 USAGE:

3.1.1 Type (A) - Select Fill Material will be used to construct the drainage layer, or as directed by the Engineer.

3.1.2 Type (B) - Select Fill Material will be used as backfill around the gas vents, collection pipes, or as directed by the Engineer.

3.2 PLACEMENT:

3.2.1 Select fill materials shall be installed in accordance with Specification Section 02220, "Excavation", except as modified herein.

3.2.2 For Type (A) Select Fill Material, the following preparation and inspection shall be conducted prior to placement:

- a. Insure all placement procedures do not damage any underlying soil or geosynthetic layers. Equipment must access on approved temporary haul roads.
- b. Verify areas to be filled are properly compacted and all geosynthetics are in place.
- c. Verify areas to be backfilled are free of debris, snow, ice or water and ground surfaces are not frozen.
- d. Identify required lines, levels, contours and datums.
- e. Proof roll existing subgrade as directed by the Engineer.

SECTION 02225

SELECT FILL MATERIALS

- f. Multiple cover spreading points will not be allowed. One initial spreading location shall be established, and the work shall proceed from this location towards a free end of the geomembrane. Select fill material must be placed using vertical placement techniques. No horizontal pushing of the initial soil lift above the geomembrane will be allowed.
- g. Placement of select fill layers shall be from the low end of the cell to the high end and also from the valley to the ridge as much as possible.
- h. Place select fill to contours and elevations shown on Contract Drawings. Use unfrozen materials.
- i. Spread systematically, with low ground pressure equipment which exerts a ground pressure of no more than 7 pounds per square inch in a manner that will minimize movement of the underlying geotextile and geomembrane materials and potential for puncture of geotextile and geomembranes.
- j. Spread select fill in loose lifts up to 12 inches thick and compact using the weight of the dozer and/or a smooth drum roller to a minimum relative density of 50 percent. Hand tamp or vibrate as required in areas not accessible to heavy compaction equipment.
- k. Where heavy compaction equipment cannot access, hand tamp or vibrate select fill in 6-inch lifts, and/or as directed by the Engineer.
- l. Refer to Section 02595 for placement of select fill over Polyvinyl Chloride (PVC) Lining Material.

3.2.4 For Select Fill Material Type (B), the following specific placement procedures shall be followed:

- a. Place uncompacted select fill in gas vents after riser pipes are installed shown on Contract Drawings. Protect pipe from lateral displacement and possible damage during backfilling operations. Place fill uniformly around riser.

SECTION 02225

SELECT FILL MATERIALS

3.3 FIELD TESTING AND QUALITY CONTROL:

3.3.1 In-place density will be visually approved by the Engineer for the Type (A) Select Fill Materials with field density tests performed as requested by the Engineer at the Contractor's expense.

3.3.2 In addition to field density testing, the following laboratory testing will be performed at the Contractor's expense by an independent testing laboratory on samples of the Type (A) Select Fill Materials. All samples of the select fill materials will be taken from material after placement.

- a. One grain size (ASTM D422) analysis every 1,000 cubic yards of in-place material, or as directed by the Engineer.
- b. One laboratory permeability test in accordance with ASTM D2434 per every 2,500 cubic yards of in-place Type (A) material, or as directed by the Engineer.
- c. One minimum/maximum relative density test in accordance with ASTM D4253 and ASTM D4254 for every 5,000 cubic yards of in-place Type A Select Fill and one for each stockpile of Type B Select Fill to be pre-qualified.

3.4 CRITERIA AND TOLERANCES:

3.4.1 Criteria and tolerances of the select fill material are as listed in Paragraph 2.1.

3.5 REMEDIATION OF FAILED TEST RESULTS:

3.5.1 If laboratory test results indicate that the in-place Type (A) Select Fill Material fails to meet the required specifications, additional samples shall be taken in the field and tested in order to isolate the unacceptable area. Once the limits of unacceptable material have been defined, the Contractor shall remove the unacceptable material, replace it and retest the new material, at no additional cost to the Owner.

02225-6

SECTION 02225

SELECT FILL MATERIALS

3.5.1.1 If unacceptable material is in the initial lift directly above a geomembrane, the unacceptable material will be removed to within 4 inches of the geomembrane and replaced. Testing of the final layer will be performed on a sample representative of the actual completed lift.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT - SELECT FILL MATERIALS:

4.1.1 Measurement for Select Fill Materials shall include the cost of all materials, equipment, labor, submittals and testing for the work indicated in this Section.

4.2 PAYMENT - SELECT FILL MATERIALS:

4.2.1 For Select Fill Materials not included in other unit or lump sum price items, payment for Select Fill Materials will be made at the applicable price stated in the Bid.

END OF SECTION

SPECIFICATIONS

SECTION 02233

GEOTEXTILE

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for Geotextile as shown on the Plans, as specified, and/or directed.

1.2 SUBMITTALS:

1.2.1 Prior to the installation or delivery of a geotextile, the Contractor shall submit to the Engineer, from the geosynthetic manufacturer, a list of guaranteed "minimum average roll values" (MARV) for the geotextile (the minimum average roll value is the minimum value obtained from the average values of the sampled rolls). The Contractor shall provide the Engineer, from the manufacturer, a written certification stating that the geosynthetic material meets or exceeds the guaranteed properties submitted.

1.2.2 In addition to submitting guaranteed physical properties, the Contractor shall submit to the Engineer, from the manufacturer, documentation demonstrating the chemical compatibility of the geosynthetic material with leachate generated from mixed municipal solid waste. Such documentation shall include chemical compatibility testing results.

1.2.3 Prior to delivery of the geotextile, the Contractor shall submit a sample of the warranty to be provided as described in paragraph 3.3.1.

1.3 DELIVERY:

1.3.1 All geotextiles will be inspected on delivery, and materials that do not comply with the Specification will be rejected. The Contractor shall furnish all labor required to handle the geotextiles during inspection and shall remove the rejected material from the site of the work.

SECTION 02233

GEOTEXTILE

1.4 CONFORMANCE TESTING:

1.4.1 Within one week of delivery and at the Engineer's direction, the Contractor shall provide the necessary labor, tools and equipment to obtain samples and send these samples to an independent quality assurance laboratory for testing at the Contractor's expense. As a minimum, the following tests will be performed on all geotextiles:

- mass per unit area - ASTM D5261
- burst strength - ASTM D3786
- grab strength - ASTM D4632
- puncture strength - ASTM D4833
- trapezoidal tear strength - ASTM D4533

1.4.2 Samples will be taken by cutting along the width and 5 feet from the end of a rolled or folded geotextile material. The sampling frequency for the geotextile will be one sample per every 50,000 square feet of respective material delivered.

1.4.3 Any samples which fail the conformance testing will require the failed material to be removed from the site and replaced with new material at the Contractor's expense.

PART 2 - PRODUCTS

2.1 MATERIALS:

2.1.1 Geotextile:

2.1.1.1 The geotextile to be utilized shall be a nonwoven, needle-punched, polymeric geotextile. The fibrous structure of the geotextile must be able to withstand handling, placement and long-term loads associated with the incorporated Specifications.

2.1.1.2 The geotextile shall be protected from ultraviolet light, precipitation, mud, dirt, excessive dust, puncture, cutting and/or other damaging condition prior to and during delivery. The geotextile shall be capable of withstanding 30 days of sunlight without measurable deterioration.

SECTION 02233

GEOTEXTILE

2.1.1.3 Two types of nonwoven geotextiles will be supplied by the Contractor. Both fabrics shall be similar materials except for the weight and the associated physical properties. Type 1 will be nominal eight oz./square yard or heavier, and Type 2 will be a nominal twelve oz./square yard or heavier fabric. An equivalent substitution may be made subject to the approval of the Engineer. Geotextile Specifications are given in Paragraph 2.2.

2.1.1.4 All geotextiles shall be delivered on site in rolls contained within opaque plastic covers. These rolls will be tagged and display the following information.

- Manufacturer's name
- Product identification
- Lot number
- Roll number and dimensions

2.2 MINIMUM SPECIFIED VALUES:

2.2.1 Geotextile Minimum Average Roll Value (MARV) Specifications:

2.2.1.1 The table below lists the MARV specification values for the Type 1 and Type 2 nonwoven geotextiles. In addition, the typical average specification values, as indicated, have been listed. Final approval of the geotextile properties shall be made by the Engineer based upon Contractor's submittals.

Non-Woven Geotextiles

<u>Property</u>	<u>Specification Limit</u>		<u>Test Method</u>
	<u>Type 1</u>	<u>Type 2</u>	
*Mass per Unit Area (oz/yd ²)	8.0	12.0	ASTM D5261
*Thickness (mils)	90	120	ASTM D5199
**Apparent Opening Size (micron)	70-120	100-140	CW-02215 or ASTM D4751

02233-4

SECTION 02233

GEOTEXTILE

<u>Property</u>	<u>Specification Limit</u>		<u>Test Method</u>
	<u>Type 1</u>	<u>Type 2</u>	
*Burst Strength (psi)	380	450	ASTM D3786
*Grab Strength (lbs)	210	290	ASTM D4632
*Grab Elongation (%)	50	50	ASTM 04632
*Puncture Strength (lbs)	100	135	ASTM D4833
*Trapezoidal Tear Strength (lbs)	80	105	ASTM D4533
**Wide-Width Strength (lbs/in)	90	130	ASTM D4595
*Permittivity (sec ⁻¹)	1.2	0.8	ASTM D4491
*Water Flow Rate (gpm/ft ²)	90	65	ASTM D4491

*MARV Values Taken Along Weakest Principal Direction.

**Typical Average Values

PART 3 - EXECUTION

3.1 GEOTEXTILE INSTALLATION:

3.1.1 Installation will be completed by the Owner.

SECTION 02233

GEOTEXTILE

3.2 WARRANTY:

3.2.1 The Contractor shall obtain and submit to the Owner from the manufacturer a standard warranty provided for the geotextiles. The warranty shall guarantee that the geotextile shall remain free from defects for a minimum of one (1) year from the date of substantial completion of the project. The Engineer will review the warranty for completeness prior to the Owner accepting its provisions.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - GEOTEXTILE:

4.1.1 Under this Item, the Contractor shall furnish all labor, materials, and equipment required to provide Geotextile. In addition to the applicable provisions of Section 00100 through and including 01640, and other Divisions of this project, one following sections describe the principal items of work to be performed under this payment item.

4.1.2 Measurement of the quantity of Geotextile allowed for payment shall be based on the number of square feet placed to the nearest one foot of Geotextile material placed in accordance with the Specifications, Drawings or as approved by the Engineer.

4.1.3 Work under this Item shall generally be comprised of the following:

- 02233 Geotextile

4.2 PAYMENT - GEOTEXTILE:

4.2.1 For Geotextile, not included in other unit or lump sum price items, payment for Geotextile will be made at the applicable price stated in the Bid. The quantity of Geotextile for which payment will be made will be the actual number of square feet provided to the Owner to be incorporated into the work, as ordered by the Engineer.

02233-6

SECTION 02233

GEOTEXTILE

4.3 RELATED WORK NOT INCLUDED

4.3.1 The following items of work closely related to Geotextile, are specifically not included under this Item:

- 02220 Excavation
- 02225 Select Fill Materials
- 02595 Polyvinyl Chloride (PVC) Lining Materials
- 02598 Linear Low Density Polyethylene (LLDPE) Lining Material

END OF SECTION

SPECIFICATIONS

SECTION 02436

POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all referenced materials for Polyvinyl Chloride (PVC) Pipe And Fittings, as shown on the Plans, as specified, and/or directed.

1.2 SUBMITTALS:

1.2.1 The Contractor shall submit six (6) copies of the Manufacturer's material Specifications for each item to be supplied under this Section.

1.3 QUALITY ASSURANCE:

1.3.1 All pipe, fittings, and specials will be inspected on delivery, and materials that do not comply with the Specification will be rejected. The Contractor shall furnish all labor required to handle the pipe and related materials during inspection and shall remove the rejected materials from the site of work.

PART 2 - PRODUCTS

2.1 PVC PLASTIC SOLVENT WELD PIPE AND FITTINGS:

2.1.1 PVC material for the pipe and fittings shall meet the requirements of ASTM D1784 for Rigid Poly (Vinyl Chloride) Compounds and Chlorinated Poly (Vinyl Chloride) Compounds, Class 12454-B, or Class 12454-C.

2.1.2 The PVC pipe and fittings shall be extruded or molded in such a manner that all cross sections shall be dense, homogeneous, and free from porosity or other imperfections. The molded or extruded pipe and fittings shall conform to ASTM D1785 for Polyvinyl Chloride (PVC) Plastic Pipe, and ASTM D2466 and ASTM D2467 for Polyvinyl Chloride (PVC) Plastic Pipe Fittings.

SECTION 02436

POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

2.1.3 All PVC pipe and fittings shall be Schedule 80 (unless otherwise noted).

2.1.3.1 Interior flange fittings shall be 150 pound, Schedule 80 PVC conforming to ASTM D178, unless otherwise specified or indicated.

2.1.3.2 All fasteners, bolts, nuts and washers shall be ASTM A276 (Condition B, Cold-Worked) 304 Stainless Steel with a minimum 100,000 psi yield strength.

2.1.4 Standard length of all pipe shall be 10 or 20 feet. Provide couplings as necessary. All pipe and fittings shall be of the solvent weld type unless otherwise indicated. Provide adequate solvent cement for the number of couplings and fittings provided.

2.1.4.1 The solvent cement shall be a solution of unplasticized PVC, tetrahydrofuran and cyclohexanone. The solvent cement shall meet the requirements of ASTM D2564 for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.

PART 3 - EXECUTION

3.1 INSTALLATION:

3.1.1 Installation of all pipe, fittings, specials, adapters and appurtenances shall conform to the manufacturer's recommendations and the following summary of installation recommendations. Where Specifications and recommendations conflict, the strictest shall apply.

3.1.2 Proper implements, tools and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the safe and convenient execution of the work.

3.1.3 The interior surface of all pipe shall be clean when installed, and shall be kept clean until final acceptance. Removable end caps shall be placed on all open ends of pipe lines when pipe laying is not actively in progress. The bulkheads shall be designed to prevent the entrance of dirt, debris or small animals, and shall not be removed until pipe laying is resumed.

SECTION 02436

POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

3.2 FIELD QUALITY CONTROL:

3.2.1 Field Tests and Inspections: The Engineer will conduct field inspections and witness field tests specified in this Section. The Contractor shall perform field tests on the gas main prior to connecting gas vents. The Contractor shall provide all labor, equipment, and incidentals required for testing. Be able to produce evidence, when required, that each item of work has been constructed in accordance with the drawings and Specifications.

END OF SECTION

SECTION 02444

FENCE, CHAIN LINK

2.1.2 All posts shall be equipped with pressed steel combination tops with barbed wire supporting arms. Tops shall be provided with a hole to permit through passage of the top rail.

2.2 FENCE FABRIC:

2.2.1 Wire for chain link fence fabric shall be No. 9 coated wire gauge carbon steel produced in accordance with ASTM A392, Class 2 with a 2-inch mesh; twisted selvage at top, knuckled selvage at bottom. The fabric shall be stretched taut and anchored so that a pull of 150 pounds at the middle of a panel will not lift the bottom of the fabric more than 6 inches.

2.2.2 Coated fence fabric shall be produced from helically wound and interwoven steel wire forming a continuous 2-inch mesh.

2.2.3 Ties or clips of adequate strength shall be provided in sufficient number for attachment of the fabric to line posts at intervals not exceeding 16 inches and to the top rail and bottom tension wire at a maximum 24-inch spacing.

2.3 TENSION BARS: Tension bars shall be minimum 3/16-inch by 3/4-inch flat steel plates and no more than 2 inches shorter than the fabric height. Bars shall be hot-dip galvanized.

2.4 TERMINAL POST BANDS: Bands or clips of adequate strength shall be provided in sufficient number for attachment of the fabric and stretcher bars to all terminal posts at intervals not exceeding 15 inches. Tension bands shall be formed from No. 12 gauge flat or beveled steel and attached with 3/8-inch diameter carriage bolts hot-dip galvanized.

2.5 FENCING ACCESSORIES: All accessories shall have zinc coatings.

2.6 TENSION WIRE: Bottom tension wire shall be 7 gauge galvanized coil spring wire.

2.7 BARBED WIRE: Barbed wire shall consist of two (2) strands of twisted 12-1/2 gauge steel wire with 4 point 14 gauge barbs on 4-inch spacing; wire shall be zinc coated.

SECTION 02444

FENCE, CHAIN LINK

2.8 FOOTINGS:

2.8.1 Where posts are set in earth, concrete foundations 36 inches deep shall be provided. If bedrock is encountered, post excavation shall be continued to the 36-inch depth or 18 inches into the rock, whichever is less. Concrete foundations shall be circular in horizontal section, not less than 18 inches in diameter. Foundations shall extend above the ground surface and shall be crowned approximately 1 inch.

2.8.2 Concrete for footings shall conform to the requirements of Specification 03300, "Cast-In-Place Concrete".

2.8.3 Placement:

2.8.3.1 Before placing concrete, all debris, water, snow and ice shall be removed from the footing excavation.

2.8.3.2 Do not suspend or interrupt placing of concrete once a pour has started for each footing.

2.8.3.3 All concrete shall be protected against injury by sun, rain, freezing, premature drying or other damage. Maintain concrete above 50°F in a moist or wet condition for at least the first 7 days. Cover footing with wet burlap, wet sand, curing paper or insulating blankets.

2.8.3.4 Cold weather protection shall conform to ACI 306R-88. Hot weather protection shall conform to ACI 305R-89.

PART 3 - EXECUTION

3.1 INSTALLATION: Install fence in accordance with the fence manufacturer's written installation instructions except as modified herein. Fencing shall consist of galvanized steel framework and steel fabric with a height of 7 feet. The fence shall have a top rail, bottom tension wire, and three strands of barbed wire mounted on 45 degree extension areas. The upper strand shall be approximately 12 inches out from the fence and 12 inches above the top of the fabric.

SECTION 02444

FENCE, CHAIN LINK

3.1.1 Grading: Establish a graded fence line prior to fencing installation. Clear the fence line of all obstacles that will interfere with the fencing.

3.1.2 Bracing: Brace end and corner posts to the nearest adjoining line post at mid height with a horizontal standard steel pipe used as a compression member and a diagonal truss rod and truss tightener used as a tension member. Diagonal tension bracing provided from end, corner, or gate posts to line posts shall consist of 3/8-inch minimum diameter steel truss rods with turnbuckles or equivalent provision for adjustment.

3.1.3 One tension bar shall be provided for each end and gate post, and two (2) for each corner and pull post.

3.1.4 Bottom Tension Wires: Install bottom tension wires before installing chain-link fabric, and pull wires taut. Bottom tension wires shall be within 8 inches and the respective fabric edge. Fabric shall be attached to wires at 24 inches on center.

3.1.5 Post Caps: Design post caps to accommodate the top rail. Install post caps as recommended by the manufacturer.

3.2 CLEANUP: Remove waste fencing materials and other debris from the fencing site.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - FENCE, CHAIN LINK:

4.1.1 Description: Under this Item, the Contractor shall furnish all labor, materials and equipment required to construct, test, place into satisfactory operation, and maintain until final acceptance, fencing, complete as shown, specified, scheduled or directed. Under this Item approximately 3,200 linear feet of 8-foot high chain link fencing and depicted gates and appurtenances shall be installed as directed by the Engineer and as shown on the Drawings.

4.1.2 Measurement for Fence, Chain Link shall include the cost of all materials, equipment, labor, submittals and testing for the work indicated in this Section.

SECTION 02444

FENCE, CHAIN LINK

4.1.3 In addition to the applicable provisions of Section 00100 through and including 01640, and other divisions of this project, one following sections describe the principal items of work to be performed under this payment item. Work under this item shall generally be comprised of the following:

- 02220 Excavation
- 02444 Fencing, Chain Link
- 02225 Select Fill Materials
- 03300 Cast-In-Place Concrete
- Decontamination of all equipment and personnel.
- All PPE and associated safety equipment.
- All necessary health and safety requirements.
- Costs associated with all submittals including but not limited to health and safety, dust control, staging plans and environmental monitoring.

4.2 PAYMENT - FENCE, CHAIN LINK:

4.2.1 For Fence, Chain Link, not included under other unit or lump sum price items, payment for Fence, Chain Link will be made at the applicable price stated in the Bid.

4.3 RELATED WORK NOT INCLUDED

4.3.1 The following items of work closely related to Fencing are specifically not included under this item:

- Liner Systems
- Gas Vents

END OF SECTION

SPECIFICATIONS

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for Polyvinyl Chloride (PVC) Lining Material as shown on the Plans, as specified, and/or directed.

1.1.2 The Contractor shall furnish and install 40 mil Polyvinyl Chloride (PVC) Lining Material as landfill cap geomembrane or as otherwise shown on the Contract Drawings.

1.2 SHEET QUALITY:

1.2.1 The Contractor shall submit to the Engineer the following information regarding sheet quality and properties.

1.2.1.1 A material properties sheet including, at a minimum, all specified properties, measured using test methods indicated in the Specifications, or equivalent.

1.2.1.2 A list and description of materials other than the base polymer which comprise the geomembrane.

1.2.1.3 A written certification that property values given in the properties sheet are guaranteed by the Geomembrane Manufacturer.

1.2.1.4 Certification that the sheeting shall contain no deep gas checks, surface divots, blisters, pinholes, windows and shall not exhibit cold flow. In addition, it shall be uniform in color, size and thickness.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

1.3 ROLL QUALITY:

1.3.1 Quality Control Certification:

1.3.1.1 Prior to shipment, the Contractor will provide the Engineer with a quality control certificate for each roll of geomembrane provided. The quality control certificate will be signed by a responsible party employed by the Geomembrane Manufacturer, such as the Production Manager. The Quality Control Certificate will include:

- a. Roll numbers and identification.
- b. Documentation certifying the geomembrane was continuously inspected for uniformity, damage, imperfections, holes, cracks, thin spots and foreign materials.
- c. Sampling results of quality control tests; as a minimum, results will be given for thickness, tensile strength, tear resistance and seam strength evaluated in accordance with the methods indicated in the specifications or equivalent methods approved by the Engineer.
- d. Documentation certifying non-destructive seam testing was performed on all fabricated seams over their full length using a test method acceptable to the Engineer.

1.4 DELIVERY, HANDLING AND STORAGE:

1.4.1 The Contractor will be liable for all damages to the materials incurred prior to and during transportation to the site.

1.4.2 Handling, storage and care of the geomembrane materials prior to and following installation at the site, is the responsibility of the Contractor.

1.5 CONFORMANCE TESTING:

1.5.1 Upon delivery of the geomembrane, the Contractor shall provide the necessary labor, tools and equipment to obtain samples to be sent to the quality assurance laboratory for testing at the Contractor's expense to ensure conformance to both the design specifications and the list of guaranteed properties.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

1.5.2 As a minimum, tests to determine the following characteristics will be performed on geomembranes:

- a. specific gravity, ASTM D792A
- b. thickness, ASTM D5199
- c. tensile properties, ASTM D882
- d. volatility loss, ASTM D1203A

1.5.3 Unless otherwise specified, samples will be 1.5 feet long by 20 feet of the panel width. The Engineer will mark the machine direction on the samples with an arrow.

1.5.4 Unless otherwise specified, geomembrane samples will be taken at a maximum rate of one per 25,000 square feet.

1.6 PRE-QUALIFICATIONS:

1.6.1 Geomembrane Manufacturer:

1.6.1.1 The Contractor shall submit to the Owner and the Engineer for approval the following qualification information regarding the Geomembrane Manufacturer:

- a. Corporate background and information.
- b. Manufacturing capabilities including:
 - daily production quantity available for this Contract
 - quality control procedures for manufacturing
 - list of material properties including certified test results, to which geomembrane samples are attached.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

- c. A list of at least ten completed facilities, totaling a minimum of 10,000,000 square feet, for which the Manufacturer has manufactured a geomembrane of the type specified. For each facility, the following information will be provided:
 - name and purpose of facility, its location and date of installation
 - name of Owner, Project Manager, Designer, Fabricator (if any), and Installer
 - thickness of geomembrane, surface area of geomembrane manufactured
 - available information on the performance of the lining system and the facility.
- d. Origin (resin supplier's name, resin production plant) and identification (brand name, number) of the resin.

1.6.2 Geomembrane Fabricator (if required):

1.6.2.1 The Contractor shall submit to the Engineer for approval the following written information in regards to the Geomembrane Fabricator (if required).

- a. Copy of Geomembrane Manufacturer's letter of approval of license.
- b. Corporate background and information.
- c. Fabrication Capabilities:
 - daily fabrication quantity available for this Contract
 - quality control procedure
 - samples of fabricated seams and a certified list of minimum values of seam properties and employed test methods.
- d. A list of at least ten completed facilities for which the Fabricator has fabricated liner factory panels of the type of geomembrane to be used in this project, totaling a minimum of 10,000,000 square feet, the following information will be provided for each fabrication:

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

- name and purpose of facility, its location, and date of installation
- name of Owner, Project Manager, Designer, Manufacturer, Installer, and the name of the contact at the site who can discuss the project
- thickness of liner and surface area of liner fabricated
- type of seaming and type of seaming apparatus used
- available information on the performance of the lining system and the facility.

1.6.3 Installer:

1.6.3.1 The Installer must be trained and qualified to install geomembrane and must be approved and/or licensed by the Geomembrane Manufacturer and/or Fabricator.

1.6.3.2 The Contractor shall submit to the Engineer for approval the following written information, relative to the Installer.

- a. Copy of Installer's letter of approval or license by the Manufacturer and/or Fabricator.
- b. Corporate background and information.
- c. Description of installation capabilities, including:
 - information on equipment and personnel
 - average daily production anticipated
 - quality control procedures.
- d. A list of at least ten completed facilities, totaling a minimum of 3,000,000 square feet for which the Installer has installed geomembrane of the type for this project. For each installation, the following information will be provided:
 - name and purpose of facility, its location and date of installation
 - name of Owner, Designer, Manufacturer, Fabricator (if any), and name of contact at the facility who can discuss the project
 - name and qualifications of the supervisor(s) of the Installer's crew(s)
 - thickness of geomembrane and surface area of the installed liner

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

- type of seaming and type of seaming apparatus used
 - duration of installation
 - available information on the performance of the lining system and the facility.
- e. Resume of the "master seamer" to be assigned to this project, including dates and duration of employment.
- f. Resume of the field engineer or installation supervisor to be assigned to this project, including dates and duration of employment.

1.6.3.3 All personnel performing seaming operations will be qualified by experience or by successfully passing seaming tests. The field crew foreman must have experience seaming a minimum of 3,000,000 square feet of geomembrane of the type for this project, using the same type of seaming apparatus in use at the site.

1.7 SHOP DRAWING SUBMITTALS: The Contractor shall submit detailed shop drawings of all prefabricated PVC fabrications for review prior to installation. Shop drawings shall contain all necessary panel layouts, details, dimensions, etc., sufficient to assure that fabrication shall meet the intended use and will conform to the geometry of its intended application.

1.8 WARRANTY:

1.8.1 The Contractor shall obtain and submit to the Engineer from the Manufacturer and Installer separate written warranties guaranteeing for a 20 year and 2 year period (respectively) from the date of issuance of the Certificate of Substantial Completion that the liner materials and workmanship specifically provided or performed under this Contract shall be free from defects. Said warranty shall apply to normal use and service by the Owner as described in Contract Specifications and as shown on the Contract Drawings. It shall specifically exclude mechanical abuse or puncture by machinery, equipment, or people, exposure of the liner to harmful chemicals or catastrophe due to earthquake, flood or tornado. Such written warranty shall provide for the repair or replacement of the defect or defective area of lining materials upon written notification and demonstration by the Owner of the specific nonconformance of the lining material or installation with the project Specifications. Such defects or nonconformance shall be repaired or replaced within a reasonable period of time of such notification. The Owner agrees to pay an amount equal to the then current sales and installation price of the defective portion of the lining material multiplied by a fraction, the numerator of which shall be the

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

number of years elapsed since the commencement of the warranty period and the denominator of which shall be the warranty period, provided that portion of the area in question has been made available to the Manufacturer/Installer and that such areas have been cleared of all liquids, sludges, earth, sand or gravel.

PART 2 - PRODUCTS

2.1 RAW MATERIALS:

2.1.1 Prior to installation of any geomembrane material, the Contractor shall submit to the Engineer the following information regarding resin quality.

2.1.1.1 A copy of the Quality Control Certificates issued by the Resin supplier.

2.1.1.2 Reports on the tests conducted by the Manufacturer to verify the quality of the resin used to manufacture the geomembrane rolls assigned to the considered facility.

2.1.1.3 A statement of origin and identification of raw materials used.

2.1.1.4 Documentation demonstrating the chemical compatibility of the materials.

2.2 PVC GEOMEMBRANE MINIMUM SPECIFICATIONS:

2.2.1 PVC liner material shall have a matted finish on at least one side. Matted side of PVC panel to be installed on top.

2.2.2 PVC liner material shall meet the minimum specification values listed below.

<u>Property</u>	<u>Specification Limit</u>	<u>Test Method</u>
Raw Material	(All domestic and Virgin Polyvinyl Chloride)	
Thickness (mils)	40 (± 5%)	ASTM D5199
Specific Gravity	1.23-1.30	ASTM D792

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

<u>Property</u>	<u>Specification Limit</u>	<u>Test Method</u>
Cold Crack	Pass	ASTM D1790
Tensile Properties		
- Tensile Strength at Break (lb/in)	90 min.	ASTM D882
- Modulus at 100% Elongation (lb/in)	36 min.	ASTM D882
- Elongation (%) at Break	300%	ASTM D882
Tear Resistance (lbs/in)	10 min.	ASTM D1004
Water Extraction (%)	0.35 (max.)	ASTM D3080
Volatility (% Loss)	0.60 (max.)	ASTM D1203
Resistance to Soil		
Burial % change, max.:		ASTM D3083
Tensile Strength	+5	
Elongation at Break	+20	
Modulus at 100% Elongation	+20	
Hydrostatic Resistance (psi)	82(min.)	ASTM D751
Factory Seam Requirements*		
Bonded Seam Strength (factory seam, breaking factor lbs/inch width)	74	ASTM D3083

*Factory bonded seam strength is the responsibility of the fabricator.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

2.3 LABELING GEOMEMBRANE ROLLS OR PANELS:

2.3.1 Labels on each roll or factory panel will identify:

- a. The thickness of the material
- b. The length and width of the roll or factory panel
- c. The Manufacturer
- d. Directions to unroll the material
- e. Product identification
- f. Lot number
- g. Roll or field panel number

PART 3 - EXECUTION

3.1 GEOMEMBRANE INSTALLATION:

3.1.1 Related Earthwork:

3.1.1.1 Geomembrane liners will be installed on a firm, smooth, soil surface. The final soil surface will be relatively free from stones greater than 3/8", clumps, sticks or any other material that may puncture the membrane. Special care should be taken to maintain the prepared soil surface. No geomembrane will be placed onto an area which has become softened by precipitation. The Contractor shall certify in writing that the final soil surface on which the membranes are to be installed is acceptable.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

3.2 GEOMEMBRANE DEPLOYMENT:

3.2.1 Placement of the geomembrane panels will be according to the approved location and position plan provided by the Installer. Placement will follow all instructions on the boxes or wrapping containing the geomembrane materials which describe the proper methods of unrolling, and/or unfolding rolls and panels. The method chosen must minimize erosion of the underlying soil liner and the potential for wind damage.

3.2.2 The method of placement must ensure that:

3.2.2.1 No equipment used will damage the geomembrane by handling, trafficking, leakage of hydrocarbons, or other means.

3.2.2.2 No personnel working on the geomembrane will smoke, wear damaging shoes, or engage in other activities which could damage the geomembrane.

3.2.2.3 The prepared surface underlying the geomembrane must not be allowed to deteriorate after acceptance and must remain acceptable up to the time of geomembrane placement.

3.2.2.4 Adequate temporary loading and/or anchoring (e.g., sand bags, tires), not likely to damage the geomembrane, will be placed to prevent uplift by wind (in case of high winds, continuous loading is recommended along edges of panels to minimize risk of wind flow under the panels).

3.2.2.5 Direct contact with the geomembrane will be minimized; i.e., the geomembrane in excessively high traffic areas will be protected by geotextiles, extra geomembrane, or other suitable materials.

3.2.3 Any damage to the geomembrane panels or portions of the panels as a result of placement must be replaced or repaired at no cost to the Owner. The decision to replace or repair any panel or portions of panels will be made by the Engineer.

3.2.4 The Engineer will assign an "identification number" to each geomembrane panel placed. This number will be consistent with the number used by the Installer. The number system used will be simple, logical and identify the relative location in the field.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

3.3 SEAMING DURING INSTALLATION:

3.3.1 At liner penetrations and corners the number of seams will be minimized.

3.3.2 The area of the geomembrane to be seamed shall be cleaned and prepared according to the procedures specified by the material manufacturer. Care will be taken to eliminate or minimize the number of wrinkles and "fishmouths" resulting from seam orientation.

3.3.3 Seaming will not proceed in extreme heat (above 105°F) or extreme cold (below 32°F) conditions. The specified temperature range is for ambient air. In addition, seaming will not be conducted when geomembrane material is wet from precipitation, dew, fog, etc., or during periods when winds are in excess of 20 mph.

3.3.4 Seams will have an overlap beyond the weld large enough to perform destructive peel tests, but not exceed 5 inches. Any material used to temporarily bond adjacent geomembrane panels must not damage or leave the geomembrane altered in any manner.

3.3.5 Trial seams will be made of excess geomembrane material. A 1-foot by 3-foot seamed liner sample will be fabricated with the seam running down the 3-foot length in the center of the sample. Such trial seaming will be conducted prior to the start of each seaming succession (i.e. at the start of each morning and afternoon session). From each trial seam, two sample field test specimens will be taken. The test specimens will be 1-inch by 12-inch strips cut perpendicular to the trial seam. Pass and fail criteria will be based on an approved curing chart submitted by the Contractor to the Engineer. Upon initial failure, a second trial seam will be made; if both test specimens do not pass, then the seaming method will be reviewed and seamer will not perform any seaming operations until the deficiencies are corrected and two successive passing trial seam test specimens are produced. Completed trial seam samples cannot be used as portions of a second sample and must be discarded.

3.3.6 The Contractor shall use a prefabricated PVC boot for all liner penetrations by pipes.

3.3.7 Acceptable seaming method for PVC is lap jointing with an approved cold applied solvent or hot wedge welding (single or double wedge). Lap joints shall be formed by lapping 6 inch minimum of the PVC material. Actual welded surface will be a minimum of 4 inches.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

3.4 SEAM TESTING:

3.4.1 Nondestructive Testing:

3.4.1.1 The Contractor shall perform nondestructive seam testing on 100 percent of all field seams (including patches and boots) under the direct supervision of the Engineer. The Contractor shall test seams as directed in Paragraph 3.4.1.2 or 3.4.1.3.

3.4.1.2 Air Channel Test: The air channel test shall be used on all seams constructed using a double hot wedge welder (except for double wedge seams welded transversely across factory fabricated panels). The following procedures will be followed:

- a. Determine the area to be tested, and seal off two ends of the continuous air channel.
- b. Insert an air pressure needle into the air channel by penetrating the upper geomembrane.
- c. Connect a pressure gage to the needle.
- d. Connect an air pump to the pressure gage. The air pump should be capable of generating and sustaining an air pressure of 50 psi.
- e. Inflate the air channel to a pressure of between 20 and 30 psi, and disconnect the air pump.
- f. Sustain the inflated pressure for 2 minutes, and observe any pressure drop. If more than a 4 psi pressure loss occurs, the tested seam will be subject to repair.
- g. testing is to be conducted under the direct observation of the Engineer

3.4.1.3 Air Lance Testing: Air lance testing will be used on all seams not air-channel tested (including patches and boots). The procedure for this method is outlined below:

- a. a testing device capable of producing a jet of air at approximately 50 psi through a 3/16-inch diameter orifice will be used as the lance

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

- b. place the lance beneath the overlap
- c. move the lance slowly along the solvent bond seam
- d. observe the seam for localized fluttering or inflation
- e. mark the seam for repair where fluttering or inflation occurs
- f. testing is to be conducted under the direct observation of the Engineer

3.4.2 Destructive Testing:

3.4.2.1 In addition to non-destructive seam testing, destructive testing will also be conducted. Test samples will be taken every 500 feet of seam length or more frequently at the discretion of the Engineer. Sample location and size will also be selected by the Engineer. The sample size (12x44 inches) will be large enough to produce three sets of test specimens for the following tests:

- a. seam shear strength (ASTM D4437)
- b. peel adhesion (ASTM D4437)

3.4.2.2 Ten specimens will compose a set. Half of these will be tested for peel and the other half for shear strength. Each specimen will be 1 inch wide and 12 inches long with the field seam at the center of the specimen. The 44-inch sample length will first be cut at the ends to produce two field peel test specimens. The remaining 42 inches will be divided into thirds and submitted to the Installer for laboratory testing, an independent testing laboratory and the Owner for storage and future reference. The independent laboratory testing shall be performed at the Contractor's expense.

3.4.2.3 Test specimens will be considered passing if the minimum values below are met or exceeded for four of the five test specimens tested by the independent laboratory. All acceptable seams will lie between two locations where samples have passed.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

<u>Field Seam Properties</u>	<u>Specification Limit PVC</u>	<u>Test Method</u>
Thickness (mils)	40	ASTM D5199
Shear Strength at Yield (lb/in width)	74 (80% of Roll Strength)	ASTM D4437
Peel Adhesion	10 lbs/in width or FTB*	ASTM D4437

*FTB = Film tearing bond.

3.4.2.4 If a sample fails destructive testing, the Installer must ensure that: the seam is reconstructed between the location of the sample which failed and the location of the next acceptable sample; or the bonding path is retraced to an intermediate location at least ten feet from the location of the sample which failed the test, and a second sample is cut from the liner for additional testing. If this second test sample passes, the seam must be then reconstructed between the location of the second test and the original sampled location. If the second sample fails, the process must be repeated.

3.4.2.5 All holes created by the Installer cutting out destructive samples will be patched immediately with an oval patch of the same material bonded to the membrane using solvent-cement (PVC). All solvent-cement seams will cure for a minimum of 24 hours prior to destructive testing. The patch seams will be tested using an air lance and the procedures described above. Work will not proceed with materials covering the geomembrane until passing results of destructive testing have been achieved.

3.5 LINER REPAIR:

3.5.1 All imperfections, flaws, construction damage, destructive and nondestructive seam failures will be repaired by the Contractor at no additional expense to the Owner. The appropriate methods of repair are listed below:

- a. patching, used to repair holes, tears, undispersed raw materials and contamination by foreign matter
- b. capping, used to repair pinholes or other minor flaws

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

c. topping, used to repair areas of large length of failed seams or of inadequate seams, which have an exposed edge

d. removing bad seam and replacing with a strip of new material solvent welded into place.

3.5.2 The actual method used will be agreed upon by the Engineer, Installer and Contractor. All defects that are patched will have the patch overlap the edge of the defect by a minimum of 6 inches. The patch will be cut with rounded edges (no corners). In the case of a large patch, the underlying geomembrane will be cut appropriately to avoid trapping gases and moisture between the two sheets.

3.5.3 During repair, the Engineer must be present and observe the procedures as well as all nondestructive testing of the repair seams. If the repair is very large, destructive testing may be required at the discretion of the Engineer. Any failure of repaired seams will require that the patch be removed, replaced and retested until passing results are achieved.

3.6 CONSTRUCTION MATERIAL PLACEMENT:

3.6.1 All select fill placed above geomembrane shall be spread with a minimum initial lift thickness of 12 inches using tracked equipment with ground pressures not exceeding 7 pounds per square inch. No construction equipment will be driven directly on the geomembrane. All rubber-tired vehicles will access construction above geomembranes from temporary access roads built a minimum of 3 feet above the liner. Extra geotextile or geomembrane layers shall be placed on or beneath all access roads or high trafficked areas. Any placement operation which results in damage to the underlying geomembrane, or in the opinion of the Engineer, has the potential of damaging the underlying geomembrane, shall immediately cease and be modified to prevent such damage.

3.6.2 Placement of overlying cover soil shall be performed in a systematic manner in accordance with this Section and Section 02225. Cover soil must be placed using vertical placement techniques. No horizontal pushing of the initial soil lift above the geomembrane will be allowed.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

3.7 POST-CONSTRUCTION:

3.7.1 The Installer of the geomembrane materials will prepare and the Contractor shall submit, to the Engineer, record drawings illustrating the following information:

- a. dimensions of all geomembrane field panels
- b. panel locations referenced to the Contract Drawing plans
- c. identify all field seams and panels with the appropriate number or code
- d. location of all patches, repairs and destructive testing samples
- e. warranties

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - POLYVINYL CHLORIDE (PVC) LINING MATERIAL:

4.1.1 Under this Item, the Contractor shall furnish all labor, materials, and equipment required to provide and install Polyvinyl Chloride (PVC) Lining Material, as ordered by the Engineer. In addition to the applicable provisions of Section 00100 through and including 01640, and other Divisions of this project, one following sections describe the principal items of work to be performed under this Payment Item.

4.1.2 Measurement of the quantity of Polyvinyl Chloride (PVC) Lining Material allowed for payment shall be based on the number of square feet placed to the nearest one foot of lining material placed in accordance with the Specifications, Drawings or as approved by the Engineer.

4.1.3 Work Included: Work under this Item shall generally be comprised of the following:

- 02595 Polyvinyl Chloride (PVC) Lining Material
- Furnishing and placing Polyvinyl Chloride (PVC) Lining Material shown of the Contract Drawings, as ordered by the Engineer.

SECTION 02595

POLYVINYL CHLORIDE (PVC) LINING MATERIAL

4.2 PAYMENT - POLYVINYL CHLORIDE (PVC) LINING MATERIAL:

4.2.1 For Polyvinyl Chloride (PVC) Lining Material, not included in other unit or lump sum price items, payment for Polyvinyl Chloride (PVC) Lining Material will be made at the applicable price stated in the Bid. The quantity of Polyvinyl Chloride (PVC) Lining Material for which payment will be made will be the actual number of square feet of Polyvinyl Chloride (PVC) Lining Material incorporated into the work, as ordered by the Engineer.

4.3 RELATED WORK NOT INCLUDED

4.3.1 The following items of work closely related to Polyvinyl Chloride (PVC) Lining Material, are specifically not included under this Item:

- 02598 Linear Low Density Polyethylene (LLDPE) Lining Material
- 02233 Geotextile
- 02225 Select Fill Materials
- 02220 Excavation

END OF SECTION

SPECIFICATIONS

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for Linear Low Density Polyethylene (LLDPE) Lining Material as shown on the Plans, as specified and/or directed.

1.1.2 The lining material will be used as the barrier layer of the capping system.

1.1.3 The lining material will be textured on both sides for all applications.

1.2 PRE-QUALIFICATIONS:

1.2.1 Geomembrane Manufacturer:

1.2.1.1 The Contractor shall submit to the Owner and the Engineer for approval the following qualification information regarding the Geomembrane Manufacturer:

- a. Corporate background and information.
- b. Manufacturing capabilities including:
 - daily production quantity available for this Contract
 - quality control procedures for manufacturing
 - list of material properties including certified test results, to which geomembrane samples are attached.
- c. A list of at least ten completed facilities, totaling a minimum of 10,000,000 square feet, for which the Manufacturer has manufactured a geomembrane. For each facility, the following information will be provided:

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

- name and purpose of facility, its location and date of installation
 - name of Owner, Project Manager, Designer, Fabricator (if any), and Installer
 - thickness of geomembrane, surface area of geomembrane manufactured
 - available information on the performance of the lining system and the facility.
- d. Origin (resin supplier's name, resin production plant) and identification (brand name, number) of the resin.

1.2.2 Geomembrane Fabricator (if required):

1.2.2.1 The Contractor shall submit to the Engineer for approval the following written information in regards to the Geomembrane Fabricator (if required).

- a. Copy of Geomembrane Manufacturer's letter of approval of license.
- b. Corporate background and information.
- c. Fabrication Capabilities:
 - daily fabrication quantity available for this Contract
 - quality control procedure
 - samples of fabricated seams and a certified list of minimum values of seam properties and employed test methods.
- d. A list of at least ten completed facilities for which the Fabricator has fabricated liner factory panels of the type of geomembrane to be used in this project, totaling a minimum of 3,000,000 square feet, the following information will be provided for each fabrication:
 - name and purpose of facility, its location, and date of installation
 - name of Owner, Project Manager, Designer, Manufacturer, Installer, and the name of the contact at the site who can discuss the project
 - thickness of liner and surface area of liner fabricated
 - type of seaming and type of seaming apparatus used
 - available information on the performance of the lining system and the facility.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

1.2.3 Installer:

1.2.3.1 The Installer must be trained and qualified to install geomembrane and must be approved and/or licensed by the Geomembrane Manufacturer and/or Fabricator.

1.2.3.2 The Contractor shall submit to the Engineer for approval the following written information, relative to the Installer.

- a. Copy of Installer's letter of approval or license by the Manufacturer and/or Fabricator.
- b. Corporate background and information.
- c. Description of installation capabilities, including:
 - information on equipment and personnel
 - average daily production anticipated
 - quality control procedures.
- d. A list of at least ten completed facilities, totaling a minimum of 3,000,000 square feet for which the Installer has installed geomembrane of the type for this project. For each installation, the following information will be provided:
 - name and purpose of facility, its location and date of installation
 - name of Owner, Designer, Manufacturer, Fabricator (if any), and name of contact at the facility who can discuss the project
 - name and qualifications of the supervisor(s) of the Installer's crew(s)
 - thickness of geomembrane and surface area of the installed liner
 - type of seaming and type of seaming apparatus used
 - duration of installation
 - available information on the performance of the lining system and the facility.
- e. Resume of the "master seamer" to be assigned to this project, including dates and duration of employment.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

- f. Resume of the field engineer or installation supervisor to be assigned to this project, including dates and duration of employment.

1.2.3.3 All personnel performing seaming operations will be qualified by experience or by successfully passing seaming tests. At least one seamer will have experience seaming a minimum of 3,000,000 square feet of geomembrane of the type for this project, using the same type of seaming apparatus in use at the site.

1.2.4 Sheet Quality:

1.2.4.1 The Contractor shall submit to the Engineer the following information regarding sheet quality and properties.

- a. A material properties sheet including, at a minimum, all specified properties, measured using test methods indicated in the specifications, or equivalent.
- b. Complete stress rupture curve (Geosynthetic Research Institute, GM5) for test specimen.
- c. A list and description of materials other than the base polymer which comprise the geomembrane.
- d. A written certification that property values given in the properties sheet are guaranteed by the Geomembrane Manufacturer.

1.2.5 Roll Quality:

1.2.5.1 Prior to shipment, the Contractor will provide the Engineer with a quality control certificate for each roll of geomembrane provided. The quality control certificate will be signed by a responsible party employed by the Geomembrane Manufacturer, such as the Production Manager. The Quality Control Certificate will include:

- a. Roll numbers and identification.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

- b. Documentation certifying the geomembrane was continuously inspected for uniformity, damage, imperfections, holes, cracks, thin spots, foreign materials, tears, punctures and blisters.
- c. Sampling results of quality control tests; as a minimum, results will be given for thickness, tensile strength, tear resistance and seam strength evaluated in accordance with the methods indicated in the specifications or equivalent methods approved by the Engineer.
- d. Documentation certifying non-destructive seam testing was performed on all fabricated seams over their full length using a test method acceptable to the Engineer.

1.2.6 Prior to delivery of material, the Contractor shall submit a sample of the warranty to be provided as described in paragraph 3.2.3.

1.3 DELIVERY, HANDLING AND STORAGE:

1.3.1 The Contractor will be liable for all damages to the materials incurred prior to and during transportation to the site.

1.3.2 Handling, storage and care of the geosynthetic materials prior to and following installation at the site, is the responsibility of the Contractor. The Contractor will be liable for all damages to the materials incurred prior to final acceptance of the lining system by the Owner.

1.3.3 The Contractor shall notify the Owner of the anticipated delivery time.

1.4 CONFORMANCE TESTING:

1.4.1 Within one week of delivery of the geomembrane, and at the Engineer's direction, the Contractor shall provide the necessary labor, tools and equipment to obtain samples of the geomembrane at the specified frequency for forwarding to the approved testing laboratory for testing at the Contractor's expense to ensure conformance to both the design specifications and the list of guaranteed properties.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

1.4.2 As a minimum, tests to determine the following characteristics will be performed on geomembranes:

- a. density, ASTM D792/D1505
- b. carbon black content, ASTM D1603
- c. carbon black dispersion, ASTM D3015
- d. thickness, ASTM D1593
- e. tensile properties, ASTM D638

1.4.3 Geomembrane samples will be taken across the entire width of the roll. Unless otherwise specified, samples will be 2.0 feet long by the roll width. The Engineer will mark the machine direction on the samples with an arrow.

1.4.4 Unless otherwise specified, geomembrane samples will be taken at a maximum rate of one per 100,000 square feet.

1.4.5 For each lot number of geomembrane material that arrives at the site, a sample shall be taken by the Contractor and provided to the Owner for archiving. This sample shall be 3.0 feet long by the width of the roll.

1.4.6 Any samples which fail the conformance testing will require the failed material to be removed from site and replaced with new material at the Contractor's expense.

1.5 WARRANTY:

1.5.1 The Contractor shall submit a draft copy of the warranty to be provided upon completion of the project. The warranty shall meet the requirements of Article 3.2.3 of this Specification.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

1.6 ADDITIONAL SUBMITTALS:

1.6.1 The Contractor shall submit detailed shop drawings. Shop drawings shall contain all necessary panel layouts, details, dimensions, penetration fabrications, etc., sufficient to assure that fabrication shall meet the intended use and will conform to the geometry of its intended application.

PART 2 - PRODUCTS

2.1 MATERIALS:

2.1.1 Raw Materials:

2.1.1.1 Prior to installation of any geomembrane material, the Contractor shall submit to the Engineer the following information regarding resin quality.

- a. A copy of the Quality Control Certificates issued by the Resin supplier.
- b. Reports on the tests conducted by the Manufacturer to verify the quality of the resin used to manufacture the geomembrane rolls assigned to the considered facility. These tests should include for resins, specific gravity (ASTM D792 Method A), melt flow index (ASTM D1238 Condition E), percent carbon black (ASTM D1603) and percent carbon dispersion (ASTM D3015).
- c. A statement of origin and identification of raw materials used.
- d. Documentation demonstrating the chemical compatibility of the materials to withstand leachate generated by municipal solid waste.

2.1.2 LLDPE Geomembrane Minimum Specifications:

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

2.1.2.1 LLDPE liner material shall meet the minimum Specification values listed below.

LLDPE Geomembrane Resin:

<u>Property</u>	<u>Specification Limit</u>	<u>Test Method</u>
Specific Gravity (min.)	0.915	ASTM D1505
Melt Flow Index	0.1-1.1 g/10	ASTM D1238 Condition E
Carbon Black Content	2-3%	ASTM D1603
Carbon Dispersion	A1 or A2 Rating	ASTM D3015

LLDPE Geomembrane Rolls:

<u>Property</u>	<u>Specification Limit</u>	<u>Test Method</u>
<u>Mechanical</u>		
Thickness	40 mil	ASTM D1593
Specific Gravity (min.)	0.915	ASTM D1505
Tensile Properties		ASTM D638
Tensile Strength at Break (min.)	80 lbs./in.	
Tensile Strength at Yield (min.)	58 lbs./in.	

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

<u>Property</u>	<u>Specification Limit</u>	<u>Test Method</u>
Elongation at Break (min.)	350%	
Elongation at Yield (min.)	13%	
Modulus of Elasticity (min.)	45,000 psi	ASTM D638
Tear Resistance (min.)	23 lbs.	ASTM D1004
Puncture Resistance (min.)	48 lbs.	FTMS 101C Method 2065
<u>Environmental</u>		
Water Vapor Transmission Rate	≤ 0.03 gm/m ² -day	ASTM E96
Low Temperature Brittleness (max.)	-70° C	ASTM D746
Water Absorption (max. % wt. change)	0.1%	ASTM D570
Volatile Loss (max.)	0.1%	ASTM D1203
Dimensional Stability (each direction, % change max.)	+/-1%	ASTM D1204

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

2.1.3 Labeling Geomembrane Rolls:

2.1.3.1 Labels on each roll or factory panel will identify:

- The thickness of the material.
- The length and width of the roll or factory panel.
- The Manufacturer.
- Directions to unroll the material.
- Product identification.
- Lot number.
- Roll or field panel number.

PART 3 - EXECUTION

3.1 GEOMEMBRANE INSTALLATION:

3.1.1 Related Earthwork:

3.1.1.1 The Contractor shall insure that all related earthwork requirements under this Section are complied with:

- a. Geomembrane liners will be installed as shown on the construction drawings. The geomembrane installations will be performed on a firm, smooth, soil or geosynthetic constructed according with the Specifications. The final surface will be free from stones, clumps, sticks or any other material that may puncture the membrane. Installation of the geomembrane on loose or gravelly soils is prohibited.
- b. No geomembrane will be placed onto an area which has become softened by precipitation or which has cracked due to desiccation. Appropriate methods of moisture control are the responsibility of the Contractor.
- c. The Geomembrane Installer shall certify in writing that the final soil material or geosynthetic surface on which the membranes are to be installed are acceptable.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

- d. Free edges of LLDPE liner shall be secured in such a manner as to prevent uplift by wind or the intrusion of water under the liner. Edge protection shall include sandbags, polyethylene sheeting or other methods as deemed necessary by the Contractor and approved by the Engineer. Any damage to underlying soil material or geosynthetic shall be repaired at the Contractor's expense.
- e. The LLDPE membrane will be temporarily anchored within an anchor trench constructed to the dimensions shown in the Contract Drawings. Care will be taken while backfilling the trenches to prevent damage to the geomembrane.

3.1.2 Geomembrane Deployment:

3.1.2.1 LLDPE membrane will be deployed according to the following procedures:

- a. Placement of the geomembrane panels will be according to the approved location and position plan provided by the Installer. Placement will follow all instructions on the boxes or wrapping containing the geomembrane materials which describe the proper methods of unrolling panels. The field panel installation schedule is left to the preference of the Contractor, but the method chosen must minimize erosion of the underlying soil material and the potential for wind damage.
- b. The method of placement must ensure that:
 - Deployed geomembrane must be visually inspected for uniformity, tears, punctures, blisters or other damage or imperfections. Any such imperfections shall be immediately repaired and reinspected.
 - No equipment used will damage the geomembrane by handling, trafficking, leakage of hydrocarbons, or other means. Equipment or ATVs, will not be allowed to travel directly on the geomembrane during the installation of overlying soils or geosynthetic layers unless otherwise determined by the Engineer.
 - No personnel working on the geomembrane will smoke, wear damaging shoes, or engage in other activities which could damage the geomembrane.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

- The prepared surface underlying the geomembrane must not be allowed to deteriorate after acceptance and must remain acceptable up to the time of geomembrane placement and until completion of the project.
 - Adequate temporary loading and/or anchoring (e.g., sand bags, tires), not likely to damage the geomembrane, will be placed to prevent uplift by wind (in case of high winds, continuous loading is recommended along edges of panels to minimize risk of wind flow under the panels).
 - Direct contact with the geomembrane will be minimized; i.e., the geomembrane in excessively high traffic areas will be protected by geotextiles, extra geomembrane, or other suitable materials.
- c. Any damage to the geomembrane panels or portions of the panels as a result of placement must be replaced or repaired at no cost to the Owner. The decision to replace or repair any panel or portions of panels will be made by the Engineer.
- d. The Engineer will assign an "identification number" to each geomembrane panel placed. This number will be consistent with the number used by the Installer. The number system used will be simple, logical and identify the relative location in the field.
- e. When deploying a textured LLDPE geomembrane over a GCL or geocomposite, a temporary slip sheet will be used to minimize friction and to allow the textured geomembrane to be more easily moved into its final position. To prevent premature hydration, only the amount of GCL that can be inspected, repaired, and covered in the same day shall be installed.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

3.1.3 Seaming:

3.1.3.1 The seaming procedures below shall be implemented, where applicable, during installation of the geomembrane. The seaming procedures are as follows:

- a. Generally, all seams whether field or factory will be orientated parallel to the line of slope, not across slope. This specification applies to all slopes in excess of 10 percent grade. All horizontal seams will be a minimum of 5 feet from the toe of the side slopes. At liner penetrations and corners the number of seams will be minimized.
- b. The area of the geomembrane to be seamed shall be cleaned and prepared according to the procedures specified by the material manufacturer. Any abrading of the geomembrane will not extend more than one-half inch on either side of the weld. Care will be taken to eliminate or minimize the number of wrinkles and "fishmouths" resulting from seam orientation.
- c. Field seaming is prohibited when either the air or sheet temperature is below 32°F or when the sheet temperature exceeds 158°F or when the air temperature is above 104°F. At air or sheet temperatures between 32°F and 40°F seaming shall be conducted directly behind a preheating device. In addition, seaming shall not be conducted when geomembrane material is wet from precipitation, dew, fog, etc., or when winds are in excess of 20 miles per hour.
- d. Seaming shall not be performed on frozen or excessively wet underlying soil surfaces.
- e. Seams will have an overlap beyond the weld large enough to perform destructive peel tests, but not exceed 5 inches. Any material used to temporarily bond adjacent geomembrane panels must not damage or leave the geomembrane altered in any manner.
- f. The Contractor shall perform trial seams on excess geomembrane material. A 1 foot by 3 foot seamed liner sample will be fabricated with the seam running down the 3 foot length in the center of the sample. Such trial seaming will be conducted prior to the start of each seaming succession for each seaming crew, change in machine or every 4 hours, after any significant change in weather conditions or geomembrane temperature, or after any change in seaming equipment. From each trial seam, two

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

field test specimens will be taken. The test specimens will be 1-inch by 12-inch strips cut perpendicular to the trial seam. These specimens will be peel tested using a field tensiometer, and recorded as pass (failure of liner material) or fail (failure of seam). Upon initial failure, a second trial seam will be made; if both test specimens do not pass, then the seaming device and its operator will not perform any seaming operations until the deficiencies are corrected and two successive passing trial seam test specimens are produced. Completed trial seam samples cannot be used as portions of a second sample and must be discarded.

- g. Seams will be continuous through the anchor trench. No fishmouths shall be allowed within the seam area. Where fishmouths occur, the material shall be cut, overlapped and an overlap weld shall be applied. Where necessary, patching using the same liner material will be welded to the geomembrane sheet.
- h. Where seams cannot be nondestructively tested in accordance with Section 3.1.4.1 of this Specification due to the geometry of the completed seams, a single layer of geomembrane shall be cap seamed over the subject seam and nondestructively tested if practical.
- i. Acceptable seaming methods for LLDPE geomembrane are:
 - extrusion welding using extrudate with identical physical, chemical and environment properties
 - hot wedge welding using a proven fusion welder and master seamer.
- j. Seaming device shall not have any sharp edges which might damage the geomembrane liner. Where self-propelled seaming devices are used, it will be necessary to prevent "bulldozing" of the device into the underlying soil or geosynthetic material.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

3.1.4 Seam Testing:

3.1.4.1 The Contractor shall perform nondestructive seam testing on 100 percent of all field seams. The following test method and procedures may be used:

- a. Vacuum testing will be used on all seams not tested using air pressure testing. Using an approved vacuum box, the following procedures will be followed:
 - apply a soapy water mixture over the seam
 - place vacuum box over soapy seam and form a tight seal
 - create a vacuum by reducing the vacuum box pressure to 5 psi (35 KPa)
 - observe through the vacuum box window any bubbles
 - where bubbles are observed, mark seam for repair
 - move vacuum box further down seam overlapping tested seam by 3 inches
 - where hot wedge seaming has been performed, the overlap must be cut back to the weld
 - all vacuum testing will be conducted under the direct observation of the Engineer.

- b. Air pressure testing may be used in place of the vacuum box if double track hot wedge welding has been utilized to seam LLDPE geomembrane. Using approved pressure testing equipment, the following procedures will be followed:
 - seal one end of the air channel separating the double hot wedge welds
 - insert pressure needle into air channel at this end
 - seal open end of channel, and pressurize the air channel to 25 psi
 - monitor pressure gauge for 3 minutes and determine whether pressure is maintained without a loss of more than 3 psi.
 - if the pressure test fails, then localize the leak and mark the area for repair
 - air pressure testing will be conducted under the direct observation of the Engineer.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

3.1.4.2 In addition to nondestructive seam testing, the Contractor will perform destructive testing. The destructive testing procedures are as follows:

- a. Test samples will be prepared by the Installer every 500 feet of seam length, a minimum of one test for each seaming machine per day, or more frequently at the discretion of the Engineer. Sample location and size will be selected by the Engineer. The sample size (12 x 56 inches) will be large enough to produce three sets of test specimens for the following tests:
 - Seam Shear Strength, ASTM D4437
 - Peel Adhesion, ASTM D4437
- b. Ten specimens will compose a set. Half of these will be tested for peel and the other half for shear strength. Each specimen will be 1-inch wide and 12-inches long with the field seam at the center of the specimen. The 56-inch sample length will first be cut at the ends to produce two field peel test specimens. The remaining 54-inches will be divided into thirds and one-third submitted to the Contractor, one-third to the independent testing laboratory and one-third to the Engineer for storage and future reference.
- c. Test specimens will be considered passing if the minimum values below are met or exceeded for four of the five test specimens tested by the independent laboratory. All acceptable seams will lie between two locations where samples have passed.

<u>Field Seam Properties</u>	<u>Specification Limit LLDPE</u>	<u>Test Method</u>
Shear Strength at Yield (lb/in width)	53	ASTM/D4437
Peel Strength (lb/in)	44 and Film Tear Bond	ASTM D4437

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

3.1.4.3 If a sample fails destructive testing, the Contractor shall ensure that: the seam is reconstructed in each direction between the location of the sample which failed and the location of the next acceptable sample; or the welding path is retraced to an intermediate location at least ten feet in each direction from the location of the sample which failed the test, and a second sample is taken for an additional field test. If this second test sample passes, the seam must be then reconstructed between the location of the second test and the original sampled location. If the second sample fails, the process must be repeated.

3.1.4.4 If double track hot-wedge welding is used, the Engineer and the Installer must agree on the track weld that will be used in the destructive testing. The weld chosen inside or outside must be consistently tested and pass according to the criteria above.

3.1.4.5 All holes created by cutting out destructive samples will be patched by the Contractor immediately with an oval patch of the same material welded to the membrane using extrusion welding. The patch seams will be tested using a vacuum box and using the procedures described above. Work will not proceed with materials covering the geomembrane until passing results of destructive testing have been achieved.

3.1.5 Liner Repair:

3.1.5.1 All imperfections, flaws, construction damage, destructive and nondestructive seam failures will be repaired by the Installer. The appropriate methods of repair are listed below:

- patching, used to repair holes, tears, undispersed raw materials and contamination by foreign matter
- grinding and rewelding, used to repair small sections of extruded seams
- spot welding or seaming, used to repair pinholes or other minor, localized flaws
- capping, used to repair large lengths of failed seams
- topping, used to repair areas of inadequate seams, which have an exposed edge
- removing bad seam and replacing with a strip of new material welded into place (used with large lengths of fusion seams).

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

3.1.5.2 The actual method used will be agreed upon by the Engineer, Installer and Contractor. All repair requiring abrading will be patched within one hour of the abrasion procedure. All defects that are patched will have the patch overlap the edge of the defect by a minimum of 6 inches. The patch will be cut with rounded edges (no corners). In the case of a large patch, the underlying geomembrane will be cut appropriately to avoid trapping gases and moisture between the two sheets.

3.1.5.3 During repair, the Engineer must be present and observe the procedures as well as all nondestructive testing of the repair seams. If the repair is very large, destructive testing may be required at the discretion of the Engineer. Any failure of repaired seams will require that the patch be removed, replaced and retested until passing results are achieved.

3.1.6 Construction Material Placement and Penetrations:

3.1.6.1 All select fill placed above geomembrane shall be spread with a minimum initial lift thickness of 12 inches using tracked equipment with ground pressures not exceeding 7 pounds per square inch. No construction equipment will be driven directly on the geomembrane.

All rubber-tired vehicles will access construction above geomembranes from temporary access roads built a minimum of 3 feet above the liner. Extra geotextile or geomembrane layers shall be placed on or beneath all access roads or high trafficked areas. Any placement operation which results in damage to the underlying geomembrane, or in the opinion of the Engineer, has the potential of damaging the underlying geomembrane, shall immediately cease and be modified to prevent such damage.

3.1.6.2 Placement of overlying select fill or common fill shall be performed in a systematic manner in accordance with this Section and Section 02225 and/or Section 02257. Multiple cover spreading points will not be allowed. One initial spreading location shall be established, and the work shall proceed from this location towards a free end of the geomembrane where possible. Soil material must be placed using vertical placement techniques. No horizontal pushing of the initial soil lift above the geomembrane will be allowed.

3.1.6.3 To minimize the potential for slope failures, the initial soil lift above the geomembrane must be installed pushing up slope. Downslope lift placement is prohibited.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

3.1.6.4 Wrinkles that develop from normal placement procedures must be controlled such that the underlying geomembrane does not fold over. Small wrinkles, defined as having their height less than or equal to one-half their base width, may be trapped and pushed down by the overlying soil. Any wrinkle which becomes too large and uncontrollable or which folds the geomembrane over must be brought to the attention of the Engineer. The Engineer will determine how to proceed, and his decision will be final. If necessary, the geomembrane will be uncovered, cut, laid flat, seamed by extrusion welding and non-destructively tested.

3.1.6.5 Cover system penetrations will be constructed for the landfill cap development. The configuration of these penetrations is detailed in the Contract Drawings. A prefabricated LLDPE boot shall be installed around each cover system penetration as shown. The penetration assembly shall be attached to each respective geomembrane liner by the extrusion weld process. Seams and materials used at these locations will be carefully constructed and inspected to insure proper construction has been achieved. Nondestructive testing will be performed on all seams where such testing is possible, otherwise refer to Paragraph 3.1.3.1(h).

3.2 POST-CONSTRUCTION:

3.2.1 The Installer of the geomembrane materials will prepare and the Contractor shall submit, to the Engineer, record drawings illustrating the following information:

- dimensions of all geomembrane field panels
- panel locations referenced to the Contract Drawing Plans
- identify all field seams and panels with the appropriate number or code
- location of all patches, repairs and destructive testing samples

3.2.2 Record drawing(s) will be submitted for each geomembrane layer constructed.

3.2.3 Warranty: The Contractor shall obtain and submit to the Engineer from the Manufacturer and Installer separate written warranties guaranteeing for a 20 year and 2 year period (respectively) from the date of issuance of the Certificate of Substantial Completion that the liner materials and workmanship specifically provided or performed under this Contract shall be free from defects. Said warranty shall apply to normal use and service by the Owner as described in Contract Specifications and as shown on the Contract Drawings. It shall specifically exclude mechanical abuse or puncture by machinery, equipment, or people, exposure of the liner to harmful chemicals or catastrophe due to earthquake, flood or tornado. Such written warranty

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

shall provide for the repair or replacement of the defect or defective area of lining materials upon written notification and demonstration by the Owner of the specific nonconformance of the lining material or installation with the project Specifications. Such defects or nonconformance shall be repaired or replaced within a reasonable period of time of such notification. The Owner agrees to pay an amount equal to the then current sales and installation price of the defective portion of the lining material multiplied by a fraction, the numerator of which shall be the number of years elapsed since the commencement of the warranty period and the denominator of which shall be the warranty period, provided that portion of the area in question has been made available to the Manufacturer/Installer and that such areas have been cleared of all liquids, sludges, earth, sand or gravel.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL:

4.1.1 Under this item, the Contractor shall furnish all labor, materials, and equipment required to provide and install Linear Low Density Polyethylene (LLDPE) Lining Material, as ordered by the Engineer.

4.1.2 Measurement of the quantity of Linear Low Density Polyethylene (LLDPE) Lining Material allowed for payment shall be based on the number of square feet placed to the nearest one foot of lining material placed in accordance with the Specifications, Drawings or as approved by the Engineer.

4.1.3 Work Included: In addition to the applicable provisions of Section 00100 through and including 01640, and other divisions of this project, one following sections describes the principal items of work to be performed under this payment item. Work under this Item shall generally be comprised of the following:

- 02598 Linear Low Density Polyethylene (LLDPE) Lining Material
- Furnishing and placing Linear Low Density Polyethylene (LLDPE) Lining Material shown of the Contract Drawings, as ordered by the Engineer.

SECTION 02598

LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL

4.2 PAYMENT - LINEAR LOW DENSITY POLYETHYLENE (LLDPE) LINING MATERIAL:

4.2.1 For Linear Low Density Polyethylene (LLDPE) Lining Material, not included in other unit or lump sum price items, payment for Linear Low Density Polyethylene (LLDPE) Lining Material will be made at the applicable price stated in the Bid. The quantity of Linear Low Density Polyethylene (LLDPE) Lining Material for which payment will be made will be the actual number of square feet of Linear Low Density Polyethylene (LLDPE) Lining Material incorporated into the work, measured in place, as ordered by the Engineer.

4.3 RELATED WORK NOT INCLUDED

4.3.1 The following items of work closely related to Linear Low Density Polyethylene (LLDPE) Lining Material, are specifically not included under this item:

- 02595 Polyvinyl Chloride (PVC) Lining Material
- 02233 Geotextile
- 02225 Select Fill Materials
- 02220 Excavation

END OF SECTION

SPECIFICATIONS

SECTION 02677

ROTARY-DRILLED LANDFILL GAS VENT WELLS

PART 1 - GENERAL

1.1 DESCRIPTION: Under this Section, the Contractor shall furnish all labor, materials and equipment for Rotary-Drilled Landfill Gas Extraction Wells, as shown on the Plans, as specified, and/or directed. The installation of extraction wells will be approved in the field by the Engineer.

1.2 REFERENCES: (Not Used)

1.3 SUBMITTALS:

1.3.1 The Contractor shall submit six (6) copies of the manufacturer's material Specifications for each item to be supplied under this Section.

1.3.2 The Contractor shall submit to the Engineer samples of all well backfill materials furnished.

1.3.3 The Contractor shall maintain detailed well logs and construction diagrams for all wells drilled, including the total depth of the well, the static water level (if present), depth, thickness, and description of soil or waste strata (including dates from any readable material, and the occurrence of any water bearing zones. Well logs shall be submitted to the Engineer.

1.4 DELIVERY, STORAGE, AND PROTECTION: Deliver materials in an undamaged condition. Store materials off the ground to provide protection against oxidation caused by ground contact. Replace defective or damaged materials with new materials.

1.5 QUALITY ASSURANCE: All materials will be inspected on delivery, and materials that do not comply with the Specification will be rejected. The Contractor shall furnish all labor and equipment required to handle the materials and inspection, and shall remove the rejected materials from the site of work.

SECTION 02677

ROTARY-DRILLED LANDFILL GAS VENT WELLS

1.6 SITE CONDITIONS: Obstructions and saturated conditions are sometimes encountered when drilling in a landfill, many of which can be drilled through. The Contractor shall make reasonable efforts to drill through obstructions or saturated conditions, and will be paid for offset re-drilling or borehole abandonment only, if approved in writing by the Owner.

1.7 GENERAL REQUIREMENTS: Provide each extraction well complete and ready for operation. Each extraction well, including equipment, materials, installation, and workmanship shall be to the satisfaction of the Engineer.

PART 2 - PRODUCTS

2.1 EQUIPMENT: The Contractor shall utilize equipment mounted on a crawler chassis, an all-terrain vehicle chassis, or other low-ground pressure equipment approved by the Engineer during construction of all phases of well construction.

2.2 MATERIALS: Shall conform to the respective Specifications as referenced herein and as shown on the Plans.

2.2.1 Aggregate:

2.2.1.1 Gravel pack shall be Type B Select Fill, as specified in Section 02225, "Select Fill Materials".

2.2.2 Pipe: PVC, Schedule 80, as specified in Section 02436, "Polyvinyl Chloride (PVC) Pipe and Fittings".

2.2.2.1 Perforated/Slotted Pipe: Slots in PVC extraction well piping shall be 6-inch long by 1/4-inch wide, spaced 8 inches on vertical centers, spaced 90 degrees around circumference of pipe.

SECTION 02677

ROTARY-DRILLED LANDFILL GAS VENT WELLS

PART 3 - EXECUTION

3.1 DRILLING:

3.1.1 Extraction wells shall be 36-inch diameter, drilled to the depth shown on the drawings. Contractor shall use track-mounted dry drilling equipment; wet rotary drilling equipment may not be used.

3.1.2 The boring depths shown on the drawings are estimated and may be adjusted in the field by the Engineer. Two reasons limiting depth might be as follows:

- a. If water is encountered in a boring, the Contractor shall drill beyond the point at which it was encountered. If wet conditions remain, the boring may be terminated and the length of perforated pipe adjusted by the Engineer, or the well may be relocated. If wet conditions cease (e.g., due to trapped water layer), then drilling will continue to the design depth.
- b. Since base grades of this landfill are unknown, the depth of drilling may vary. When within 10 feet of estimated base grade, advance bucket with care noting drilling torque and pressure.

3.1.3 As soon as drilling is completed, a safety screen shall be placed over the top of the bore. This screen shall stay in place until backfilling is within 4 feet of the surface. Safety screen size shall be large enough to accommodate all backfill and materials, and any tools used during backfill yet not large enough for any person to accidentally fall through.

3.2 PLACEMENT OF THE EXTRACTION WELL RISER: The Contractor shall supply and install the perforated and solid Schedule 80 PVC landfill gas riser, as specified in Section 02436, "Polyvinyl Chloride (PVC) Pipe and Fittings", as illustrated on the Plans.

3.2.1 The bore for the well shall be straight and the PVC well pipe as specified in Section 02436 shall be installed in the center of the borehole. The Contractor will take all tension off of the pipe by mechanical means and center the pipe in the middle of the borehole before starting to backfill. Pipe shall be slotted to within 3 foot of existing grade. Terminate solid pipe flush with existing grade and install temporary loose cap.

SECTION 02677

ROTARY-DRILLED LANDFILL GAS VENT WELLS

3.3 PLACEMENT OF GRANULAR BACKFILL MATERIALS: The Contractor shall place Type B Select Fill materials, as specified in Section 02225, "Select Fill Materials", in the annular space between the borehole wall and the outside of the riser pipe, up to existing grade.

3.3.1 Backfilling of the well shall commence immediately after well drilling is completed and the well piping has been installed in the borehole. Backfill materials shall be installed as indicated on the drawings and as approved by the Engineer.

3.3.2 Gravel pack shall be poured or scooped through the screen at a rate that will not endanger the integrity of the well casing.

3.4 DISPOSITION OF EXCAVATED MATERIALS: The Contractor shall dispose of all waste excavated during construction of these wells on site as directed by the Engineer. Equipment to transport excavated materials shall be mounted on a crawler chassis, an all-terrain vehicle, or other low-ground pressure equipment approved by the Engineer.

3.5 STANDBY TIME: The Contractor shall not charge the Owner nor the Engineer for standby time.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - ROTARY-DRILLED LANDFILL GAS VENT WELLS:

4.1.1 Under this Item, the Contractor shall furnish all labor, materials, and equipment required to perform Rotary-Drilled Landfill Gas Vent Wells, as ordered by the Engineer. In addition to the applicable provisions of Section 00100 through and including 01640, and other Divisions of this project, one following sections describe the principal items of work to be performed under this Payment Item.

4.1.2 Measurement for Rotary-Drilled Landfill Gas Vent Wells shall include the cost of all materials, equipment and labor for the installation of the completed wells to include, but not be limited to, drilling, mobilization, demobilization, site restoration, standby time, and any other costs associated with the work.

SECTION 02677

ROTARY-DRILLED LANDFILL GAS VENT WELLS

4.1.3 Work Included: Work under this Item shall generally be comprised of the following:

- Furnishing and placing Rotary-Drilled Landfill Gas Extraction Wells shown on the Contract Drawings, as ordered by the Engineer.
- 02220 Excavation
- 02225 Select Fill Materials
- 02436 Polyvinyl Chloride PVC Pipe & Fittings
- 02677 Rotary-Drilled Landfill Gas Extraction Wells

4.2 PAYMENT - ROTARY-DRILLED LANDFILL GAS VENT WELLS:

4.2.1 For Rotary-Drilled Landfill Gas Vent Wells, not included in other unit or lump sum price items, payment for Rotary-Drilled Landfill Gas Vent Wells will be made at the applicable price stated in the Bid. The quantity of Rotary-Drilled Landfill Gas Vent Wells for which payment will be made will be the actual number of lineal feet of Rotary-Drilled Landfill Gas Vent Wells incorporated into the work, measured in place, as ordered by the Engineer. Inclusive of all slotted pipe and fittings. No payment will be made under this item for Rotary-Drilled Landfill Gas Extraction Wells not ordered by the Engineer.

4.3 RELATED WORK NOT INCLUDED

4.3.1 The following items of work closely related to Rotary-Drilled Landfill Gas Vent Wells, are specifically not included under this Item:

- 13052 Landfill Gas Vents

END OF SECTION

SPECIFICATIONS

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for plain and reinforced Cast-In-Place Concrete work including accessory items of work herein described, as shown on the Plans, as specified, and/or directed.

1.2 REFERENCES:

1.2.1 Reference to standard specifications for the following organizations is intended to specify minimum standards for quality of materials and performance of workmanship, and for standard test methods.

- a. American Society for Testing and Materials (ASTM) Publications, Latest Edition.
- b. American Concrete Institute (ACI) Standards, Latest Edition.
- c. Standard Specifications - Construction and Materials, New York State Department of Transportation (NYSDOT), Latest Edition, including Addenda thereto.

1.3 QUALITY ASSURANCE:

1.3.1 Perform work in accordance with ACI 301 and ACI 302.

1.3.2 Acquire cement and aggregate from same source for all work.

1.3.3 Conform to ACI 305R when concreting during hot weather, except as herein modified.

1.3.4 Conform to ACI 306R when concreting during cold weather, except as herein modified.

SECTION 03300

CAST-IN-PLACE CONCRETE

1.4 SUBMITTALS, SAMPLES AND TESTS:

1.4.1 Product Data: Provide data on joint devices, attachment accessories and admixtures.

1.4.2 Concrete:

1.4.2.1 Samples and tests of all materials to be incorporated in the concrete shall be submitted in ample time for testing before delivery. All materials are subject to inspection and testing by a commercial testing laboratory approved by the Engineer at the Contractor's expense. All materials are subject to approval by the Engineer prior to their delivery to the site.

1.4.2.2 The Contractor shall obtain from the manufacturer, prior to the actual delivery of the concrete, a statement giving the sources, specific gravities, and sieve analyses of the aggregates and the dry weights of cement and saturated-surface-dry weights of fine and coarse aggregate and quantities, type and name of admixture (if any) and of water per cubic yard of concrete that will be used in the manufacture of each class of concrete to be provided. This data shall be sent to the Engineer for review and approval.

- a. Aggregates shall be tested for gradation, purity and accelerated soundness. Tests shall comply with ASTM C33, C136, ASTM C40, and ASTM C88. The source of the material shall not be changed without retesting.
- b. Cement shall have representative mill test reports on physical and chemical requirements. All cement stored at job site or at concrete supplier's place for over 60 days shall be tested for compliance with ASTM C150.

1.4.2.3 Contractor shall submit concrete mix design to be reviewed by the Engineer.

1.4.2.4 Tests of other materials may be required by the Engineer.

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 2 - PRODUCTS

2.1 MATERIALS:

2.1.1 All materials shown, specified or required to be incorporated in cast-in-place concrete shall be of finest quality, and shall be delivered, stored and handled so as to prevent damage. Damaged or inferior materials will be rejected. Approved brands or sources must be used, without change for the entire project. All materials shall be proportioned to produce a well graded mixture of high density and maximum workability.

2.1.2 Portland Cement shall be a standard brand in compliance with ASTM C150 Type I. Only one brand shall be used for exposed work. Generally, Type I cement shall be used; however, Types II or III may be employed with the approval of the Engineer or if shown, or specified.

2.1.3 Fine Aggregates shall be clean, sharp, natural sand, free from loam, clay, organic impurities or frozen materials and shall conform to ASTM C33 in all respects. Sand shall be tested for impurities in accordance with ASTM C40.

2.1.4 Coarse Aggregates shall consist of strong, clean, crushed limestone or crushed gravel, free from harmful material and meeting all of the requirements of ASTM C33. Coarse aggregate shall also comply with New York State Department of Transportation Material Designation 703-02. Crushed limestone and crushed gravel shall meet the Physical Requirements (Testing) Designation 703-0201 and 703-0202, respectively.

2.1.5 Water used in mixing concrete shall be clean and free from all acid, alkali or organic matter and shall be obtained from a public water supply unless specifically permitted otherwise by the Engineer.

2.1.6 Ready Mix Concrete shall comply with ASTM Specification C94, this Specification, and used subject to the Engineer's approval.

2.1.7 Admixtures, where shown or specified, shall be as follows:

- a. Air entraining agent shall be "Daravair" or "Darex AEA" as manufactured by W.R. Grace Co., or Master Builder's "MBVR", or equal meeting the requirements of ASTM C260.

SECTION 03300

CAST-IN-PLACE CONCRETE

- b. Water reducing agent shall be Sika "Plastiment", Master Builder's "Pozzolith", W.R. Grace's "WRDA", or equal meeting the requirements of ASTM C494.
- c. High range water reducers or superplasticizers shall be Sika "Sikament-FF", W.R. Grace's "Daracem-10C" or "WRDA-19", or equal meeting the requirements of ASTM C494.

2.1.8 Bonding Agent, where shown or specified, shall be "Dural 104" bonding compound manufactured by Dural International Corporation, "Sikadur 32 Hi Mod" by Sika Corporation, or equal.

2.1.9 Anchorage Items, where shown or specified, shall be as follows:

- a. Inserts for fastening shelf angles shall be malleable iron adjustable wedge type, with bolt and washer, if required, as manufactured by Hohman & Barnard, Inc., Richmond Screw Anchor Co., Inc., or equal.
- b. Threaded inserts for fastening of soffits of concrete beams shall malleable iron, as manufactured by Hohman & Barnard, Inc., Richmond Screw Anchor Co., Inc., or equal.
- c. Ceiling hanger inserts shall be standard type wire as manufactured by Hohman & Barnard, Inc., Heckman Building Products, Inc., or equal.
- d. Masonry anchor slots shall be galvanized sheet metal, felt filled, as manufactured by Hohman & Barnard, Inc., Heckman Building Products, Inc., or equal.
- e. Flashing reglets shall be O'Keefe's Inc., PVC "Watertite Type P", or equal to size and shape shown.

SECTION 03300

CAST-IN-PLACE CONCRETE

2.1.10 Flexible Sleeve, where shown or specified, shall be of resilient rubber with a flanged, serrated waterstop and shall be cast directly into the walls of the concrete structure as shown on the Contract Documents. Flexible sleeve shall conform to the following physical requirements:

PROPERTY	ASTM TEST REQUIREMENTS		
	METHOD	MIN.	MAX.
Tensile Strength, psi	D412	1500	-
Ultimate Elongation, percent	D412	450	-
Hardness, Type A durometer	D2240	45	55

2.1.10.1 Flexible sleeve must permit a minimum of 10 degrees deflection in all directions. Flexible sleeve shall be "Lockjoint Flexible Manhole Sleeve" as manufactured by Chardon Rubber Company, or equal.

2.1.11 Forms shall be wood, metal, or other approved materials as follows:

- a. Plywood shall be Commercial Standard Douglas Fir, moisture resistant, concrete form plywood, at least 5-ply 5/8" thick.
- b. Metal forms shall be as approved, and must produce surfaces equal to those specified for wood forms.
- c. Form oil shall be an approved non-staining mineral oil, such as "Duogard II" by W.R. Meadows, or equal.
- d. Form ties shall be of approved design, adjustable length and free of devices that will leave hole or depression larger than 7/8" diameter. When forms are removed no metal shall be left within 1" of finished surface.

2.1.12 Waterstops, where shown or specified, shall be minimum 3/8-inch thick across their entire section, heavy duty, serrated type manufactured from virgin polyvinyl chloride compound, "Model RB6-38H" as manufactured by Vinylex Corporation, or equal. They shall have a tensile strength of minimum 1800 psi and an elongation of minimum 200%.

SECTION 03300

CAST-IN-PLACE CONCRETE

2.1.12.1 Waterstops shall be open bulb type, 6-inch wide unless otherwise shown or directed by the Engineer. The waterstops shall be supported during concrete placement to prevent dislodgement and to insure that the ends remain at right angles to the joint. Field joints shall be butt welded with an electric iron in accordance with the manufacturer's instructions.

2.1.12.2 Sample of the waterstops to be used shall be submitted to the Engineer for approval.

2.1.13 Premolded Joint Filler, where shown or specified, shall be premolded, resilient, non-extruding type, 1/2-inch thick unless shown otherwise, full depth of concrete section as manufactured by Celotex Corporation, "Fibre Expansion Joint Filler" by W.R. Meadows, or equal.

2.1.13.1 Sample of the premolded filler proposed to be used shall be submitted to the Engineer for approval.

2.1.14 Joint Sealant, where shown or specified, shall be elastomeric polyurethane sealant material, black in unexposed locations, and grey in exposed locations, and have balanced properties of elongation recovery and tensile strength, and shall be Sonneborn "Sonolastic NP1", Sika "Sikaflex 1A", or equal.

2.1.15 Protective Covering for concrete finish slabs, where shown or specified, shall be "Orange Label Sisalkraft", Polyethylene Film as manufactured by Fortifiber Corp., or equal.

2.1.16 Non-Shrink Grout, where shown or specified, shall be premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days; such as "Embeco" as manufactured by Master Builders, "SikaGrout 212" as manufactured by Sika, or equal.

2.1.16.1 Non-Shrink grout shall be used under structural steel column baseplates and all equipment baseplates. All work shall be done in strict accordance with the manufacturer's recommendations. At the request of the Engineer, the manufacturer's representative shall be called to the job site for consultation regarding detailed use of the grout.

2.1.17 Grout for fillets, channels, or other non-structural applications shall consist of one (1) part cement (Portland Cement Type 2) and three (3) parts fine aggregate (sand) with sufficient mixing water for the intended application.

SECTION 03300

CAST-IN-PLACE CONCRETE

2.1.18 Cementitious Coating Materials, where shown or specified, shall be "Thoroseal" with "Acryle 60" bonding agent, as manufactured by Thoro System Products, "Anchor Masonry Surfacr" as manufactured by Anti Hydro Waterproofing Company, or equal.

2.1.19 Curing Compound shall be acrylic based "Kure-N-Seal" as manufactured by Sonneborn, acrylic based "CS-309", or water based "VOCOMP-20" as manufactured by W.R. Meadows, or equal.

2.1.20 Vapor Retarder, where shown or specified, shall be "Moistop" as manufactured by Fortifiber Corp. Vapor Barrier shall be "Premoulded Membrane Vaporseal" as manufactured by W.R. Meadows, or equal.

2.1.21 Perimeter Insulation, where shown or specified, shall be "Styrofoam Square Edge" as manufactured by the Dow Chemical Corporation, "Foamular 250" as manufactured by UC Industries, or equal.

2.1.22 Penetrating Sealer, where shown or specified, shall be two components, 50% solids penetrating epoxy sealer. The penetrating sealer shall be fully compatible with the types of form oil, curing compound and joint sealant used.

2.1.22.1 Concrete surfaces to be treated must be dry, cured for a minimum of 21 days, free from surface accumulations of dust, dirt, oil, debris, concrete curing compounds, bond breakers, or other compounds which would prevent penetration and intimate contact between the concrete surface and the penetrating sealer. Concrete surfaces require preparation per manufacturer's directions prior to sealer installation.

2.1.22.2 Penetrating sealer shall be "Spec-Seal" as manufactured by Conspec, Inc., or equal.

2.1.23 Metal Slab Joints, where shown or specified, shall be keyed type, minimum 18 gauge, galvanized steel by Heckmann Building Products, or equal.

2.1.24 Vapor Barrier: 6 mil (0.5 mm) thick clear polyethylene film type recommended for below grade application.

SECTION 03300

CAST-IN-PLACE CONCRETE

2.2 CONCRETE MIX DESIGN:

2.2.1 The Contractor shall submit concrete mix designs to be reviewed by the Engineer. The mix designs shall be confirmed by making and testing trial mixes for each class of concrete to be incorporated in the work. All testing shall be made by an approved testing laboratory at the expense of the Contractor. Mix designs shall conform to the ACI 301, except as may be modified in the Plans and/or Specifications.

2.2.2 No job concrete shall be poured until the mix design for that concrete has been approved by the Engineer. Once the mix has been approved, it shall not be changed, except when requested by the Engineer, or if requested by the Contractor and approved by the Engineer.

2.2.3 Ready-mixed concrete from an established company will be approved, if conforming to ASTM C94, and to this specification. All concrete shall be batched, mixed, delivered to the site, and shall conform to these requirements and be controlled in a manner to assure uniform concrete for the quality specified.

2.2.4 Water/cement ratios of all mixes shall be determined from w/c curve plotted from tests of the cement and aggregates used on the job. If necessary to increase the water content of the mix due to field conditions, sufficient cement must be added to maintain the design water/cement ratio. Accelerating or retarding admixtures may be permitted by the Engineer if requested by the Contractor to compensate for adverse weather conditions.

SECTION 03300

CAST-IN-PLACE CONCRETE

2.2.4.1 The various classes of concrete shall be designated as follows:

MAXIMUM PERMISSIBLE WATER-CEMENT RATIOS FOR CONCRETE (WHEN STRENGTH DATA FROM TRIAL BATCHES OR FIELD EXPERIENCE ARE NOT AVAILABLE) Maximum permissible water-cement ratio					
CLASS	MIN. 28-DAY COMPRESSIVE STRENGTH IN PSI*	NON-AIR-ENTRAINED CONCRETE		AIR-ENTRAINED CONCRETE	
		ABSOLUTE RATIO BY WEIGHT	US GAL. PER 94-LB. BAG OF CEMENT	ABSOLUTE RATIO BY WEIGHT	US GAL. PER 94-LB. BAG OF CEMENT
A	5,000	**	**	**	**
B	4,000	0.44	5.0	0.35	4.0
C	3,000	0.58	6.6	0.46	5.2
D	2,500	0.67	7.6	0.54	6.1
E	2,000	0.71	8.0	-	-

*28-day strength. With most materials, water/cement ratios shown will provide average strengths greater than indicated in Section 5.4 of ACI 318R as being required.
**For strength above 4,500 psi (non-air-entrained concrete) and 4,000 psi (air-entrained concrete) proportions shall be established by methods of Section 5.3 of ACI 318R.

Unless otherwise specified, all concrete shall be Class "B", non-air-entrained except exposed concrete which shall be air-entrained. When foundation walls or grade beams are exposed to weather above grade, the entire wall shall be considered exposed concrete.

2.2.4.2 Maximum size aggregates shall be used as follows unless otherwise designated by the Engineer.

1-1/2"	general work
3/4"	thin sections; heavy reinforcing
3/4"	columns, beams and slabs
Over 1-1/2"	massive structures, with approval
3/8"	floor toppings

SECTION 03300

CAST-IN-PLACE CONCRETE

2.2.4.3 Slump - Maximum:

Reinforced concrete - general	4"
Reinforced concrete - thin walls, columns	5"
Non-reinforced concrete	3"
Pavements, including sidewalks	3"
Heavy mass concrete	3"

2.2.4.4 Air Content: Use an approved air entraining admixture. The entrained content shall be controlled between 4% - 6%. See Plans for concrete work requiring air entrainment.

2.2.4.4.1 For mixes containing coarse aggregate with a top size of 3/4" or smaller and for exposed concrete subject to frost and salt action, air contents shall be increased to the range of 5% - 7%.

2.2.4.5 Should the Contractor feel it advantageous to employ concrete additives to improve workmanship or facilitate his work, he shall obtain the approval of the Engineer prior to his use of additives.

2.2.4.6 Use of accelerating admixtures in cold weather will not relax cold weather placement requirements.

2.3 STORAGE OF MATERIALS:

2.3.1 Portland Cement shall be stored in a weather-tight structure. No cement that has taken a warehouse set shall be used and any stored over sixty (60) days shall be rejected unless tested for soundness and setting time under ASTM C150. Such tests shall be at the Contractor's expense.

2.3.2 Fine and coarse aggregates shall be kept separated and free from deleterious substances. All topsoil shall be removed from the storage area. Materials shall be stockpiled in layers to prevent segregation; however, re-mixing may be required if gradation is not maintained. Care shall be taken not to inter-mix materials in the area with the aggregates.

2.3.3 Any materials that have deteriorated or become contaminated will be rejected for use in the concrete and must be promptly disposed of by the Contractor.

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL:

3.1.1 Before each pour, forms and reinforcing shall be inspected and approved by the Engineer. The Contractor shall give at least 24 hours notice before such an inspection is required. No pour shall be started until the Engineer has given approval. No concreting may be done in the absence of the Engineer without written permission of the Engineer.

3.1.2 Concrete Batch Ticket:

3.1.2.1 The Contractor shall require the manufacturer of the concrete to furnish to the Engineer with each batch of concrete before unloading at the site, a delivery ticket on which is printed, stamped, or written, information concerning said concrete as follows:

- Name of ready-mix batch plant
- Serial number of ticket
- Date
- Truck number
- Name of purchaser
- Specific designation of job (name and location)
- Designation of the concrete by compressive strength
- Amount of concrete in cubic yards
- Time loaded or of first mixing of cement and aggregates
- Reading of revolution counter at the first addition of water
- Type and brand, and amount of cement
- Type and brand, and amount of admixtures
- Total water added by producer (and W/C ratio)
- Water added at job site (upon approval of the Engineer)
- Maximum size of aggregate
- Weights of fine and coarse aggregate
- Ingredients certified as being previously approved
- Signature or initials of ready-mix representative

SECTION 03300

CAST-IN-PLACE CONCRETE

3.1.3 Concrete Testing:

3.1.3.1 The Contractor shall employ an approved commercial testing laboratory at his own expense to provide field sampling, testing and inspection of all concrete. Continuous inspection by the approved testing laboratory, shall be provided during all concrete pours. The Contractor shall maintain a record set of plans at the site showing date and amount of each pour, test results and temperature. If any portion of the work shows low test results, the Engineer may require batch plant inspection, additional testing, load tests, cored samples, and/or replacement of the faulty work, etc., at the Contractor's expense.

3.1.3.2 The Contractor, through its approved testing laboratory, shall make all laboratory or field tests as required and shall furnish all necessary equipment. The Contractor, through its approved testing laboratory, shall transport all test cylinders from the site to the laboratory.

3.1.3.3 Field concrete inspection: The Contractor, through its approved testing laboratory, shall provide a competent field concrete inspector whose minimum duties shall be as follows:

- Check each truck on arrival to make sure that the concrete is not retempered.
- Make necessary slump tests for uniformity control.
- Make air tests and yield tests as required.
- Make any and all test cylinders as may be required in the Specifications.
- Notify the Engineers and/or his representative if any test results vary from the specified limits.

3.1.3.4 Tests:

- a. Concrete shall be tested by an approved testing laboratory as follows:
 - Standard 6" x 12" compression cylinders shall be in compliance with ASTM C39 in sets of four and shall be moist cured. Break 2 at 7 days, and 2 at 28 days. One set shall be made for approval of each mix design, one set for first pour of 50 cubic yards or less, and one set for each additional pour of 50 cubic yards. If less than 50 cubic yards are placed in one day, one set shall be made for each day's pour.

SECTION 03300

CAST-IN-PLACE CONCRETE

- All test cylinders shall be cast, moist cured and broken under laboratory conditions in accordance with the ASTM C31 and ASTM C39. All four cylinders of a test shall be taken from the middle third of a single load. Each cylinder shall be properly labeled with an identifying mark, the mix proportions, air content, amount of water, slump, and the location in the structure where the concrete was placed. Test reports shall include all this information. Distribute copies of reports as requested by the Engineer. Should any results be questionable, the Engineer shall be notified immediately so that corrective measures can be taken. Any test cylinder which has broken and fails to meet requirements shall be preserved for inspection by the Engineer.

3.1.4 Records:

3.1.4.1 Maintain records of concrete placement. Record date, location, quantity, air temperature and test samples taken.

3.2 BATCHING AND MIXING:

3.2.1 All Batching and Mixing shall conform to the following and the ACI 304, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".

3.2.2 Aggregates and bulk cement shall be measured to within 1% by weight. Cement in standard sacks need not be weighed. Water shall be measured by volume or by weight to within 1/2%. Aggregate weights shall be corrected for moisture content. Admixtures shall be added through appropriate dispensing equipment to an accuracy of 3%.

3.2.3 The complete plant assembly shall be approved by the Engineer and shall conform to the following requirements:

- Provide ready adjustment of aggregate weights for varying moisture contents.
- Provide means of accurately controlling and easily checking water-cement ratio.
- Provide accurate control of all materials with positive shut-off.
- Facilities shall be provided for prompt removal of excess materials in hoppers.

SECTION 03300

CAST-IN-PLACE CONCRETE

- Each specified size of aggregate shall be measured separately with a separate beam scale.
- Bulk cement shall be dropped through canvas drop chutes or telescopic flexible hose tremie.

3.2.4 Concrete mixers or mixer trucks shall not be loaded to more than the rated capacity of the truck.

3.2.5 All concrete shall be mixed not less than 60 revolutions in the drum of a modern power mixer, at the rated speed of rotation. Mix not less than an additional 30 revolutions after the addition of any further water to the mix.

3.2.6 Do not add raw materials to the drum until all of the preceding batch has been discharged. For transit mixers, the wash water shall be discharged and not used as part of the mix water for the next batch.

3.2.7 Transit-mixed concrete shall be transported to the job site unmixed and only after arrival at the job site shall mixing begin. All concrete shall be unloaded from the mixer within 45 minutes after completion of mixing. All concrete still remaining in the truck shall be rejected.

3.2.8 The total time interval from the time the cement makes contact with the aggregate to the complete unloading from the mixer shall not exceed 90 minutes, unless such time is extended by the Engineer. The time may be reduced in hot weather or under unusual conditions, if unsatisfactory results are obtained.

3.3 FORMWORK:

3.3.1 The Contractor shall design and construct suitable and adequate formwork in conformance with ACI 347R. All shoring shall be properly braced to safely withstand all vertical, moving and lateral forces during the construction period. Responsibility for adequacy and safety rests with the Contractor. Materials shall be as stated in Paragraph 2.1.

SECTION 03300

CAST-IN-PLACE CONCRETE

3.3.2 General requirements for all forms shall be as follows:

- Forms shall be constructed of wood, plywood, or steel.
- All forms shall be set true to line, plumb, and properly braced so as to maintain the desired position and shape during and after pouring concrete. Forms shall be sufficiently tight to prevent leakage.
- All joints between sheets shall be backed up to assure that both sheets are in the same plane. Edges of abutting sheets shall be straight and true and shall be forced tightly together to minimize fins. Quality of form contact surfaces shall be subject to Engineer's approval.
- Form ties shall be designed for the specific wall thickness required, and after removal of the external portion, no metal shall remain closer than one inch (1") from the surface. Ties to be left in place shall be equipped with washers or other approved devices to prevent seepage of moisture along the tie. The removable portion shall be oil or grease coated.
- Immediately following the removal of forms, the projecting ties shall be removed and all holes filled with grout flush with the wall. Care shall be taken to use the same brand of cement and same mix proportions used in the wall to prevent color differences.
- Forms for walls and columns shall be provided with removable cleanout panels, to allow removal of chips and debris. All plywood forms must be new when first used on this job, but may be reused if kept in good condition. All forms shall be swept or flushed clean of shavings, debris, and other loose material. Loose earth and rock shall be scraped from footing trenches before pouring concrete.
- Provide 3/4" chamfer strips, unless noted otherwise on the drawings, at all exposed corners of columns, beams and walls where later finish is not to be applied.
- All forms and shores for floor and roof slabs and beams shall be "crowned" or "cambered" 1/4" for each 12 feet of span to eliminate dead load deflection. All forms shall be oiled with a non-staining mineral form oil before placing reinforcing.

SECTION 03300

CAST-IN-PLACE CONCRETE

- Build into forms all hangers, anchors, bolts, inserts, sleeves, etc., required to be set as part of this work, place and secure in exact position.

3.3.3 Form removal shall be as follows

3.3.3.1 It shall be the Contractor's responsibility to determine the time at which forms may be removed without endangering the structure, subject to the following limitations, unless documentation is provided to modify these requirements:

Footing forms - 24 hours minimum; continue curing as specified.

Wall forms - 2 days minimum for ten (10) feet high. Add one (1) day for each additional five (5) feet of height; continue curing as specified.

Superstructure slabs, beams and columns shall not be stripped until the concrete attains at least 75% of its design strength as proven by test cylinders, and until a minimum of 14 days has elapsed.

Reshoring - immediately after stripping, fully reshore all slabs which are to be used to support shores for upper slabs. All forms for upper floor pours must be supported by shoring to at least two levels of full strength concrete.

3.4 JOINTS FOR CONCRETE:

3.4.1 Joints for concrete shall include all expansion joints, construction joints and contraction joints.

3.4.2 All joints shall be constructed at locations shown on the drawings, or as directed by the Engineer. Additional joints may be constructed by the Contractor subject to the approval of the Engineer.

SECTION 03300

CAST-IN-PLACE CONCRETE

3.4.3 Expansion Joints

3.4.3.1 Expansion joints shall be constructed where shown and as directed. Reinforcement, corner protection angles or other fixed items embedded or bonded into concrete shall not be run continuously through expansion joints. Reinforcement shall be discontinued 2 inches from the joint face. A slightly rounded edging shall be provided to finish neatly all edges around expansion joints.

3.4.3.2 Preformed expansion joint filler material, sealant and waterstops, where shown on the drawings, shall be as specified in Paragraph 2.1.

3.4.4 Construction Joints

3.4.4.1 The location of construction joints shall be chosen by the Contractor and shall be subject to the Engineer's approval except where specifically located on the Plans.

3.4.4.2 Horizontal construction joints in walls will not be permitted, except with the approval of the Engineer. In order to minimize shrinkage, long continuous walls shall not be poured at one time. No more than 50 feet in horizontal direction shall be poured without a construction joint, unless prior approval is obtained from the Engineer.

3.4.4.3 Reinforcing shall be discontinuous through a construction joint, unless otherwise noted on drawings. As shown or specified on the drawings, additional No. 3 reinforcing bars spaced at 12-inches on center shall be placed horizontally in each construction joint at the center of the section. These bars shall be 4-feet long and shall extend 2-feet on each side of the joint. Reinforcement projecting through joint shall be kept clean.

3.4.4.4 As indicated on the drawings, all construction joints shall be provided with a keyway and a PVC waterstop as specified in Paragraph 2.1. The joint surface of the concrete previously placed shall be cleaned of all foreign matter and laitance by means of sandblasting with steam and sharp sand, or by other approved methods, until coarse aggregate is exposed. The concrete surface shall be saturated for a period of 6 hours and excess water then removed.

3.4.4.5 The new concrete shall be preceded by about 1/2-inch of soft mortar of the same proportions as that in the concrete. When accessible, this shall be scrubbed into the surface of the joint with wire brooms. When waterproofing is required, the entire joint shall be parged with a grout of approved mixture as recommended by the manufacturer of the waterproofing

SECTION 03300

CAST-IN-PLACE CONCRETE

admixture, or one composed of one part integral waterproofing, three parts water and sufficient Portland Cement to form a thick, creamy mixture. This grout shall be fresh when followed by the new concrete. In column forms and deep narrow forms, the concrete placement shall be started with an oversanded mix with 5/8-inch maximum aggregate, and extra sack of cement per cubic yard, and a 5-inch slump. This mix shall be placed maximum 2 inches deep on the construction joint. A mortar layer shall not be used.

3.4.4.6 As indicated on drawings, a metal keyed floor slab joint may be used in lieu of above method.

3.4.5 Contraction (Control) Joints.

3.4.5.1 Contraction joints shall be located as shown on the drawings or as directed. Reinforcement through the joint shall be continuous as shown on the drawings and/or as directed by the Engineer.

3.4.5.2 Sawcut contraction joints (Type "A") shall be made by cutting the concrete surface and filling with the sealant material as specified under paragraph 2.1. Cutting shall be done after the surface is firm enough not to be damaged by the cutting blade. Time of cutting shall be approved by the Engineer.

3.4.5.3 Formed contraction joints (Type "B") shall be made by tooling with a 1/4-inch radius edging tool and filled with the sealant material as specified under paragraph 2.1.

3.4.5.4 Premolded Contraction Joints (Type "C") shall be "Kold-Seal Zipper Strip" by Vinylex or "Zip Cap Control Joint" by Greenstreak Products, or equal.

3.4.5.5 As indicated on drawings, a metal keyed floor slab joint may be used in lieu of above method.

3.5 INSERTS AND SLEEVES:

3.5.1 The Contractor shall cooperate with all other Contractors in permitting the placing of all necessary sleeves, conduit, or inserts for hangers for their trades. The Contractor shall notify the trades of all pours in ample time for the responsible Contractor to place all embedded items, sleeves, slots, holes or chases.

SECTION 03300

CAST-IN-PLACE CONCRETE

3.5.2 Accurately set all slots, chases, anchor bolts, opening, etc. All inserts for hanging mechanical equipment shall be provided and set by the Contractor for the trade involved. All sleeves for piping passing through floors and walls shall be provided by the Contractor for the trade involved and set by the General Contractor.

3.5.3 All conduit which must be placed in concrete slabs shall be installed after, and above the bottom reinforcing, but before, and under the top reinforcing. Where conduit cross-overs are necessary, they shall be located so that reinforcing is not displaced from its specified position.

3.5.4 All anchor bolts for the structural steel shall be carefully set as shown on the fabricator's approved anchor bolt plan.

3.5.5 If, in the judgement of the Engineer, embedded items are located or grouped in a manner that will weaken the structure, the Contractor shall take the necessary corrective steps.

3.5.6 All inserts and sleeves where the outside diameter is greater than the spacing between the reinforcing steel, the reinforcing bars shall be warped around such inserts and sleeves. Unless shown otherwise on the drawings, provide, as a minimum, two #4 diagonal bars per face at 90 degrees to each other all around the inserts and sleeves.

3.5.7 Where openings are left in new concrete or are made in existing concrete for the insertion of wall castings, pipes or other fixtures, the space around these fixtures shall be made watertight by completely filling with a non-shrinking concrete containing an admixture of "SikaSet-C", "Anti-Hydro" Concrete Waterproofing Agent, or equal.

3.6 CONVEYING AND PLACING CONCRETE:

3.6.1 The placing or depositing of all concrete shall be done in accordance with ACI 304, and as modified herein.

3.6.2 Preparation Prior to Placing Concrete:

- a. Prepare previously placed concrete surfaces by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- b. In locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

SECTION 03300

CAST-IN-PLACE CONCRETE

- c. Before placing concrete, all debris, water, snow and ice shall be removed from places to be occupied by concrete. Wood forms shall be wetted except in freezing weather or oiled, and the reinforcement cleaned of ice or other coatings.

3.6.3 Conveying, transporting, and placing shall be done as rapidly as practicable and without segregation, loss of ingredients, and without unnecessary rehandling. The tempering of concrete will not be permitted.

3.6.4 Concrete shall be deposited as nearly as practical to its final position to avoid segregation due to rehandling or flowing. The concreting shall be carried on at such a rate that the concrete is at all times plastic and workable and flows readily into the spaces between the reinforcing bars. No concrete that has partially hardened or been contaminated by foreign material shall be deposited on the work, nor shall retempered concrete be used. Once the concreting is started, it shall be carried on as a continuous operation until the placing of the panel or section is completed. All concrete shall be compacted by suitable means during the placing operation, and thoroughly worked around reinforcement and embedded fixtures and into corners of the forms. Tremies shall be used for deep forms, and concrete shall not be dropped more than 6'-0".

3.6.5 Vibrating:

3.6.5.1 During and immediately after depositing, all concrete shall be thoroughly compacted by vibrating the concrete internally with mechanical vibrating equipment. Care must be taken not to over-vibrate the concrete. Maintain spare vibrator(s) at the site for use in the event of breakdowns.

3.6.5.2 Spade and work the coarse aggregate away from forms, and work concrete around reinforcement to avoid air pockets, voids, and honeycombed sections. Hand spading slabs will be required in addition to mechanical vibration.

3.6.6 During concreting, check shoring frequently with level. Strengthen or adjust shoring as required. Ensure reinforcement, inserts, embedded parts and formed joints are not disturbed during concrete placement.

3.6.7 Placing of concrete in supported elements shall not be started until the concrete previously placed in columns and walls is no longer plastic and has been in place at least two hours.

SECTION 03300

CAST-IN-PLACE CONCRETE

3.6.8 Screed all work to level surfaces at the proper elevations. Rake surfaces to provide bond for floor finishes where specified.

3.6.9 No concrete shall be deposited under water without written permission of the Engineer and then only in accordance with his directions. Proper tremie equipment and techniques must be used, should the need arise.

3.6.10 The Contractor shall have available at all times sufficient approved materials such that, when started, concrete shall be continuous operation until placement of panel or section is complete. Should placing of concrete be suspended or unavoidably interrupted once a pour has been started, provide bulkheads and keyways at formed surface at which to stop pour.

3.6.11 All laitance shall be removed from previous pours before additional concrete is placed.

3.6.12 Place concrete continuously between predetermined expansion, control and construction joints.

3.7 PROTECTION AND CURING:

3.7.1 All concrete shall be protected against injury by sun, rain, freezing, mechanical damage, or premature drying. All concrete shall be maintained above 50°F in a moist or wet condition for at least the first 7 days after placement.

3.7.2 On vertical surfaces keep forms on, or cover with burlap blankets, kept wet. When forms are exposed to the sun, minimize moisture loss by keeping the forms wet until they can be removed safely.

3.7.2.1 For the preservation of moisture, apply one of the following procedures to concrete not in contact with forms, immediately after completion of placement and finishing:

- a. continuous sprinkling
- b. application of absorptive mats or fabric kept continuously wet
- c. application of waterproof sheet materials as specified in Part 2, herein
- d. application of the curing agent specified in Part 2, herein

SECTION 03300

CAST-IN-PLACE CONCRETE

3.7.3 On horizontal surfaces and floors to receive later finishes, cover with wet burlap, wet sand, or curing paper and keep saturated. Cement finish floors shall be covered with protective covering material with lapped and sealed edges after the concrete has set sufficiently to carry worker's weight. Covering shall remain in place until floor is cleaned. Weight covering with planks as required to hold it in place.

3.7.4 Cold weather protection shall conform to A.C.I. 306R, except as modified herein.

3.7.4.1 Prior to pouring, it shall be the Contractor's responsibility to keep the forms free from snow, ice, mud or debris at all times, by means of covers, enclosures, live steam or heating below the forms, as necessary. Use of torches, open flames, salts, straw, hay or chemical is prohibited.

3.7.4.2 When air temperature is 40°F, or less, use only heated concrete, delivered to the forms at temperatures between 65°F and 85°F. All portions of freshly poured concrete shall be continually maintained at a temperature of not less than 50°F for seven days. Specified temperature shall be maintained by heated enclosures, insulating blankets, insulated forms, or whatever approved methods are required to attain the specified result.

3.7.4.3 Concrete shall not be poured on frozen soil. After pouring, protect against freezing and heaving of subgrade. Any frozen concrete will be rejected and removed at the Contractor's expense. Accelerating admixtures shall not be accepted in lieu of winter protection.

3.7.5 Hot weather protection shall conform to ACI 305R, except as modified herein.

3.7.5.1 During warm dry weather special care and precautions should be taken to prevent premature setting which may cause shrinkage and surface checking. No concrete shall be placed at temperatures above 90°F without approval of the Engineer.

3.7.6 No water (except curing spray) shall be allowed to come in contact with the concrete or masonry surface for a minimum of 24 hours. Should the rising water place a stress on the concrete, proper bracing shall be provided. Loading shall not occur without prior approval by the Engineer, and proper safety precautions shall be the responsibility of the Contractor.

3.7.7 Curing compound may be used as specified in Paragraph 2.1 provided discoloration does not occur and application is in accordance with manufacturer's direction and is compatible with concrete finish.

SECTION 03300

CAST-IN-PLACE CONCRETE

3.8 FOOTINGS AND MATS:

3.8.1 Hand trim excavation to required levels.

3.8.2 Where shown on the drawings provide concrete mud mat to the thickness indicated.

3.8.3 Support reinforcing on bricks or precast blocks, or where mud mat is used, on chairs or bolsters, 3" clear of soil.

3.8.4 Columns and wall dowels shall be positioned, supported and tied in place before concrete is poured. Footing bottoms shall be inspected and approved by the Engineer before placing mud mat or footings.

3.9 SUPPORTED SLABS ON FORMS:

3.9.1 Forms shall be built to required dimensions and camber as specified above. Reinforcing shall be located as shown on approved placing plans. Support bars at specified heights with bolsters, chairs, etc., so that reinforcing will not be moved from the specified position during placing of concrete.

3.9.2 Refer to paragraph 3.5 for installation of conduits.

3.10 SLABS ON GROUND:

3.10.1 Subgrade and base to be prepared as specified in Contract Documents.

3.10.2 Form depressed ribs under partitions as required by sloping gravel, or provide permanent side forms to retain gravel.

3.10.3 Trench subgrade for electric conduit as detailed on Plans. All reinforcing shall be above electric conduit.

3.10.4 Place slabs of thickness shown on Plans, vibrate, screed, float level, and finish as specified below.

SECTION 03300

CAST-IN-PLACE CONCRETE

3.11 CONCRETE FINISHES - FORMED SURFACES:

3.11.1 After the forms are removed, all concrete surfaces shall be inspected, and any poor joints, voids, stone pockets or other defective areas noted by the Engineer shall be repaired immediately at the Contractor's expense by cutting away the unsound area to a minimum depth of 1 inch, and refilling with mortar mixed using the same brand of cement as the original pour. Edges of the patch shall be square with the face, with feather-edging prohibited. Obtain approval of corrective action prior to repair.

3.11.2 Care shall be taken to saturate the patched area and holes shall be filled in 1/2-inch layers with a delay for an initial set to take place before the succeeding layer is applied. If, in the opinion of the Engineer, improper consolidation is too extensive, or if the structure appears weakened by the voids, complete removal of the concrete in question may be required. Patches shall be kept moist for a minimum of three days.

3.11.3 Rubbed finishes shall be as follows:

- a. Type A: Surfaces shall be rubbed until all marks are obliterated and a uniformly smooth finish is obtained.
- b. Type B: Surfaces shall be rubbed until they are uniformly smooth, but the complete obliteration of all marks is not required.
- c. Type C: All fins, burrs and projections shall be removed, any honey-comb or tie-holes shall be filled and patched.

3.11.4 The type of finish to be used shall be as scheduled or as noted on the Plans. Where the type of finish is not shown or scheduled, exposed faces shall be given a Type B finish and unexposed faces shall be given Type C finish.

3.11.5 Rubbing shall begin as soon as practicable after removal of forms and shall be expedited to completion as rapidly as practicable.

3.11.6 Surfaces shall be rubbed with carborundum and water until all fins, bubbles, hollows and other defects are removed. Grout or mortar shall not be used in the rubbing process, and plastering of surfaces will not be permitted. Power tools shall be used for rubbing with hand work limited to inaccessible corners or very small areas.

SECTION 03300

CAST-IN-PLACE CONCRETE

3.12 FLOOR AND SLAB FINISHING:

3.12.1 Finished floors and slabs shall be level to within 1/8" of finish floor elevation in ten feet. If this variation occurs, it must not be abrupt, but must taper so that the 1/8" variation takes place in not under 4 feet. Areas with drains shall have the surfaces sloped uniformly and true to the effect that no surface ponding occurs. If required by the Engineer, replace, grind or furnish underlayment to correct the variation, at the Contractor's expense. All floors and slabs shall be cured and protected as specified.

3.12.2 Trowelled Finish: Provide a floated finish, followed by a power troweling and then a hand troweling thoroughly consolidating the surface. Provide a finished surface essentially free from trowel marks and uniform in texture and appearance.

3.12.2.1 Where exposed concrete finish is specified, provide a steel trowelled finish.

3.12.2.2 Under quarry tile and ceramic tile screed to accurate lines and levels as required to receive these materials. Floors receiving tile are to be steel trowelled finished and are indicated on the Plans.

3.12.3 Float Finish: A float finish shall be applied to all exterior concrete and those areas not intended for occupancy, such as culvert inverts, bottoms of manholes and catch basins, pads, etc.

3.12.4 Broom Finish: Provide a floated finish. While the surface is still plastic, provide a textured finish by drawing a fiber bustle broom uniformly over the surface in one direction only. Provide "medium" texturing unless noted otherwise on the Contract Drawings. Sidewalks, walkways, or exterior ramps shall be given a broom finish, perpendicular to traffic, sufficient to leave marks without appreciable disturbance of the surface.

3.12.5 Dusting with dry cement or cement sand mixtures, to hasten drying, is prohibited. Dry time shall be controlled by controlling the water content and slump of the concrete when placed.

3.13 BONDING:

3.13.1 For the bonding of new and old concrete, such provisions shall be made by means of steps, dovetails, bonding agents as specified in Paragraph 2.1, or other devices as shown, or directed.

SECTION 03300

CAST-IN-PLACE CONCRETE

3.13.2 When placing of concrete is suspended or unavoidably interrupted, all necessary grooves for bonding future work shall be made before the concrete has attained its initial set. When the work is resumed, concrete previously placed shall be roughened, cleaned of all foreign material and laitance by means of sandblasting with steam and sharp sand or other approved methods, until coarse aggregate is exposed, and thoroughly wetted and slushed with mortar containing the same proportion of cement and fine aggregate as used in the concrete to be placed. Follow manufacturer's preparation recommendations when using a bonding agent.

3.14 MISCELLANEOUS CONCRETE WORK:

3.14.1 Pour all sump pits, canopies, copings and provide all other miscellaneous concrete and cement work shown on the drawings. All such concrete shall be reinforced as shown. Provide all cement filled stair treads as detailed. Place bottoms and walls of pits and trenches monolithically or provide waterstops and keys.

3.14.2 Concrete Walks: Provide 4 inches thick minimum. Provide contraction joints spaced every 5 linear feet, unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide 1/2-inch thick transverse expansion joints at changes in direction, where sidewalk abuts curb, steps, rigid pavement, or other similar structures. Provide a transverse slope of 1/4-inch per foot, and limit variation in cross section to 1/4-inch in 5 feet unless otherwise indicated.

3.14.3 Curbs and Gutters: Provide contraction joints spaced every 10 feet maximum, unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide expansion joints 1/2-inch thick and spaced every 100 feet maximum, unless otherwise indicated. Provide a broom finish.

3.14.4 Equipment Bases: Unless otherwise shown, all equipment shall be erected on bases of Class "B" concrete. Thickness shall be as noted on the Plans, but at no time shall it measure less than 1 inch.

3.14.5 Concrete Stairs, Steps and Platforms: Stairs, steps and platforms shall be formed to required profiles shown on the Plans. Place reinforcing as required. Finish of stairs and steps shall be monolithic. Where shown on Plans, provide for nosings. Exterior stairs, steps and platforms shall have a non-slip finish. Before final troweling, embed abrasive grits, as specified in Paragraph 2.1, in the surface.

SECTION 03300

CAST-IN-PLACE CONCRETE

3.15 CEMENTITIOUS COATING:

3.15.1 Cementitious Coating shall be applied to all exposed exterior and interior Cast-In-Place Concrete surfaces except concrete floors and walking surfaces in accordance with the schedule shown on the Plans, or otherwise directed.

3.15.2 The surfaces to be coated shall be clean, free of all laitance, dirt, grease, curing compound, form treatments, efflorescence, paint and other foreign matter. All formed tie-rod holes and honeycombed areas shall be patched flush with the surrounding area using mortar as recommended by cementitious coating manufacturer.

3.15.3 All areas scheduled to be coated will receive two coats of cementitious coating as specified in Paragraph 2.1, applied at a minimum rate of 2 pounds per square yard per coat. The first coat shall be allowed to set before the second coat is applied. Sufficient materials shall be applied to fully seal all pores and voids. All coatings shall be done strictly in accordance with the manufacturer's recommendations.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - CAST-IN-PLACE CONCRETE:

4.1.1 The quantity of Cast-In-Place Concrete for which payment will be made will be the actual number of cubic yards measured in place within the lines shown, specified, or ordered.

4.2 PAYMENT - CAST-IN-PLACE CONCRETE:

4.2.1 For Cast-In-Place Concrete, not included in other unit or lump sum price items, payment for Cast-In-Place Concrete will be made at the applicable price stated in the Bid.

END OF SECTION

SPECIFICATIONS

SECTION 13052

LANDFILL GAS VENTS

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for Landfill Gas Vents, as shown on the Plans, as specified, and/or directed.

1.1.2 The work shall include but not necessarily be limited to:

- Excavation
- Schedule 80 PVC Gas Vent Pipe with top fitting and bird screens
- Perforated PVC Pipe as shown on Contract Drawings
- Type A Select Fill, Section 02225, or approved material
- Installation as shown on Contract Drawings

1.1.3 The Contractor shall maintain the installed gas vents free of any obstruction (cave-in, backfill) and damage during placement of the soil layers and until final acceptance of the work required by this Contract.

PART 2 - PRODUCTS

2.1 MATERIALS:

2.1.1 PVC pipe, fittings and miscellaneous related materials as specified in Section 02436.

2.1.2 Type A Select Fill as specified in Section 02225 or approved alternate material.

SECTION 13052

LANDFILL GAS VENTS

PART 3 - EXECUTION

3.1 LANDFILL GAS VENTS INSTALLATION:

3.1.1 Installation of the gas vent shall be completed as the layers for the final cap are placed.

3.1.2 A backhoe or power auger shall be used to excavate into the refuse as shown on the Contract Drawings. Excavation shall be in accordance with Section 02220.

3.1.3 The PVC pipe for the gas vent shall be centered in the excavation and backfilled with Type B Select Fill to the top of subgrade. A coupling shall be installed on the PVC pipe about even with the subgrade.

3.1.4 The remainder of the solid PVC pipe for the vent shall be attached to the coupling.

3.1.5 The geomembrane shall be placed in the configuration as shown on the Contract Drawings and as specified in Section 02595: "Polyvinyl Chloride (PVC) Lining Material."

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - LANDFILL GAS VENTS:

4.1.1 Under this Item, the Contractor shall furnish all labor, materials, and equipment required to perform Landfill Gas Vents, as ordered by the Engineer. In addition to the applicable provisions of Section 00100 through and including 01640, and other divisions of this project, one following sections describes the principal items of work to be performed under this payment item.

4.1.2 Measurement of the quantity of Landfill Gas Vents allowed for payment shall be based on the number of lineal feet placed to the nearest one foot of material placed in accordance with the Specifications, Drawings or as approved by the Engineer.

SECTION 13052

LANDFILL GAS VENTS

4.1.3 Work under this Item shall generally be comprised of the following:

- Furnishing and placing Landfill Gas Vents shown on the Contract Drawings, as ordered by the Engineer.
- 02220 Excavation
- 02225 Select Fill Materials
- 02436 Polyvinyl Chloride (PVC) Pipe & Fittings
- 13052 Landfill Gas Vents

4.2 PAYMENT - LANDFILL GAS VENTS:

4.2.1 For Landfill Gas Vents, not included in other unit or lump sum price items, payment for Landfill Gas Vents will be made at the applicable price stated in the Bid. The quantity of Landfill Gas Vents for which payment will be made will be the actual number of lineal feet of Landfill Gas Vents (Inclusive of slotted pipe and fittings) incorporated into the work, measured in place, as ordered by the Engineer.

4.3 RELATED WORK NOT INCLUDED

4.3.1 The following items of work closely related to Landfill Gas Vents, are specifically not included under this Item:

- 02677 Rotary-Drilled Landfill Gas Vent Wells

END OF SECTION

SPECIFICATIONS

SECTION 15884

LANDFILL GAS VENT FLARE

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, equipment, materials and freight for the complete and operational Landfill Gas Vent Flare, as shown on the Plans, as specified and/or directed.

1.1.2 The work also includes all accessories, control stations, appurtenances or other work required for a complete operating installation of the specified equipment, except those items specifically included under other items of this Contract.

1.2 REFERENCES: The publications listed below and their latest revisions form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.2.1 American Society for Testing and Materials (ASTM) Publications:

A36	Structural Steel
A53	Pipe, Steel Black and Hot-Dipped, Zinc-Coated Welded and Seamless

1.3 SUBMITTALS:

1.3.1 Shop Drawings: Submit four complete sets of shop drawings for approval. They shall contain enough detailed information to determine that the equipment conforms with the requirements of this Specification and not less than the following information:

- B. Flare
- C. Solar Ignition System

1.3.1.1 Dimensional equipment and fabrication drawings, including equipment weights, materials equipment locations, support details for all items and equipment.

SECTION 15884

LANDFILL GAS VENT FLARE

1.3.1.2 Control panel and all remote control devices.

1.3.1.3 Control schematic diagrams and complete wiring and hydraulic piping diagrams.

1.3.2 Operation and Maintenance Instructions: Four complete sets of neatly and substantially bound operating and maintenance instructions shall be furnished specifically for this installation. Operating instructions shall include detailed information relative to type, method and sequence of controls and operation, with sufficient illustrations to prevent misinterpretation. Maintenance instructions shall include complete detailed data sufficient for adequately servicing the complete system, repairing, and ordering of all replacement parts, and shall be fully illustrated for clarity. Any components or methods peculiar to a particular system shall be explained in detail.

1.4 DELIVERY, STORAGE AND PROTECTION: Inspect materials delivered to the site for damage. Unload and store electrical equipment with minimum handling. Provide storage space in dry location, free from dust or water, and easily accessible for inspection and handling. Do not cover with tarps, polyethylene film or similar coverings. Handle, store and protect other materials in accordance with the manufacturer's recommendations. Replace damaged items with new items or repair as approved by the Owner.

1.6 WARRANTY: The Contractor shall warrant in writing all the work, materials and equipment called for in the Contract against defects in materials or workmanship for a period of twelve months following the date of the Owner's acceptance, whichever occurs first. Under this warranty, the Contractor shall make good, at his own expense and without delay, any failure of any part due to poor or faulty materials, construction or installation, or to the failure of any equipment to satisfactorily perform the work required of it by the Specifications. Any work replaced or rebuilt during the above-mentioned guarantee period shall be similarly guaranteed for a 12-month period starting from the date of acceptance of the repair, reconstruction or replacement.

PART 2 - PRODUCTS

2.1 LANDFILL GAS VENT FLARE: The unit shall be equipped with the following; solar-powered a continuous ignition system and a 1-weather variable flow flarehead, inline flame arrester, Flare stainless steel shut-off valve Scheduled 40 black galvanized steel piping and cold weather insulation and jacketing kit.

SECTION 15884

LANDFILL GAS VENT FLARE

2.1.1 Performance Criteria:

- A. Gas Flow Rate: Unit shall be designed for effective combustion and reignition over a range of 2-60 SCFM of landfill gas or other low-grade biogas having an equivalent methane concentration between approximately 30-80 percent. Inlet gas pressure 0.5 to 5 inches of water column.
- B. Flame Temperature: Average reading approximately 900°F - 1300°F depending upon gas quality, flow rate and wind velocity.
- C. Reignition Limits: Continuous reignition of gases in less than 60 seconds after flameout regardless of wind direction or velocity.
- D. Operating Temperature: Unit shall be designed to operate at ambient temperatures between - 40 degrees F and 120 degrees F.

2.1.2 Acceptable Manufacturers: Landfill gas candlestick flare shall be Model CF-5 as manufactured by Landfill Technologies, Inc., 2-inch Vent Flare as manufactured by LFG Specialties, or approved equal.

2.1.3 Combustion Flarehead: Double expansion gas/air mixing chamber. Heavy carbon steel construction with high-wind carburetion profile. Two spark plug taps for extra low or normal gas flows.

2.1.3.1 Flame Arrester: Inline stainless wire-gauge flame arrester. Design of flame arrester shall prevent flameout regardless of wind direction on velocity.

2.1.3.2 Height: 96-inches inlet to top of flarehead (add ground height of flange to determine ground height of flame).

2.1.4 Solar Ignition System

2.1.4.1 Solar Collector: Solar-electric trickle charge plate; not less than 75 square inches, 5 watt, panel providing 10 volts peak with minimum 8 volts at 300 mA normal charging power.

SECTION 15884

LANDFILL GAS VENT FLARE

2.1.4.2 Battery Type & Voltage: 12-volt rechargeable gel cell fully-charged shall be capable of providing system will adequate reserve power to function for 15 days in darkness.

2.1.4.3 Spark Interval: 5.0 seconds maximum.

2.2 MATERIALS: Products shall conform to the respective reference specifications and standards and to the requirements specified herein.

2.2.1 Steel and Iron: If not specified otherwise, use standard mill finished structural steel shapes or bar iron in compliance with AISI Specifications for Structural Steel Buildings.

2.2.2 Structural Carbon Steel: ASTM A36.

2.2.3 Structural Tubing: ASTM A500, Grade B or ASTM A501.

2.2.4 Steel Pipe: ASTM A53, galvanized, Type S, Grade B, standard weight unless otherwise specified.

2.2.5 Fittings for Steel Pipe: Standard malleable iron fittings, galvanized.

2.2.6 Anchors and Fasteners: Where exposed, shall be of the same material, color, and finish as the metal to which applied.

PART 3 - EXECUTION

3.1 INSTALLATION: The equipment and material shall be installed in accordance with the best commercial practices. All systems shall be neat in appearance, compact, workmanlike in construction and assembly, and installed for long and continuous service. All parts shall be readily accessible for inspection, repair and renewal. The equipment and material shall be inspected upon delivery and shall be tested after installation. Correct defects or errors in the fabrication of components in an approved manner. If defects or errors in fabrication of components cannot be corrected in an approved manner, remove and provide non-defective components. Performance testing shall be conducted in a manner approved by the Engineer. Performance criteria shall be utilized by the gas flare manufacturer as a basis of design for that system.

SECTION 15884

LANDFILL GAS VENT FLARE

3.2 PERFORMANCE TEST

3.2.1 The Contractor shall conduct a performance test within five days of equipment installation which shall be witnessed and verified by Owner. This performance test shall include a positive demonstration that the provided equipment is capable of the following specified performance.

- a. Ignition and Reignition: After verification of gas quality and flow rate, and after installation of the flare according to manufacturer's instructions, the flare shall ignite within 60 seconds of opening gas valve and turning igniter to "ON" position. The average of 10 consecutive cycles will be used to determine acceptance.
- b. Flame Temperature shall be in the approximate range from 900° to 1300°F as measured by a thermocouple probe inserted into the combustion zone. Metering by multimeter type thermocouple thermometer or equivalent device.

3.3 INSTRUCTION TO OWNER PERSONNEL: Upon completion of the work and after field testing and final operational acceptance of the flares, and at a time designated by the Owner, the services of a competent technician regularly employed or authorized by the manufacturer shall be provided for instructing personnel in the proper maintenance, and trouble shooting for the flares. The period of instruction shall be one eight-hour working day. Training shall be done at the job site during actual operations.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - LANDFILL GAS VENT FLARE:

4.1.1 Measurement of the quantity of Landfill Gas Vent Flare allowed for payment shall be based on the number of Landfill Gas Vent Flare placed in accordance with the Specifications, Drawings or as approved by the Engineer.

15884-6

SECTION 15884

LANDFILL GAS VENT FLARE

4.2 PAYMENT - LANDFILL GAS VENT FLARE:

4.2.1 For Landfill Gas Vent Flare, not included in other unit or lump sum price items, payment for Landfill Gas Vent Flare will be made at the applicable price stated in the Bid.

END OF SECTION

5.00

132.164

SPECIFICATIONS

SECTION 15999

PAYMENT ITEM FOR AUGERED HOLE ABANDONMENT

PART 1 - DESCRIPTION:

1.1 Under this Item, the Contractor shall furnish all labor, materials and equipment required to perform Augered Hole Abandonment, as ordered by the Engineer.

1.2 Work under this Item shall generally be comprised of the following:

- Augered Hole Abandonment not shown on the Contract Drawings, only as ordered by the Engineer due to unforeseen conditions.
- Disposal of any waste to point of abandonment.
- Backfill of augered hole to point of abandonment. Backfill material to be provided by Oswego County.

1.3 RELATED WORK NOT INCLUDED: The following items of work closely related to Augered Hole Abandonment, are specifically not included under this Item:

SECTION

02220	Excavation
02225	Select Fill Materials
02436	Polyvinyl Chloride (PVC) Pipe & Fittings
02677	Rotary Drilled Landfill Gas Vent Wells
13052	Landfill Gas Vents
15884	Landfill Gas Vent Flare

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

15999-2

SECTION 15999

PAYMENT ITEM FOR AUGERED HOLE ABANDONMENT

PART 4 - PAYMENT

4.1 The quantity of Augered Hole Abandonment for which payment will be made will be the actual number of lineal feet of Augered Hole Abandonment incorporated into the work, measured in place, as ordered by the Engineer.

No payment will be made under this Item for Augered Hole Abandonment not ordered by the Engineer.

END OF SECTION

5.00

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