S P E C I F I C A T I O N S

F O R

HILLSIDE PARK STORM DAMAGE RESTORATION

FOR
VILLAGE OF HASTINGS-ON-HUDSON
WESTCHESTER COUNTY, NEW YORK

PREPARED BY

JAMES J. HAHN ENGINEERING, P.C.
PUTNAM BUSINESS PARK
1689 ROUTE 22
BREWSTER, NEW YORK 10509

JUNE 2022

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SECTION A

NOTICE TO BIDDERS

Sealed proposals for performing the work herein described will be received by the Village Board of Hastings-on-Hudson, New York, at the Office of the Village Clerk, Village Hall, 7 Maple Avenue, Hastings-on-Hudson, New York 10706, on July 27, 2022 at 10:00 a.m. and immediately thereafter the bids will be publicly opened and read aloud in said office.

The work consists of the replacement and addition of stormwater piping, catch basins, earthwork and slope restoration, concrete curbs, and site restoration. The project is located on Chemka Pool Road in the Village of Hastings-on-Hudson. Other related work shall include preparing, restoring and cleaning the project area all in accordance with the plans and specifications as directed by the Engineer.

Contract Documents may be obtained digitally at no cost by sending an e-mail request to acostantini@hastingsgov.org or dhahn@hahn-eng.com or may be obtained online at https://www.hastingsgov.org/village- clerk/pages/rfps-and-bid-documents on or after 2:00 P.M., July 5, 2022.

In addition to the above, the Village of Hastings-on-Hudson has partnered with BidNet as part of the Empire State Purchasing Group and will post our bid opportunities and any addendums to this site. As a vendor, you can register with Empire State Purchasing Group and be sure that you see all of the Village's available bids, addendums, and opportunities. Detailed plans and specifications for said bid may be obtained through the Empire State Purchasing Group at the following link: www.bidnetdirect.com/new-york/hastings-on-hudson

Bids shall be made on the separate Bid Proposal Forms furnished with the Specifications and must be accompanied by a Bid Bond acceptable to the Village or a certified cashier's check drawn on a solvent bank in the amount of not less than 5% of the total amount of the Bid. Checks shall be made payable to the Village of Hastings-on-Hudson, New York, and are to be held by the Village as a guarantee for the proper execution and delivery of the Contract and bonds to secure the faithful performance thereof. In default of such execution and delivery of Contract and Bonds, the amount of the deposit represented by the check shall be forfeited to and retained by the Village of Hastings-on-Hudson as liquidated damages.

Proposals shall be enclosed in a sealed envelope bearing the name and address of the Bidder, addressed to the Village of Hastings-on-Hudson, 7 Maple Avenue, Hastings-on-Hudson, New York and endorsed "Chemka Pool Flood Damage Restoration", Hastings-on-Hudson, New York.

The Village of Hastings-on-Hudson reserves the right to reject any and all Bids, to waive any informality in any Bid, and to award the Contract to other than the lowest Bidder if deemed in the best interest of the Village to do so.

Dated July 5, 2022
By Order of the Village Board
By Anthony Costantini, Village Clerk

SECTION B

INSTRUCTIONS TO BIDDERS

DOCUMENTS

Complete sets of Bidding Documents will be issued for bidding purposes as stated in the "Notice to Bidders". A complete set of Documents consists of the following:

a. A bound copy of the Specifications.
b. Separate set of Bid Sheets.
c. Addenda (if any).
d. Contract Plans.

PROPOSALS

To be considered, Proposals on the forms included herein, must be in accordance with these Instructions to Bidders. All bids must be submitted on the prescribed forms which are included herein, such forms also being bound in the specifications as Section C. All blank spaces for bid prices must be filled in, in both words and figures, either typed or in ink.

Proposals that contain any omission, erasures, alterations, additions, or items not called for in itemized Proposal, or that contain irregularities of any kind, may constitute sufficient cause for rejection of the bid. In case of any discrepancy in the price or amount bid in the Proposal, the price, as expressed in words, shall govern. All bids must be submitted in sealed envelopes addressed to the Village Board, Village of Hastings-on-Hudson, Westchester County, New York and be clearly identified with: (1) Project Name, (2) Name of Bidder and Address. Proposals shall be signed with name typed below signature. The Bidder's seal, if a corporation shall be affixed under the Bidder's signature. Telephone, Facsimile or Telegraphic Bids will not be accepted.

If a separate set of proposal sheets is issued, they may be used with the understanding that all instructions and conditions of the Contract Documents are the same as if these pages were bound herein.

QUALIFICATIONS OF BIDDERS

The Owner may make such investigations as he deems necessary to determine the qualifications of the Bidder to perform the work and the Bidder shall furnish information and data for this purpose as may be required. The Owner reserves the right to reject any bid if the evidence submitted by a Bidder, or the investigation of such Bidder, fails to satisfy the Owner, that such Bidder is properly qualified to carry out obligations of the Contract and to complete the work contemplated therein within the time designated. Fraudulent statements shall cause rejections of Proposal and forfeiture of bid security.

The investigation of a Bidder will seek to determine whether the organization is adequate in size, is authorized to do business in the jurisdiction where the project is located, has had previous similar experience and where available equipment and financial resources are adequate to assure Owner that the work will be competed in accordance with the terms of the Agreement. The amount of other work to which the Bidder is committed may also be considered.

All Bidders shall be prepared to submit within five (5) days of Owner's or Engineer's request, written evidence of such information and data necessary to determine if Bidder is qualified to perform the work. Qualifications shall include a minimum of five (5) previous projects involving similar construction work. The Contractor shall have a minimum of five (5) years of work experience of similar size and scope. As a minimum, the project reference information requested in Section C of the Bid Proposal shall be provided at this time.

A representative of the Municipality will be present during site activities. It is required that work at this site be completed within the time allowed from the effective date of the Contract. Companies that do not have the ability to meet this schedule should not bid. If a bid will not be submitted, please notify the Village Engineer.

Technical capability and the ability to complete the project within the established time frame will also be part of the evaluation criteria along with any special status the bidder may have such as women-owned business and minority-owned business. Guidance on business classifications can be found in the Federal Acquisition Regulations (FAR) Subpart 19.1.

In evaluating Bids, the Owner will consider the qualifications of only those Bidders whose Bids are in compliance with the prescribed requirements.

CONDITIONS OF WORK

Each Bidder must inform himself fully of conditions relating to the construction and labor under which work will be performed. Failure to do so will not relieve a successful Bidder of his obligation to furnish all material and labor necessary to carry out the provisions of the Contract and to complete the work for the consideration set forth in his bid. Bidders' attention is directed to Paragraph 1 of the Bid Proposal, in which the Bidder certifies that he has examined the site. If rock probes or test borings have been made by the Owner, they will be made available to the Contractor for inspection of the same conditions and basis as described in Section 154 of the General Conditions. Bid shall include the complete costs of furnishing all materials, labor and equipment necessary to complete the work in accordance with the Drawings and Specifications and all other expenses incidental thereto. Local and State sales taxes shall not be included in the bid. Insofar as possible, any Contractor in the carrying out of his work must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor, or of the proper functioning of the existing facilities of adjacent or contingent properties.

ADDENDA AND INTERPRETATION

Every request for information or interpretation of Bidding Documents or Drawings must be addressed in writing to the Village Consulting Engineer, James J. Hahn, P.E., Putnam Business Park, 1689 Route 22, Brewster, New York, 10509 and to be given any consideration must be received at least ten (10) days prior to the date fixed for the opening of bids. Any and all such interpretations, and any supplemental instructions, will be in the form of written Addenda and will be mailed to all prospective Bidders. The failure of any Bidder to receive any such Addenda will not relieve the Bidder of any obligation under his Bid as submitted. Acknowledgment of Addenda shall be noted on the "Bid Form".

BID SECURITY

Each Bidder is required to deposit at the time of submission of his bid, a Bid Bond or certified check in an amount representing five (5%) percent of his bid payable to the Owner, which amount the Bidder agrees is to be forfeited as liquidated damages and not as a penalty if in case he is awarded the Contract and he shall thereafter fail to execute a Contract with the Owner under the conditions of this Proposal or to furnish the bonds required for the faithful performance of this Contract. Bidders who submit certified checks must accompany them with a Consent of Surety from a recognized Bonding Company agreeing to supply a Performance Bond and Labor and Materials Bond if the Contract is awarded to the Bidder.

Such bid security will be returned to all except the three lowest formal Bidders within three days after the formal opening of bids, and the remaining bid security will be returned to the other Bidders after the Owner and the accepted Bidder have executed the Contract Documents. In the event no Contract has been so executed within forty-five (45) calendar days after the date of the opening of bids, upon the demand of the Bidder, so long as he has not been notified of the acceptance of his bid, his bid security will be returned. The Bid Security of the successful Bidder will be retained until the signing of Agreement, the filing and approval of the bonds and insurance.

INSURANCE REQUIRED

The successful Bidder will be required to procure and pay for the following types of insurance, in accordance with the provisions listed in Section J. The Village of Hastings-on-Hudson shall be named as co-insured.

a. Workmen's Compensation
b. Public Liability
c. Owner's & Contractor's Protective Liability Property Damage
d. Property Damage
e. Automobile (Each Vehicle)
    Public Liability
    Property Damage
f. Unemployment Insurance

The Subcontractors at a minimum must have the same insurance coverage as required by the Contractor or be listed on the Contractors policy.

SECURITY FOR FAITHFUL PERFORMANCE

The Contractor shall, prior to execution of the Contract and within fourteen (14) calendar days after the Notice of Intent to Award, submit two separate executed bonds with Power of Attorney, (1) a Performance Bond in an amount equal to one hundred percent (100%) of the accepted bid as security for the faithful performance of the terms, covenants and conditions of the Contract; (2) a Labor and Material Payment Bond for the full amount of the Contract price guaranteeing the full payment of all persons performing labor or furnishing material or rentals, under the Contract; and (3) a Certificate of Insurance.

At the time of final payment, the Contractor shall provide a two (2) year maintenance bond guaranteeing against defective materials and workmanship but excluding survival of the landscaping, in an amount equal to one hundred (100%) percent of the contract amount and shall submit the completed General Release form (Section G-1) stating that all obligations incurred by the Contractor in carrying out this Agreement have been satisfied including wage and costs of subcontractors, equipment and materials.

FORM OF AGREEMENT

The preliminary form of agreement is included in these documents in Section D.

AWARD

The Contract will be awarded to the lowest responsible bidder pursuant to the provisions of the General Municipal Law. The Village Board reserves the right to determine responsibility based on an evaluation of the Contractor's qualifications, experience, organization, finances, past performances, and other applicable factors. The Village Board further reserves the right to reject any or all bids.

OWNER

The Village of Hastings-on-Hudson, Westchester County, New York.

SALES TAX EXEMPTION

Under Chapter 513 of the Laws of New York 1974, all materials and supplies sold to a Contractor and which are to become an integral, component part of a structure, building or real property owned by an exempt organization such as the municipality, are exempt from the

payment of New York State Sales or compensatory use taxes. Therefore, the Contractor should not include any amount in its bid price to cover sales taxes for the above items.

REQUIRED SUBMISSIONS

Following the bid opening, the apparent low bidder shall submit to the Engineer within seven (7) days a preliminary schedule, financial information and experience information.

Prior to award, the successful bidder will be required to meet the following requirements:

a. The successful bidder, if his business is not registered in New York State, must provide the Village with a certificate issued by the Secretary of State of New York stating that the Corporation is authorized to do business within the State and is presently in good standing. If the entity to whom the bid is awarded is not a corporation, it would be required that the entity's certificate of doing business, which should be on file in the County Clerk's Office, be provided. (This would also hold true in the case of joint ventures which would be required to disclose the underlying entities which make up the joint venture and the supplying of the requisite certificate of doing business of each such entity.)

b. A statement by the successful bidder that no officer, director or stockholder (if less than 10 stockholders) of the successful bidder is an officer or employee of the Village or is a relative of any such Village officer or employee. If such officer, director or stockholder does exist, their names and relationship should be disclosed to the Village.

APPROVALS

There will not be any approvals given for any "or equals" materials, equipment or systems prior to the award of the contract.

SECTION C
BID PROPOSAL

HILLSIDE PARK STORM DAMAGE RESTORATION
VILLAGE OF HASTINGS-ON-HUDSON
WESTCHESTER COUNTY, NEW YORK

To:

Village Hall
Village of Hastings-on-Hudson
112 Main Street
Hastings-on-Hudson, NY 10522

Bid Submitted By:

(Name)_____

_____
(Address)

_____
(Telephone Number)

1. I/We do hereby declare that I/We have carefully examined the Plans and the Specifications relating to the above entitled matter and the work, and have also examined the site.
2. I/We do hereby offer and agree to furnish all materials, to fully and faithfully construct, perform and execute all work in the above titled matter in accordance with the Plans, Drawings, and Specifications relating thereto, and to furnish all labor, tools, implements, models, forms, transportations and materials necessary and proper for the purpose for the price/prices as given on the bid forms.
3. I/We do hereby declare that the prices so stated cover all expenses of every kind incidental to the completion of said work, and the contract therefor, including all claims that may arise through damages or any other cause whatsoever.
4. I/We do hereby agree that I/We will execute a contract therefor, containing all the terms, conditions, provisions and covenants necessary to complete the work according to the Plans and Specifications therefore within 10 business days after the award of the contract and if I/We fail to execute said contract within said period of time, that the Village Board shall have the power to rescind said award. The Contract execution will serve as the official notification to commence work.
5. I/We do also declare and agree I/We will commence the work within five days after the contract execution and will complete the work fully and in every respect on or before the time specified in said contract and do authorize the said Board, in case of failure to complete the work within such specified time to employ such men, equipment and materials as may be necessary for the proper completion of said work and to deduct the cost thereof from the amount due under the contract.
6. I/We agree that the Owner reserves the right to select any one, combination of, or all the Bid items in this proposal for the Contractor to complete without affecting any of the Bid prices.
7. I/We hereby affirm that 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

8. its own organization, under the penalty of perjury, that to the best of knowledge and belief:
   a. 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;
   b. 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
   c. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not submit a bid for the purpose of restricting competition.
9. I/We hereby further agree that this proposal is a firm bid and shall remain in effect for a period of at least seventy-five (75) calendar days from the date of the opening of bids, and that with said period of seventy-five (75) days, the Village will accept or reject this proposal, or this period may be extended by mutual agreement.
10. I/We do hereby declare that, if this is a corporate bid, I have been duly authorized to act as the signator on this proposal in behalf of this corporation.
11. I/We hereby affirm, under penalty of perjury, the truth of all statements in this proposal.
12. I/We hereby agree that I/We accept the unit prices and/or lump sums on the following pages, for the various items of work.
13. I/We hereby agree that I/We shall make no claim on account of any variation of the approximate estimate in the quantities of work to be done, whether the actual quantities are greater, smaller or completely deleted. A change in the quantity of any item shall not be regarded as sufficient ground for a change in the price of that item.

_____ Date: _____

(Legal Name of Bidder)

By: _____

(Authorized Signature)

Corporate Seal
(if incorporated)

Bidder acknowledges receipt of Addenda as follows:

	Signature
	Signature
	Signature

The following is a list of places where we have performed work of similar character and magnitude, together with references:

Project Name & Location	**Approximate Cost**	**Reference (Name, relation to project, phone #)**

The full names and places of residence of all persons and parties interested as principals in the foregoing proposal are as follows:

(PRINT NAME)	(ADDRESS)
(PRINT NAME)	(ADDRESS)

Signature of Bidder: _____

U.S. Treasury No.: _____

Business Address: _____

Place of Residence: _____

Date: _____

BID PROPOSAL

HILLSIDE PARK STORM DAMAGE RESTORATION
HASTINGS-ON-HUDSON, NY

Name of Bidder _____ **Email:** _____

Address _____ **Telephone:** _____

City, State Zip _____ **Fax:** _____

Note: The Lump Sum and Unit Price amount is to be written in <u>both</u> words and numbers. In case of discrepancy, the amount shown in words shall govern. The price shall be in dollars and cents. The Lump Sum amount shall include all labor, materials, equipment, services, etc. required to complete the work in accordance with the Plans, Specifications and all other Contract Documents within the specified completion date

SECT	BID ITEM	UNIT	EST. QUANT.	UNIT PRICE (IN NUMBERS)	UNIT PRICE (IN WORDS)	TOTAL PRICE
BBGR	Box Beam Guide Rail	LF	72			
CB	Catch Basin	EA	1			
CBC	Cobble Block Curb	LF	100			
CGR	Clearing and Grubbing	LS	LS			
CMC	Corrugated Metal Culvert (8.75'x 2.5')	LS	LS			
CPP	Corrugated Polyethylene Pipe (12" Dia. French Drain)	LF	50			
CPP	Corrugated Polyethylene Pipe (30" Dia.)	LF	80			
CSG	Crushed Stone and Gravel ("Item 4")	CY	100			
CSG	Crushed Stone and Gravel (3/4" Gravel)	CY	50			
CSG	Crushed Stone and Gravel (3" Gravel)	CY	50			
DR	Demolition and Removal (Misc. Debris)	TON	40			
DS	Drainage Structures (DI #1)	EA	1			
DS	Drainage Structures (DI #2)	EA	1			
ECD	Erosion Control Devices	LS	LS			
MEE	Miscellaneous Earth Excavation	CY	10			

BID PROPOSAL

HILLSIDE PARK STORM DAMAGE RESTORATION
HASTINGS-ON-HUDSON, NY

SECT	BID ITEM	UNIT	EST. QUANT.	UNIT PRICE (IN NUMBERS)	UNIT PRICE (IN WORDS)	TOTAL PRICE
MPT	Maintenance and Protection of Traffic	NP	NP	NON-PAYMENT	NON-PAYMENT	0.00
PVC	Polyvinylchloride Drainage Pipe and Fittings (30" Linear/Sleeve)	LF	120			
R	Restoration	NP	NP	NON-PAYMENT	NON-PAYMENT	0.00
RR	Riprap	SY	540			
RR	Riprap (Grouted) - Spillway	SY	25			
SCP	Saw Cutting Pavement	NP	NP	NON-PAYMENT	NON-PAYMENT	0.00
TR	Tree Removal	LS	LS			
TSS	Topsoil and Seed	SF	4200			
UFG	Unclassified Excavation, Filling, and Grading (Import)	CY	100			
UFG	Unclassified Excavation, Filling, and Grading (Slope Restoration)	LS	LS			
UFG	Unclassified Excavation, Filling, and Grading (Relocate fill from stone culvert to walking bridge and path)	LS	LS			
				BASE BID		
ALTERNATE 1						
BBC	Bituminous Base Course	TON	5			
BTC	Bituminous Top Course	TON	5			
CB	Catch Basin	EA	2			
CGR	Clearing and Grubbing	LS	LS			
CPP	Corrugated Polyethylene Pipe (12" Dia.)	LF	170			
CPP	Corrugated Polyethylene Pipe (12" Dia. Underdrain)	LF	40			

BID PROPOSAL

HILLSIDE PARK STORM DAMAGE RESTORATION
HASTINGS-ON-HUDSON, NY

SECT	BID ITEM	UNIT	EST. QUANT.	UNIT PRICE (IN NUMBERS)	UNIT PRICE (IN WORDS)	TOTAL PRICE
CPP	Corrugated Polyethylene End Section (30" Dia.)	EA	1			
CPP	Corrugated Polyethylene Pipe (30" Dia.)	LF	20			
CPP	Corrugated Polyethylene Pipe (48" Dia.)	LF	95			
CSG	Crushed Stone and Gravel ("Item 4")	CY	50			
DS	Drainage Structures (DI #6, DI #7, DI #9)	EA	3			
DS	Drainage Structures (DMH #12)	EA	1			
ECD	Erosion Control Devices	LS	LS			
RR	Riprap	SY	60			
SCP	Saw Cutting Pavement	NP	NP	NON-PAYMENT	NON-PAYMENT	0.00
TR	Tree Removal	LS	LS			
TSS	Topsoil and Seed	SF	1400			
UFG	Unclassified Excavation, Filling, and Grading	LS	LS			
				ALTERNATE 1 BID		
ALTERNATE 2						
RC	Reinforced Concrete (Headwall)	LS	LS			
				TOTAL BID 1 (BASE +ALTERNATE 1)		
				TOTAL BID 2 (BASE +ALTERNATE 1 + ALTERNATE 2)		

The total bid shall be the sum of the extensions (unit price multiplied by estimated quantity, for each item). It is stated here only as a convenience for comparison of bids. If there are any errors in addition or multiplication, the unit prices for each item shall govern, and the bid comparison will be made on the basis of correct arithmetic applied to these unit prices. In case of a discrepancy between the unit price in words and the unit price in numbers, the unit prices in words shall govern.

The estimated quantities are not guaranteed and are only for bid comparison purposes and final payment will be made for actual quantities regardless of the estimated quantities contained herein. The contractor is further advised that the estimated quantities shown in the Bid Sheets may be reduced or deleted in order to ensure that this Contract can be completed within the budget established for this work. In the event that certain work is deleted or reduced, the Unit Price Bid shall remain in effect for this work.

STATEMENT OF NON-COLLUSION
(To be Completed by Each Bidder)

In accordance with Section 103-d General Municipal Law, effective September 1, 1966, every bid or proposal hereafter made to a political subdivision of the State or any public department, agency or official thereof or to a fire district or any agency or official thereof for work or services performed or to be performed or goods sold or to be sold, shall contain the following statement subscribed to by the bidder and affirmed by such bidder as true under the penalties or perjury; 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 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 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.

(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. The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder, as well as the person signing in its behalf.

c. That attached hereto (if a corporate bidder) is a certified copy of resolution authorizing the execution of this certificate by the signature of this bid or proposal in behalf of the corporate bidder.

Signed:_____ Firm:_____

Title:_____ Date:_____

RESOLUTION

Resolved that_____be
(Name of Corporation)

authorized to sign and submit the bid or proposal of this corporation for the following project

_____

_____

_____
(Describe Project)

and to include in such bid or proposal the certificate as to non-collusion required by section one-hundred-three-d (103-d) of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or mis-statements in such certificate this corporate bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution adopted by_____

_____corporation at a meeting of the

Board of Directors held on the _____day of_____,20___.

(SEAL OF THE CORPORATION) _____
(SECRETARY)

Laws of New York, 1965
Ch. 751, Sec. 103-d, as amended
effective September 1, 1965

OFFER OF SURETY

(To be completed by each bidder)

In the event the above proposal is accepted and the undersigned is awarded the Contract for work, the undersigned offers as surety for faithful performance, bond and/or bonds to protect labor and material man, the following surety:

SURETY COMPANY

Signed _____-

(Bidder)

CERTIFICATE OF SURETY to be signed by a duly authorized official, agent or attorney of the Surety Company.

In the event that the above Proposal is accepted and the contract for the work is awarded

to said _____ the
(Bidder's Name)

_____ will execute the Surety Bonds as
(Surety Company)

herein before provided.

Signed: _____

Dated: _____

HOLD HARMLESS AGREEMENT

(To be approved by your Attorney)

The Contractor (and all subcontractors) shall, during the performance of this work, take all necessary precautions and place proper safeguards for the prevention of accident and shall indemnify and hold harmless, the Village of Hastings-on-Hudson, its employees, officers and agents, James J. Hahn Engineering, P.C. and their employees from all claims, suits and actions and all damages and costs to which they may put by reason of death or injury to all persons or property of another resulting from unskillfulness, willfulness, negligence or carelessness in the performance of the work or in guarding and protecting the same or from any improper methods, materials implements or appliances used in its performance or construction or by or on account of any direct or indirect act or omission of passive or concurrent negligent act or omission by the Village of Hastings-on-Hudson or any of its employees, officers or agents may have directly or indirectly caused or contributed thereto.

BIDDER/CONTRACTOR (Company Name) _____

ADDRESS _____

_____

_____
(Signature)

_____
(Print Name)

_____
(Title)

_____
(Dated)

NOTARY:

Subscribed and sworn to before me
this_____day of_____, 2022

_____
Notary Public

AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS: that

(as Principal, hereinafter called Principal, and

a corporation duly organized under the laws of the State of
as Surety, hereinafter call the Surety, are held and firmly bound unto

as Obligee, hereinafter called Obligee, in the sum of

Dollars ($),

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amounts for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this day of 20

(Witness)

(Principal) *(Seal)*

(Title)

(Witness)

(Surety) *(Seal)*

(Title)

INSURANCE

Contractor shall furnish a Certificate of Insurance prior to commencing work evidencing.

A. Worker's Compensation and Employer's Liability Policy: Covering operations in New York State. . Statutory Workers' Compensation, Employer's Liability and N.Y.S. Disability Benefits Insurance for all employees. Where applicable, U.S. Longshore and Harborworkers Compensation Act Endorsement shall be attached to the policy. Where applicable, the Maritime Coverage Endorsement shall be attached to the policy0# Workers' Compensation must include a waiver of subrogation.

B. Comprehensive General Liability Policy: With limits of no less than $1,000,000/ $2,000,000 Bodily Injury and Property Damage, and including coverage for:

   A. Products/Completed Operations.
   B. Independent Contractors.
   C. Explosive, collapse and underground losses (x.c.u.).
   D. Contractual Liability (covering Hold Harmless attached).
   E. Broad from Property damage liability (including completed operations).
   F. Personal Injury including hazards i,ii,iii.
   G. Village of Hastings-on-Hudson shall be named as an "Additional Insured" on the policy and the Certificate of Insurance shall show this as to the liability coverage on the certificate.

C. Comprehensive Automobile Policy: With limits no less than $1,000,000 Bodily Injury and Property Damage liability including coverage for owned, non-owned, and hired private passenger and commercial vehicle. Village of Hastings-on-Hudson and their agents, officers, directors and employees shall be included as additional insured on the auto policy. Also needs to include waiver of subrogation.

D. Umbrella Excess Liability: With limits no less than $5,000,000 each occurrence.

E. Owner's Protective Liability Policy: With limits no less than $1,000,000 shall be taken out and maintained during the life of this contract which will protect the owner from claims for damages for personal injury, liability, accidental or wrongful death, as well as property damage which may arise from operations under this contract whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by either party.

F. Property Insurance: The Contractor shall cover materials being installed onsite, in transit, and/or at any other location.

G. Contractor's Equipment: The Contractor shall insure all equipment, tools, portable enclosures, and vehicles owned, leased or used by them and shall evidence coverage with a Certificate of Insurance. The Contractor shall hold the evidence coverage with a Certificate of Insurance. The Contractor shall hold the Owner harmless for any loss or damage to such equipment, tools, etc.

H. All Policies and Certificate of Insurance of the Contractor shall contain the following clauses:

A. Insurers shall have no right to recovery or subrogation against the Owner, Architect and Construction Manager (including its employees and other agencies), it being the intention of the parties that the insurance policies so effected shall protect both parties and be primary coverage for my and all losses covered by the above-described insurance.

j. Certificates shall provide that thirty (30) days written notice, by registered mail with return receipt requested, prior to cancellation or expiration be given to the Owner. Policies that lapse and/or expire during term of work shall be re-certified and received by the Owner no less than thirty (30) days prior to expiration or cancellation.

The Contractor shall furnish to the Owner Certificates of Insurance for a, b, c, d, e, f, g, h, i and j above, as evidence of coverage prior to signing of contract.

The cost of furnishing the above insurance shall be borne by the Contractor, there will be no direct payment for this work. Cost will be deemed to have been included in the price bid for all scheduled items. The Contractor shall require all subcontractors to provide this same insurance coverage.

_____ _____

Contractor's Signature

Date

_____

Print Name and Title

CERTIFICATE OF COMPLIANCE

WITH NYS SEXUAL HARASSMENT LAW

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 the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of section 201-g of the labor law.

_____ Date:_____

(Legal Name of Bidder)

By: _____

(Authorized Signature)

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT
(To be Completed by Each Bidder)

Each bidder/proposer, any person signing on behalf of any bidder/proposer and any assignee or subcontractor and, in the case of a joint bid/proposer, each party thereto, certifies, under penalty of perjury, that to the best of its knowledge and belief, that each bidder/proposer and any subcontractor or assignee is not identified on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the New York State Finance Law (the "Prohibited Entities List").

During the term of any contract awarded pursuant to this bid, should the Village of Hastings-on-Hudson (the "Village") receive information that a bidder/proposer is in violation of the above-referenced certification, the Village will offer the person or entity an opportunity to respond. If the person or entity fails to demonstrate that he/she/it has ceased engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then the Village shall take such action as may be appropriate including, but not limited to, seeking compliance, recovering damages or declaring the bidder/proposer in default.

The Village reserves the right to reject any bid or proposal from a bidder/proposer that appears on the Prohibited Entities List prior to the award of a contract and to pursue a responsibility review with respect to any bidder/proposer that is awarded a contract and subsequently appears on the Prohibited Entities List.

I, _____, being duly sworn, deposes and says that he/she
(Name of Individual Signing this Certification)

is the _____ of the _____ and that neither
(Title/Position of Signer) (Name of bidder/proposer)

the bidder/proposer nor any proposed subcontractor is identified on the Prohibited Entities List.

_____
Print Company Name

By: _____
Signature

_____
Title

Sworn to before me this
_____ day of _____, 2022

_____
Notary Public

SECTION D

AGREEMENT

FOR

HILLSIDE PARK STORM DAMAGE RESTORATION
VILLAGE OF HASTINGS-ON-HUDSON

THIS AGREEMENT, executed in quadruplicate, made this _____ day of _____, 2020, by and between the Village of Hastings-on-Hudson, a municipal corporation with offices at Village Hall, 7 Maple Avenue, Hastings-on-Hudson, NY 10706, County of Westchester, State of New York, party of the first part, hereinafter designated "the Village" and _____ _____ a business authorized to do business in New York State with offices at _____, party of the second part, hereinafter designated "the CONTRACTOR".

WITNESSETH, that the CONTRACTOR and the Village for the consideration hereinafter named, agree as follows:

ARTICLE I - PURPOSE:

The work consists of _____. The project is located _____ in the Village of Hastings-on-Hudson. Other related work shall include the _____ all in accordance with the plans and specifications as directed by the Engineer and Village. Coordination with the Department of Public Works is required and expected throughout the duration of the construction project.

All of the above work and other related work is more fully described in the specifications and drawings.

In furtherance of this end, the Village has prepared Specifications and Supporting Data, and has solicited bids for the work. When bids were opened, the bid prepared by the CONTRACTOR was the lowest bid received in compliance with the specifications and the Village awarded the work to the Contractor on _____.

ARTICLE II - SCOPE:

The Village accepts the CONTRACTOR'S bid proposal dated _____. The work to be done under this Contract is shown and detailed on the following documents, which are collectively referred to herein as the "Contract Documents":

Notice to Bidders, Instruction to Bidders, Bid Proposal, Agreement, Performance Bond, Labor and Material Bond, Form of Maintenance Bond, General Release, Prevailing Wage, Compliance with Labor Law Requirements, Insurance, Non-Discrimination Clause,

General Conditions, Special Conditions, Technical Specifications, Construction Drawings, and any Addenda.

All of the above items are dated _____ unless otherwise noted, and are attached hereto labeled as "_____ Prepared by James J. Hahn Engineering, P.C., Putnam Business Park, 1689 Route 22, Brewster, New York 10509", and made a part of this Agreement.

There is further attached hereto and made a part of this Agreement:

1. "Bid Proposal" to the Village of Hastings-on-Hudson, dated _____, executed by the CONTRACTOR, attached hereto and marked "EXHIBIT A".

2. Notice of Award letter by the Village of Hastings-on-Hudson, dated _____, attached hereto and marked "EXHIBIT B".

3. Performance and Payment Bonds No. _____, dated _____, attached hereto and marked "EXHIBIT C".

ARTICLE III - TIME OF COMPLETION:

(a) The CONTRACTOR shall commence work under this Agreement within _____ days of the Notice to Proceed or as soon as possible as directed by the OWNER.

(b) The CONTRACTOR shall complete work by _____. The Contractor shall be responsible for completion of the Contract as required under Section 202 – TIME OF COMPLETION.

(c) If the CONTRACTOR is unable to satisfactorily complete all work by the time of completion, the Village may grant an extension of time, if, in the opinion of the Village the delay in completing work was due to causes beyond the CONTRACTOR'S control, and not due to the CONTRACTOR'S negligence, actions or inaction.

ARTICLE IV - PAYMENT:

(a) The Village will pay the CONTRACTOR for services under this Agreement the unit prices and lump sums as shown in "EXHIBIT A".

(b) It is the intention of the Agreement to include under the above unit prices and lump sums all necessary services required to complete this project. If additional work is required, such work may be done on a mutually agreed basis, and authorized in writing by the Village.

(c) Payment to the CONTRACTOR requires execution of CONTRACTOR's invoice. The payment form shall be in a format prescribed by the ENGINEER, in accordance with AIA document G702 and G703. The Village is a tax-exempt municipality.

(d) Vouchers are paid _____monthly and must be received by the Engineer no later than _____ days prior to Meetings for payment to be mailed to the CONTRACTOR within _____ days of the Board meeting.

A retainage of five (5%) percent of completed and approved contract work shall be withheld from each voucher submitted for payment by the CONTRACTOR.

(e) Following a final site inspection of the Contract work and prior to final payment, the CONTRACTOR shall submit the General Release form from the Contract Documents and a two (2) year Maintenance Bond. The General Release shall state that all obligations incurred by the CONTRACTOR in carrying out this Agreement have been satisfied including wages and costs of subcontractors, equipment and materials. The General Release and Maintenance Bond shall be acceptable in form and sufficiency to the Attorney and ENGINEER, in the amount of 100% of the final Contract Price, and shall ensure satisfactory repair or replacement of defective work as required under the General Conditions.

(f) Pursuant to approval of the General Release and _____ year Maintenance Bond, the CONTRACTOR shall receive final payment for approved work including previous retainage withheld by the Village.

ARTICLE V - COMPLIANCE WITH LAWS AND REGULATIONS:

In carrying out the terms of this Agreement, the CONTRACTOR shall comply with all applicable laws, regulations and procedures of the United States of America, State of New York, County of Westchester and the Village. In particular, the CONTRACTOR'S attention is directed to the Specifications Section H, "Prevailing Wage" and Section I, "Compliance With The Labor Law and other Department of Labor Regulations" and any related addendum.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

_____ By:_____
AFFIX CORPORATE SEAL Mary Beth Murphy, Village Manager

STATE OF NEW YORK)
) SS.:
COUNTY OF WESTCHESTER)

On the ____day of _____, 2022, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that s/he resides at _____; that s/he is the Village Administrator, the municipal described in an which executed the foregoing instrument; that s/he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of said municipal; and that s/he signed his/her name thereto by like order.

_____
NOTARY PUBLIC

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

_____ By:_____
AFFIX CORPORATE SEAL Contractor_____, President

STATE OF NEW YORK)
) SS.:
COUNTY OF WESTCHESTER)

On the ____day of _____, 2022, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that s/he resides at _____; that s/he is the _____ of _____ the corporation described in and which executed the foregoing instrument; that s/he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that s/he signed his/her name thereto by like order.

_____
NOTARY PUBLIC

AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		SURETY	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

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

AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL
Company: *(Corporate Seal)*

SURETY
Company: *(Corporate Seal)*

Signature: _____
Name and Title:

Signature: _____
Name and Title:

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)
AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

.1 the name of the Claimant;
.2 the name of the person for whom the labor was done, or materials or equipment furnished;
.3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
.4 a brief description of the labor, materials or equipment furnished;
.5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
.6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
.7 the total amount of previous payments received by the Claimant; and
.8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		SURETY	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

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

FORM OF MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we,_____

(hereinafter called the Principal) as Principal and the _____,

a _____Corporation with an office and place of business for the State

of New York at _____

New York, (hereinafter called the Surety) as Surety, are held and firmly bound unto the

_____

(hereinafter called the Obligee) as Obligee in the sum of _____

($_____) DOLLARS,

lawful money of the United States of America, for the payment whereof the Principal and Surety bind themselves, their successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this _____ day of_____, 20___.

WHEREAS, the Principal heretofore entered into a written contract with the Contract for

_____

_____

WHEREAS, said Contract provides that the principal shall guarantee _____

_____

_____

NOW, THEREFORE, the condition of this obligation is such, that if the above Principal shall indemnify the Obligee against loss by reason of his failure to make good at own expense any defects or deficiencies in materials or workmanship which may appear in the work under said contract for the period of one (1) year from the date of acceptance of the work, then this obligation shall be void; otherwise to remain in full force and effect.

_____
Principal

By:_____

By:_____

STATE OF _____)
SS:

COUNTY OF _____)

On this _____day of_____, 2022 before me personally appeared the within named_____ to me known, and known to me to be_____ the individual described in and who executed the within bond, and _____ acknowledged to me that he _____executed the same.

_____

NOTARY PUBLIC#

SECTION G

GENERAL RELEASE

(To Be Submitted With Requisition For Final Payment)

KNOW ALL MEN BY THESE PRESENTS, that _____
(Contractor)

for and in consideration of the sum of _____
(Final Contract Price)

lawful money of the United States of America, to it in hand paid

by

_____
(Owner/Contracting Agency)

have remised, released, quit-claimed, and forever discharged, and by these presents do for its successors and assigns remise, release, quit-claim, and forever discharge the said

_____
(Owner/Contracting Agency)

and its successors and assigns and administrators, of and from any and all manner of action and actions, caused and causes of action, suits, debts, dues, sum and sums of money, accounts, reckonings, bonds, bills, specialties, covenants, contract, controversies, agreements, promises, variances, trespasses, damages, judgments, patents, extents, executions, claims and demands whatsoever in law and unity which against the said

_____
(Owner/Contracting Agency)

now have or which heirs, executors, or administrators hereafter can, shall, or may have, for upon or by reason of any matter, cause or thing whatsoever, from the beginning of the world to the day of the date of these presents rising out of the construction, in accordance with contract entered into between parties hereto,

dated _____, 2022, any admittance or supplements thereto.

IN WITNESS WHEREOF, the undersigned corporation has caused this agreement to be signed by its _____ and its corporate seal to be hereto affixed and duly attested by its

_____ this _____ day of _____.

ATTEST: PRINCIPAL:

_____ _____

_____
AFFIX CORPORATE SEAL

STATE OF NEW YORK)
) SS:
COUNTY OF WESTCHESTER)

On the _____day of _____, 2022, before me personally came _____to me known, who, being by me duly sworn, did depose and say that s/he resides at _____; that s/he is the _____ of _____ the corporation described and that s/he signed his/her name thereto.

_____
NOTARY PUBLIC

SECTION H

PREVAILING WAGE RATES

The Contractor shall ensure that workers are paid the appropriate wages and supplemental (fringe) benefits. Throughout the contract, the Contractor shall obtain and pay workers in accordance with periodic wage rate schedule updates from the NYS Department of Labor (NYSDOL). Wage rate amendments and supplements are available on the NYSDOL web site at www.labor.state.ny.us. All changes line or clarification of labor classification(s) and applicability of prevailing wage rates shall be obtained in writing from the Office of the Director, NYSDOL Bureau of Public Work.

The NYSDOL prevailing wage rate schedule for this contract has been determined and is available on the internet. The prevailing wage rate schedule is accessed by visiting the NYSDOL web site, navigating to the appropriate web page, and entering the Prevailing Rate Case No. (PRC#). The PRC# is 2022006170 which is provided on NYSDOL Form PW-200 included in this contract proposal.

A copy of the project specific prevailing wage rate schedule will be provided to the successful bidder upon award of the contract. Upon written request, the schedule can be provided by the Owner or Owner's representative to prospective bidders without internet access.

Kathy Hochul, Governor

Roberta Reardon, Commissioner

Village of Hastings on Hudson

Douglas Hahn
1689 Route 22
Brewster NY 10509

Schedule Year 2021 through 2022
Date Requested 06/01/2022
PRC# 2022006170

Location Chemka Road
Project ID#
Project Type Replace drainage pipe, slope restoration, and culvert removal and installation.

PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2021 through June 2022. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

General Provisions of Laws Covering Workers on Article 8 Public Work Contracts

Introduction

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

Responsibilities of the Department of Jurisdiction

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission: a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion online.

Hours

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) 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.

There are very few exceptions to this rule. Complete information regarding these exceptions is available on the "Request for a dispensation to work overtime" form (PW30) and "4 Day / 10 Hour Work Schedule" form (PW 30.1).

Wages and Supplements

The wages and supplements to be paid and/or provided to 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 prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule form the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12240; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website www.labor.ny.gov.

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website www.labor.ny.gov.

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website www.labor.ny.gov.

Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. As per Article 6 of the Labor law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemperaneous, true, and accurate payroll records. At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid

or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment.Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed $100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds $25,000.00, payroll records and certifications must be kept on the project worksite.

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

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing 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, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project 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 Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8 . Section 220-a).

Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. 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 rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYSDOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

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 for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational ONLY and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

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 shall 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.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer MUST then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

Summary of Notice Posting Requirements

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.

The "Public Work Project" notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers. compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers. Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS 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.

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

Apprentices

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeyworkers in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyworker's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12240 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

Interest and Penalties

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as 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 restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

Debarment

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

Criminal Sanctions

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, 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.

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 (NYS Labor Law, Article 8, Section 220-e(a)).

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 (NYS Labor Law, Article 8, Section 220-e(b)).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of $50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c)).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d)).

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.

Workers' Compensation

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

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. 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 from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Unemployment Insurance

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

Kathy Hochul, Governor

Roberta Reardon, Commissioner

Village of Hastings on Hudson

Douglas Hahn
1689 Route 22
Brewster NY 10509

Schedule Year 2021 through 2022
Date Requested 06/01/2022
PRC# 2022006170

Location Chemka Road
Project ID#
Project Type Replace drainage pipe, slope restoration, and culvert removal and installation.

Notice of Contract Award

New York State Labor Law, Article 8, Section 220.3a requires that certain information regarding the awarding of public work contracts, be furnished to the Commissioner of Labor. One "Notice of Contract Award" (PW 16, which may be photocopied), **MUST** be completed for **EACH** prime contractor on the above referenced project.

Upon notifying the successful bidder(s) of this contract, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

Contractor Information
All information must be supplied

Federal Employer Identification Number: _____

Name: _____

Address: _____

_____

City: _____ State: _____ Zip: _____

Amount of Contract: $_____

Approximate Starting Date: ____/____/____

Approximate Completion Date: ____/____/____

Contract Type:
- [ ] (01) General Construction
- [ ] (02) Heating/Ventilation
- [ ] (03) Electrical
- [ ] (04) Plumbing
- [ ] (05) Other : _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

Social Security Numbers on Certified Payrolls:

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concern regarding inclusion of this information on payrolls if another identifier will suffice.

For these reasons, the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor. This change does not affect the Department's ability to request and receive the entire social security number from employers during its public work/ prevailing wage investigations.

Construction Industry Fair Play Act: Required Posting for Labor Law Article 25-B § 861-d

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to $1,500 for a first offense and up to $5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, www.labor.ny.gov. https://labor.ny.gov/formsdocs/ui/IA999.pdf
If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: dol.misclassified@labor.ny.gov .

Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)

Effective June 23, 2020

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub**. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website *www.labor.ny.gov* or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. *In the event the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

(12.20)

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

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1. Purpose and Scope:

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

2. Background and Statutory References:

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

3. Procedures and Agency Responsibilities:

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor
Administrative Finance Bureau-PWEF Unit
Building 12, Room 464
State Office Campus
Albany, NY 12240

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.

NEW YORK STATE OF OPPORTUNITY. Department of Labor

Required Notice under Article 25-B of the Labor Law

Attention All Employees, Contractors and Subcontractors: You are Covered by the Construction Industry Fair Play Act

The law says that you are an employee unless:

- You are free from direction and control in performing your job, **and**
- You perform work that is not part of the usual work done by the business that hired you, **and**
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.

Employee Rights: If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

Independent Contractors: If you are an independent contractor**, you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.**

Penalties for paying workers off the books or improperly treating employees as independent contractors:

• **Civil Penalty**	First offense: Up to $2,500 per employee Subsequent offense(s): Up to $5,000 per employee
• **Criminal Penalty**	First offense: Misdemeanor - up to 30 days in jail, up to a $25,000 fine and debarment from performing public work for up to one year. Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a $50,000 fine and debarment from performing public work for up to 5 years.

If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to dol.misclassified@labor.ny.gov. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name:

New York State Department of Labor
Bureau of Public Work

Attention Employees

THIS IS A:

PUBLIC WORK PROJECT

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Chapter 629 of the Labor Laws of 2007:

These wages are set by law and must be posted at the work site. They can also be found at: www.labor.ny.gov

If you feel that you have not received proper wages or benefits, please call our nearest office.*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5156		

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or www.comptroller.nyc.gov – click on Bureau of Labor Law.

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is $250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training “prior to the performing any work on the project.”

The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.)*
- Training roster, attendance record of other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

**A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is $3 million in Bronx, Kings, New York, Queens and, Richmond counties; $1.5 million in Nassau, Suffolk and Westchester counties; and $500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirement s on projects, and may issue stop-bid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

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

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. 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. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less that six (6) years, contemporaneous, true, and accurate payroll records.

Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

Paid Holidays

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

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

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 straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

Effective Dates

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 for which a given set of rates is 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. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.ny.gov) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

SECTION I

COMPLIANCE WITH THE LABOR LAW

AND OTHER DEPARTMENT OF LABOR REGULATIONS

The Contractor shall comply with the applicable provisions of the "Labor Law" as amended, of the State of New York. This Contract shall be void unless applicable sections of said Labor Law are complied with. Each and every provision of law and clause required by law to be part of this Contract shall be deemed to be included herein and this Contract shall be read and enforced as though it were included herein, and if through mere mistake or otherwise any such provision is not included, then upon the application of either party hereto, the Contract shall forthwith be physically amended to make such inclusion.

Specifically, section 200-e, of the Labor Law, as so amended, prohibits in contracts, discrimination on account of race, creed, color, or national origin in employment of citizens upon public works.

There may be deduced from the amount payable to the Contractor by the Owner under this Contract a Penalty of five ($5.00) dollars for each person for each calendar day during which such person was discriminated against or intimidated in violation of Section 200-e; provided, that for a second or any subsequent violation of the provisions of said paragraph, his Contract may be canceled or terminated by the Owner and all monies due or to become due hereunder may be forfeited.

SECTION J

INSURANCE REQUIREMENTS BY THE VILLAGE OF HASTINGS-ON-HUDSON FROM CONTRACTORS

Contractor shall furnish a certificate of insurance prior to commencing work evidencing:

A. **Worker's Compensation and Employer's Liability Policy**, covering operations in New York State.

B. **Comprehensive General Liability Policy**, with limits of no less than $1,000,000/$3,000,000 Bodily Injury and Property Damage, and including coverage for:

I. Products/Completed Operations
II. Independent Contractors
III. Explosive, collapse and underground loses (x.c.u.)
IV. Contractual Liability (covering Hold Harmless attached)
V. Broad Form Property damage liability (including completed operations)
VI. Personal Injury including hazards, I, II, III
VII. The Village of Hastings-on-Hudson shall be named as an "Additional Insured" on the Policy and the certificate of insurance shall show this as to the liability coverage on the certificate.

C. **Comprehensive Automobile Policy**, with limits no less than $1,000,000 Bodily Injury and Injury and Property Damage liability including coverage for owned, non-owned, and hired private passenger and commercial vehicles.

D. **Umbrella Excess Liability Policy**, with limits no less than $5,000,000 each occurrence.

E. **Owner's Protective Liability Policy**, with limits no less than $1,000,000 shall be taken out and maintained during the life of this contract which will proceed the owner from claims for damages for personal injury, liability, accidental or wrongful death, as well as property damage which may arise from operations under this contract whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by either party.

F. **Property Insurance**, Fire, Extended Coverage, Vandalism, and theft (or special Form) – Builder's Risk, Completed Value form written for full insurable value less foundations, excavation, concrete walls, masonry walls and underground utilities.

G. **Contractor's Equipment:** the Contractor shall insure all equipment, tools, portable enclosures and vehicles owned, leased or used by them and shall evidence coverage with a certificate of insurance. The Contractor shall hold the Owner and Village Engineer harmless for any loss or damage to such equipment, tools, etc.

H. <u>Insurance Covering Special Hazards:</u> Not applicable for project.

I. <u>All Policies and Certificates of Insurance of the Contractor shall contain the following clause:</u>

a) Insurers shall have no right to recovery or subrogation against the Owner, Engineer, and Construction Manager (including its employees and other agencies), it being the intention of the parties that the insurance policies so affected shall protect both parties should be primary coverage for any and all losses covered by the above-described insurance.

J. <u>Certificates</u> shall provide that thirty (30) days written notice, by registered mail with return receipts requested, prior to cancellation or expiration be given to the Village of Hastings-on-Hudson. Policies that lapse and/or expire during term of work shall be recertified and received by the Village of Hastings-on-Hudson no less than thirty (30) days prior to expiration or cancellation.

The Contractor shall furnish to the Village of Hastings-on-Hudson Certificates of Insurance for A, B(I), B (III), C and D above, as evidence of coverage prior to signing of contract.

The cost of furnishing the above insurance shall be borne by the Contractor, there will be no direct payment for this work. Cost will be deemed to have been included in the price id for all scheduled items. The Contractor shall require all subcontractors to provide this same insurance coverage.

_____ _____

Contractor's Signature Date

_____

Print Name and Title

SECTION L

NON-DISCRIMINATION CLAUSE

During the performance of the Contract, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, color, or national origin. Such action shall be taken with reference, but not 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.

b. 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 Commission of Human Rights, advising such labor union or representative of the Contractor's agreement under clauses "a." through "h." hereinafter called "non-discrimination clauses", and requesting such labor union or representative to agree in writing, whether in such collective bargaining or other agreement or understanding or otherwise, that such labor union or representative will not discriminate against any member or applicant for membership because of race, creed, color, or national origin, and will take affirmative action to insure that they are afforded equal membership opportunities without discrimination because of race, creed, 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. Such notice shall be given by the Contractor, and such written agreement shall be made by such labor union or representative, prior to the commencement of performances of this contract. If such labor union or representative fails or refuses so to agree in writing, the Contractor shall promptly notify the Commission for Human Rights of such failure or refusal.

c. The Contractor will post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the Commission for Human Rights setting forth the substance of the provisions of clauses "a." and "b." and such provisions of the State's Laws against discrimination as the Commission for Human Rights shall determine.

d. 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, color, or national origin.

e. 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 Commission for 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 Commission of Human Rights, and Owner representatives/counsel for purposes of investigation to ascertain

compliance with these non-discrimination clauses and such sections of the Executive Law and Civil Rights Law.

f. The 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 Commission 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 the behalf of the Owner/Contracting Agency until he satisfied the Commission for 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 Commission for Human Rights after conciliation efforts by the Commission have failed to achieve compliance with these non- discrimination clauses and after a verified complaint has been filed with the Commission, notice thereof has been given to the Contractor and an opportunity has been afforded him to be heard publicly before three members of the Commission. Such sanctions may be imposed and remedies otherwise provided by law.

g. If this Contract is cancelled or terminated under clause "f.", in addition to other rights of the Owner provided in this contract upon its breach by the Contractor, the Contractor will hold the Owner harmless against any additional expenses or costs incurred by the Owner in completing the work or in purchasing the services, materials, equipment, or supplies contemplated by this contract, and the Owner may withhold payments from the Contractor in an amount sufficient for this purpose and recourse may be had against the surety on the performance bond if necessary.

h. The Contractor will include the provisions of clauses "a.", through "g." 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 jurisdictional locale of the Project being contracted by the Owner. The Contractor will take such action in enforcing such provisions of such subcontract or purchase as the Owner/Contracting Agency may direct, including sanctions or remedies for noncompliance. If the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the Contracting Agency/Owner, the Contractor shall promptly so notify the Owner's representatives/counsel, requesting him to intervene and protect the interests of the Owner (Contracting Agency's jurisdictional area).

SECTION M

GENERAL CONDITIONS

Note: The headings of the articles herein are intended for the convenience or reference only and shall not be considered as having any bearing on their interpretation.

PART I

101 DEFINITIONS

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms herein defined:

a. The term "Contract" means the Contract executed by the Owner and the Contractor.

b. The term "Owner" means the municipality which is authorized to undertake this Contract.

c. The term "Contractor" means a person, firm or corporation entering into the Contract with the Owner to perform and complete the work involved in this Contract.

d. The term "Subcontractor" means a person, firm or corporation supplying labor and materials or only labor for work at the site of the project for, and under separate contract or agreement with the Contractor.

e. The term "Project Area" means the area shown on the drawings in the immediate vicinity of the work, unless otherwise defined in the Special Conditions. No private property is included unless the Owner has obtained an easement.

f. The term "Engineer" or "Professional" means the person in charge, serving the Owner with engineering services, his successor, or any other person or persons, employed by said Owner for the purpose of administering the work embraced in this Contract, the said Engineer acting directly or indirectly through any Assistant.

g. Owner for the purpose of administering the work embraced in this Contract, the said Engineer acting directly or indirectly through any Assistant.

h. The term "Contract Documents" means and shall include the Documents listed in Article 3 of the Agreement.

i. The term "Drawings" or "Contract Drawings" means the drawings listed in the Schedule of Drawings.

j. The term "Technical Specifications" or "Supplemental Technical Specifications" means that part of the Contract Documents which describes, outlines and stipulates, the quality of materials to be furnished; the quality of workmanship required; measurement and payment.

k. The term "Addendum" or "Addenda" means any changes, revisions or clarifications of the Contract Documents which have been duly issued by the Owner to prospective Bidders prior to the time of receiving Bids.

102 SUPERINTENDENCE BY CONTRACTOR

a. Except where the Contractor is an individual and gives his personal superintendence to the work, the Contractor shall provide a competent superintendent, satisfactory to the Owner, for the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work. Should, in the opinion of the Owner, any language barrier exist between the superintendent and the Owner, the Contractor will employ a qualified interpreter.

b. The Contractor shall lay out his own work including all survey required and he shall be responsible for all work executed by him under the Contract. He shall verify all figures, elevations, etc. before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

103 SUBCONTRACTS

a. The Contractor shall not execute an agreement with any Subcontractor or permit any Subcontractor to perform any work included in this Contract until he has received written approval of such Subcontractor from the Owner.

b. The Contractor shall not execute an agreement with any Subcontractor or permit any Subcontractor to perform any work included in this Contract until he has submitted a Statement of Non-Collusion from the Subcontractor on the form shown in the "Bid Proposal" and has received written approval of such Subcontractor from the Owner. Unless specifically permitted otherwise, the Contractor shall perform with his own organization and with the assistance of workmen under his immediate superintendence work amounting to not less than 50 percent of the original total Contract value for the project, exclusive of specialty items not commonly found in contracts for similar work or which require highly specialized knowledge, craftsmanship or equipment, not ordinarily available in the organization of Contractors performing work of the character embraced in this Contract. Specialty items, if any, shall be specified elsewhere.

c. The Contractor shall be as fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him. All Subcontractors must have adequate superintendence on the work site when they are performing work.

d. The Contractor shall cause appropriate provision to be inserted in all Subcontracts relative to the work to require compliance by each Subcontractor with the applicable provisions of the Contract for the work embraced in this Contract.

e. Nothing contained in the Contract shall create any contractual relation between any Subcontractor and the Owner.

104. OTHER CONTRACTS

The Owner reserves the right to let other contracts in connection with this work or to perform work related to this project with his own forces. The Contractor shall offer other Contractors and the Owner reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and/or coordinate his work with theirs. The Contractor shall cooperate fully with such other Contractors, by scheduling his own work with that to be performed under other Contracts as may be directed by the Owner. The Contractor shall not permit or commit any act which will interfere with the performance of work by any other Contractor as scheduled.

Wherever work being done by the Owner's forces, or other Contractors is contiguous to work covered by this contract, the respective rights of the various interests involved shall be established by the Owner, to secure the completion of the various portions of the work in general harmony.

If any part of the Contractor's work depends for proper execution or results upon the work of others, the Contractor shall inspect and promptly report to the Engineer in writing any defects or deficiencies in such work that render it unsuitable for such proper execution and results.

105 RESPONSIBILITIES OF CONTRACTOR

Except as otherwise specifically stated in the Contract Documents the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fees or other expenses and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and to complete this Contract in every respect within the specified time.

106 FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, Subcontractors or Materialmen engaged upon this Contract. He shall be prepared to guarantee to each of his Subcontractors the locations and measurements which they may require for the fitting of their work to all surrounding work. The Contractor shall, at his own expense, effect all cutting, fitting, or patching of his work required to make the same conform to the Contract Drawings and specifications and, except with consent of the Owner, not to cut or otherwise alter the work of any other Contractor.

107 MUTUAL RESPONSIBILITY OF CONTRACTOR

If, through acts or neglect on the part of the Contractor, any other Contractor or Subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or

Subcontractor by agreement or arbitration, if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner will notify the Contractor, who shall defend at his own expense any suit based upon such claim, and, in any judgment or claim and pay all costs and expenses, in connection therewith and will in all other respects, including, but not limited to attorney's fees and court costs, hold harmless the Owner and Engineer.

108 ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities or responsibilities under this Contract without the written consent of the Owner; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered and materials, tools and equipment supplied for the performance of the work under this contract in favor of all persons, firms or corporations rendering such labor or services or supplying such materials, tools or equipment.

109 PROGRESS SCHEDULE

The Contractor shall submit within seven (7) calendar days after execution of the Agreement, a carefully prepared realistic Progress Schedule showing the proposed dates of starting and completing of each and every item of work on each and every section of work in accordance with these Specifications if applicable to this specific Contract. The Progress Schedule shall include as a minimum:

1. The project name, number, and geographic location.
2. The Contract time, Contract beginning date, and ending date.
3. The time of beginning and completion of each significant phase of this Contract.

The initial requisition will not be approved for payment until said schedule is submitted. Said schedule will be revised or updated monthly unless otherwise permitted by the Owner. No monthly payments will be approved without a revised/updated monthly Progress Schedule approved by the Owner.

The Progress Schedule shall show the plan of construction and the proposed method of carrying out this work including a full statement of the equipment to be used.

110 COMMUNICATIONS

a. All notices, demands, requests, instructions, approvals, proposals and claims must be in

writing.

b. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may from time to time designate) in a sealed, postage-prepaid envelope or delivered with charges prepaid to any telegraph company for transmission, each case addressed to such office.

c. All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to the Village of Hastings-on-Hudson, 7 Maple Avenue, Hastings-on-Hudson, NY 10706 and any notice to or demand upon the Owner shall be sufficiently given if so delivered, or if deposited, in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said Owner at such address as the Owner may subsequently specify in writing to the Contractor for such purpose.

d. Any such notice shall be deemed to have been given as of the time of actual delivery or (in case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt, as the case may be.

111 PAYMENTS TO CONTRACTOR

1. Partial Payments

   a. The Engineer shall prepare an estimate of the work performed for partial payment as of a mutually agreed upon date at least 30 days after beginning of work, and approximately every 30 days thereafter. The amount of the payment due the Contractor shall be determined by adding the total value of work completed to date and deducting (1) five percent (5%) of the total amount, to be retained until final payment and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit prices, if any, contained in the Agreement.

      There will be no payments or partial payments to the Contractor for materials purchased and stored/stockpiled on the project site.

   b. Monthly or partial payments made by the Owner to the Contractor are moneys advanced for the purpose of assisting the Contractor to expedite the work of construction. All materials and completed work covered by such monthly or partial payments shall remain the property of the Contractor and he shall be responsible for the care and protection of all materials and work upon which payments have been made. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements in this Contract complete and satisfactory to the Owner in all details.

2. Final Payment

a. After final inspection and acceptance by the Owner of all work under the Contract, the Contractor shall prepare his requisition for final payment which shall be based upon the carefully measured or computed quantity of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this Contract shall be the amount computed without retainage, less all previous payments. Final payment to the Contractor shall be made subject to his furnishing the Owner with a release in satisfactory form of all claims against the Owner arising under and by virtue of his Contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release as provided elsewhere herein.

b. The Owner, before paying the final estimate, will require the Contractor to furnish releases or receipts from all Subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor; the Owner deems this necessary in order to protect its interest. The Owner, however, may if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts, any payment so made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

c. If it was necessary for the Owner to expend money for labor, materials or equipment on this project because the Contractor failed to perform satisfactorily or promptly, and a bill for such sum remains unpaid, the Owner may deduct this sum from partial payments or the final payment. Furthermore, if the specifications provide for certain work to be done by the Owner with the fee or cost to be borne by the Contractor, and a bill for such services remains unpaid, the Owner may deduct this sum from the partial or the final payment.

d. Withholding of any amount due the Owner under the section entitled "LIQUIDATED DAMAGES" shall be deducted from the final payment due the Contractor. At the Owner's option, liquidated damages may be deducted from any partial payment.

3. Withholding Payments

Notwithstanding the above, the Owner may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the Owner and if it so elects may also withhold any amounts due from the Contractor to any Subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his Subcontractors or material dealers, or to withhold any moneys for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any moneys from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

4. Payments Subject to Submission of Certificates

Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him and his Subcontractors by the section entitled "CONTRACTOR'S CERTIFICATES" under the GENERAL CONDITIONS.

112 CHANGES IN THE WORK

a. The Owner may make changes in the work required to be performed by the Contractor under the Contract by making additions thereto, or by omitting work there from, without invalidating the Contract.

b. Except for the purpose of affording protection against any emergency endangering life or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract price will be valid unless so ordered.

c. The Contractor agrees to perform any of the aforementioned changed work, along with all other required work found under the Contract, without delay and in accordance with good construction practices.

d. These changes outlined above may be made without relieving or releasing the Contractor from any of his obligations under the Contract provisions, and without affecting the validity of the guaranty bonds and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is provided otherwise.

e. All adjustments to the Contract payment provisions will be made in accordance with the following paragraphs.

f. If applicable unit prices are contained in the Agreement (established as a result of either a Unit Price Bid or a Supplemental Schedule of Unit Prices), the Owner may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices specified in the Contract. Payment of unit price overruns, due to change order, may be withheld until Owner Approval is obtained.

g. If applicable unit prices are not contained in the Agreement, the Owner shall, before ordering the Contractor to proceed with desired changes, request an itemized proposal from him covering the work involved in the change after which the procedure shall be as follows:

    1. If the change in the work involves additional work, the procedure shall be as follows:

        a) If the proposal is acceptable, the Owner will prepare the Change Order in accordance therewith for acceptance by the Contractor, or

        b) If the proposal is not acceptable and prompt agreement between the two parties cannot be reached, the Owner may order the Contractor to proceed with the work on a Cost-Plus Basis. A Cost-Plus Basis is defined as the net cost of the work to the Contractor plus an allowance to cover overhead and profit as stipulated below:

        "Net Cost of the Work" is defined as (1) gross cost of labor plus (2) net cost of materials plus (3) gross cost of equipment.

(1) "Gross cost of labor" is defined as net cost of labor plus fringe benefits.

"Net cost of labor" is defined as the cost of required labor based on the prevailing rates established by the State Labor Department and stated in the Contract Document. No part of any salary for employees above the grade of foreman, and having general supervision of this work, will be included in this item.

"Fringe Benefits" are defined as all insurances, taxes and other benefits for the employee required by law or by union contract. In lieu of an item-by-item determination of the actual value of such fringe benefits, all fringe benefits are hereby determined to total an amount of 50% of net cost of labor, and the Contractor in submitting his bid agrees that this percentage shall be used, regardless of whether actual fringe benefits are more or less than this amount.

(2) "Net cost of materials" shall be defined as the cost of all materials incorporated in the work, including delivery charges, less any allowable cash discounts, as shown by receipted bills.

(3) "Gross cost of equipment" is defined as the "net cost of equipment" plus an allowance of 10% for fuel and lubricants.

"Net cost of equipment" shall be defined as a rental rate which is reasonable and based on rental rates prevailing in the area where the work is to be done. Such rental rate shall be negotiated, and shall be agreed upon in writing before the work is begun. However, in no case shall the rental exceed the rates set forth in the current edition of the "Associated Equipment Distributors Compilation of Rental Rates for Construction Equipment".

The cost of furnishing small tools and accessories and materials used for construction but not incorporated in the work shall be considered as part of the Contractor's overhead, and shall not be included in the "net cost of the work".

An allowance of 15% will be added for overhead and profit and is hereby stipulated to be in lieu of an actual determination of overhead and profit. The Contractor in submitting his bid agrees that this allowance shall be used, regardless of whether actual overhead and profit is more or less than this amount.

No percentage for overhead and profit shall be added to the amounts of equipment rental prices agreed upon, but the price agreed upon shall be the total compensation allowed for use of such equipment.

2. If the change in the work requires a reduction in the work involved, the procedure shall be as follows:

   a. If the proposal is acceptable, the Owner will prepare the Change Order in accordance therewith for acceptance by the Contractor; or

   b. If the proposal is not acceptable and prompt agreement between the two parties

cannot be reached, the Engineer shall fix the cost value of the credit. The Owner may then order the Contractor to proceed with the work. Should the Contractor disagree with the cost value of the credit as fixed by the Engineer, he may appeal the same in accordance with the procedures outlined in the GENERAL CONDITIONS, "ARBITRATION".

h. Each Change Order shall include in its final form:

1. A detailed description of the change in the work.
2. The Contractor's proposal (if any) or a confirmed copy thereof.
3. A definite statement as to the resulting change in the Contract price and/or time.
4. The statement that the change order is subject to the approval of the Village Board.

i. Contractor shall not take advantage of any obvious error in the specifications or any such error in the drawings or other Contract Documents. Any obvious error or discrepancy in or between any of the Contract Documents shall be immediately reported to the Engineer who shall make such corrections and interpretations as may be deemed necessary for the completion of the work in a satisfactory and acceptable manner.

113 CLAIMS FOR EXTRA COST

a. All claims between the parties, including all claims for additional compensation and/or additional time, arising out of, or in any way related to this Contract and/or the performance of the same, or its interpretation, shall within ten (10) days of the event, or action giving rise to the claim be presented to the Engineer. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding the claim in sufficient detail to identify the claim, together with its character and scope. In the meantime, the Contractor shall proceed with the work as directed. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the Engineer of notice thereof. The Contractor shall in no case allow any claim or dispute to delay the work.

b. As soon as practicable after the final submission of all information the Owner shall make a determination of any claim. Said decision of the Owner shall be a condition precedent to any further action on the claim. However, upon certification in writing by the claimant that the claim has been submitted in its final form, the Owner shall be obliged to render a decision on said claim within sixty (60) days of the date of said certification. Should the Owner fail to render its decision within the aforementioned sixty (60) day period, its decision will not be a condition precedent to any further action on the part of the claimant.

c. There shall be no added compensation paid for delay to the Contractor unless the Owner causes said delay by a material breach of Contract, and compliance with the foregoing notice provisions shall be a condition precedent to the prosecution of any such claim. In any claim for delay except for "Excusable Delays and Extensions of Time" as defined in the

GENERAL CONDITIONS SECTION "TERMINATION: DELAYS AND EXTENSIONS; LIQUIDATED DAMAGES" wherein it is alleged that the Contractor's equipment was caused to remain idle, only one half of the prevailing rental rates for use of said equipment will be considered as damages for idled equipment in order to allow for the absence of fair wear and tear, which is allowed for in prevailing rental rates for equipment usage.

d. Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be considered unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material or performing more work, than would be reasonable estimated from the Drawings and maps issued.

e. If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or Time is justifiable, the procedure shall be as provided in Sections - "CHANGES IN THE WORK" or "TERMINATIONS; DELAYS AND EXTENSIONS; LIQUIDATED DAMAGES" of the GENERAL CONDITIONS.

f. In the event of an unfavorable decision by the Owner, the Contractor shall have the right to contest said decision as provided for under the provisions of the Contract.

114 NO OPTIONS PAID

It shall be clearly understood that there will be no payment for materials incorporated into the work (other than that shown on the Contract Drawings or specified) unless ordered by the Engineer.

115 TIME AND MATERIALS WORK NOTIFICATION

Should the Contractor perform work in accordance with the GENERAL CONDITIONS, "CHANGES IN THE WORK", he shall give a minimum of 24 hours advance written notice prior to his anticipated beginning any work on a Cost-Plus Basis, to the Owner and specifically the Engineer.

116 TERMINATION: DELAYS AND EXTENSIONS: LIQUIDATED DAMAGES

A. Termination of Contract

For its own convenience the Owner may, at any time prior to the issuance of a Notice to Proceed, void the Contract by giving unequivocal and unconditional written notice of such avoidance to the Contractor and in the event of such avoidance the Owner will not be liable to the Contractor for any claims or losses, including anticipated loss of profit and moneys expended in anticipation of performance under the Contract.

At any time subsequent to the Notice to Proceed the Owner may, at its own convenience, terminate the Contract by giving unequivocal and unconditional written notice of such termination to the Contractor. In the event of such termination by the Owner, the Owner shall be responsible to the Contractor for the following moneys only, which moneys shall be subject to legitimate charges of the Owner against the Contractor:

1. All reasonable cost incurred by the Contractor in performance of or in anticipation of performance of the Contract provided the Contractor shall take all reasonable steps to mitigate such damages including the return and/or resale of materials ordered; and

2. On Lump Sum projects, a markup of 10% for profit and 10% for overhead on the reasonable cost of the work that is completed and in place in accordance with the Contract Drawings and Specifications will be allowed. On unit price Contracts, allowances for profit and overhead shall be considered to have been included in each of the Contractor's original unit price Bid. The Contractor shall remain responsible for the work completed, in accordance with the Contract provisions.

   Should any work under this Contract be subject to, or terminated by the action of any third party, governmental unit or court due to any ecological or other reason, the rights of the Contractor to recover from the Owner shall be determined as set forth above.

   The Owner may give notice in writing to the Contractor and his Surety of any material breach of the Contract by the Contractor to include but not be limited to any of the following:

   1. Failure to begin the work under the Contract within the time specified.

   2. Failure to perform the work with sufficient workmen, equipment or materials to insure the prompt completion of said work.

   3. Unsuitable performance of the work or failure to perform anew such work as shall be rejected as defective and unsuitable.

   4. Neglecting or refusing to remove material rejected as defective and unsuitable.

   5. Discontinuing the suitable prosecution of the work for a period of 72 hours, excluding Sundays and holidays without written authorization of the Engineer.

   6. Failure to commence discontinued work within 48 hours after notice to resume (excluding Sundays and holidays).

   7. Becoming insolvent or declared bankrupt or commits any act of bankruptcy or insolvency.

   8. Allowing a final judgment to stand against him unsatisfied for a period of ten (10) calendar days.

9. Making any assignment for the benefit of creditors.

10. Violating any covenants contained in the Contract Documents.

11. Failure to eliminate unsafe conditions within 12 hours.

The Contractor or Surety within a period of ten (10) calendar days after such notice shall take all practical action to correct said material breach. Should said action fail to meet with the approval of the Owner, the Owner may, at its discretion, order the Surety to complete the work or, without violating the Contract, take the prosecution of the work out of the hands of said Contractor and Surety.

The Owner may appropriate or use any or all materials and equipment on the ground as may be suitable and acceptable and may enter into an agreement, either by negotiation or public letting, for the completion of said contract according to the terms and provisions thereof, or use such other methods or combinations thereof, as in its opinion shall be required or desirable for the completion of said Contract in an acceptable manner. All costs and charges incurred by the Owner together with the cost of completing the work under Contract, shall be deducted from any moneys due or which may become due said Contractor. In case such expense shall exceed the sum which would have been payable under the Contract, then the Contractor and the Surety shall be liable and shall pay to the Owner the amount of said excess.

B. Excusable Delays and Extensions of Time

The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due:

1. To any acts of the Government, including controls or requisitioning of materials, equipment, tools, or by labor by reason of war, National Defense, or any other national emergency.

2. To any acts of the Owner, caused by injunction or litigation against said Owner, by a third party.

3. To causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor, in the performance of some other Contract with the Owner, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions; and

4. To any delay of any Subcontractor occasioned by any of the causes specified in subparagraphs l, 2 and 3 of this paragraph "B".

Provided, however, that the Contractor promptly notify Owner with ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the Owner shall ascertain the

facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this Contract, the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

No claim for damages or any claim other than for an extension of time as herein provided shall be made or asserted against the Owner by reason of any delay.

C. Liquidated Damages For Delay

If the work is not completed within the time stipulated in Section -TIME OF COMPLETION under SPECIAL CONDITIONS, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Owner as fixed, agreed, and as liquidated damages (it being impossible to determine the actual damages occasioned by the delay) for each calendar day of delay, until the work is completed, the amount as set forth in Section - LIQUIDATED DAMAGES under SPECIAL CONDITIONS and the Contractor and his sureties shall be liable to the Owner for the amount thereof. Neither permission given by the Owner for the Contractor to continue the work after the time fixed for completion, nor the inspection and acceptance of such work, shall be deemed a waiver on the part of the Owner of any of his rights under this contract.

117 ENGINEER'S AUTHORITY

The Engineer will decide all questions which may arise in relation to the work and the construction thereof. The Engineer's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said Contract, the determination or decision of the Engineer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this Contract affected in any manner or to any extent by such question.

118 TECHNICAL SPECIFICATIONS AND CONTRACT DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Contract Drawings or shown on the Contract Drawings and not mentioned in the Technical Specifications shall be of like effect as if shown on or mentioned in both. In case of difference between the Contract Drawings and Technical Specifications, the matter shall be immediately submitted to the Owner without whose decision said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense. Therefore, the worse case scenario with the highest cost will be considered included on the bid.

119 REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the Owner for any additional information not already in his possession which should be furnished by the Owner under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need is approached, but each shall be filed

in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and latest date by which each will be required by the Contractor. The first list shall be submitted within two (2) weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

120 SHOP DRAWINGS

Shop drawings are required for all manufactured items. In the case of reinforced concrete, details or reinforcing bars and form construction and materials shall be submitted in the same manner as shop drawings.

a. All required shop drawings, machinery details, layout drawings, working drawings, material and equipment descriptions, etc., shall be submitted to the Engineer in three (3) copies for review sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting, rechecking if necessary. Two (2) weeks should be allowed for checking from the date of receipt by the Engineer. The Contractor, with the approval of the Engineer, may submit manufacturer's literature as a substitute for, or supplement to, the shop drawings, etc. The minimum size for any submission shall be 8 l/2 x 11" and the maximum size shall be 24" x 36".

b. No construction, purchase, delivery, installation or work shall be done or made on any part or feature of this Contract which is dependent upon shop drawing review, until such review has been received from the Engineer. If the Contractor proceeds without reviewed shop drawings, it shall be at his own risk. No claim by the Contractor, for extension of the Contract time will be granted by reason of his failure in this respect.

c. Shop drawings, etc., or printed matter shall give all dimensions, sizes, etc., to enable the Engineer to determine suitability of the construction, installation, material or layout for the purposes intended. Where needed for clarity, the drawings shall include outline, sectional views and detailed machine work, finish, etc., required. The drawings to be submitted shall be coordinated by the Contractor with any other drawings previously reviewed, with the design and function of any equipment or structure and the Contract Drawings.

d. By submitting shop drawings, etc., the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data, or will do so and that he has checked and coordinated each shop drawing, etc., with the requirements of the work and of the Contract Documents.

e. If any drawings show variations from the requirements of the Contract because of standard shop practice and/or other reasons, the Contractor shall make specific mention of such variation in his letter of transmittal in order, that if acceptable, suitable action may be taken for proper adjustment of the Contract price and/or time; otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been reviewed.

f. After review, the submittals will be stamped “No Exception Taken”, “Make Corrections Noted”, “Revise & Resubmit” or “Rejected”. Two (2) prints of “No Exceptions Taken”, or “Make Corrections Noted”, drawings will be returned to the Contractor for his use and distribution to his suppliers and/or Subcontractors. In the case of those stamped "Resubmit" or "Rejected", two (2) prints will be returned to the Contractor who shall make all indicated corrections and resubmit (3) prints.

g. In any submission which is noted as "No Exception Taken" or "Make Corrections Noted", the review shall not extend to details or dimensions and shall not relieve the Contractor from his responsibility for compliance with the Contract Drawings and specifications.

h. When the Contractor proposes a revision to a previously submitted shop drawing, etc., three (3) copies shall be resubmitted for review. This resubmittal shall clearly indicate, in a revision block, the date, description and location of the revision. The letter of transmittal shall state the reasons for the revision.

i. The Contractor shall furnish as many copies of the submittals as is necessary for the proper coordination of the work and shall maintain a complete set of the reviewed submissions at the site of the work at all times.

j. Upon the final acceptance of the project, the Contractor shall, on request, furnish the Owner with a complete set of shop drawing tracings or reproducible cloth reproductions of the shop drawing tracings.

k. There will be no direct payment made for any of the above submittals, or reproducible drawings if required, but the cost thereof shall be considered as included in the general cost of the work.

121 SAMPLES, CERTIFICATES AND TESTS

The Contractor shall submit all samples, materials, certified test reports, materials certificates, certificates of compliance, affidavits, etc., as called for in the Contract Documents or required by the Engineer, promptly after award of the Contract and acceptance of the Contractor's bonds. No such materials and/or equipment, etc., shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples/certificates/tests/etc., have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of the above for approval shall not be considered just cause for an extension of the Contract time.

a. Samples

Unless otherwise specified, the Contractor shall furnish the required samples without charge, and shall provide every facility for the securing of material samples. He shall provide means and assist in the verification of all scales, measures and other devices which he operates. Samples to be submitted shall be taken by the Engineer or a laboratory approved by the Owner, unless otherwise specified. All materials being used shall be subject to resampling and testing at any time during their preparation and/or use.

All samples submitted by the Contractor shall be properly identified to include, but not be

limited to, the project name, project number, item number and description of material, name of the producer, place of origin, and other detailed information which will assist the Engineer passing upon the acceptability of the sample. Certified test reports, materials certificates and/or certificates of compliance required to be submitted with the sample or if permitted in lieu of samples, shall conform to the requirements stated hereafter.

b. Certified Test Report

A certified test report shall be a document containing a list of the dimensions, chemical, metallurgical, electrical and physical results obtained from an actual test of the materials involved, and shall certify that the materials meet the requirements of the Contract Drawings and specifications, and shall also include the following information:

1. Item number and description of material
2. Date of manufacture
3. Date of testing
4. Name of organization to whom the material is consigned
5. Quantity of material represented, such as batch, lot, group, etc.
6. Means of identifying the consignment, such as label, marking, lot number, etc.
7. Date and method of shipment
8. Name of organization performing tests

The certified test report shall be signed by an authorized and responsible agent for the organization supplying the material, and it shall be notarized.

c. Materials Certificate

A material certificate shall be a document certifying that the materials, components and equipment furnished, conform to all requirements of the Contract Drawings and specifications. The document shall also include the following information:

1. Project to which the material is consigned
2. Name of Contractor to whom material is supplied
3. Item number and description of material
4. Quantity of material represented by the certificate
5. Means of identifying the consignment, such as label, marking, lot numbers, etc.
6. Date and method of shipment

d. Certificate of Compliance

A certificate of compliance shall be a document certifying that the materials, components and equipment covered by the previously submitted certified test report and materials certificate, have been installed in the work and that they conform to all the requirements of the Contract Drawings and specifications. The following information shall also be required on the document:

1. Project number

2. Item number and description of material

3. Quantity represented by the certificate

4. Name of manufacturer

The certificate of compliance shall be signed by an authorized and responsible agent for the prime Contractor, and shall be notarized.

f. Tests

Tests as required by the Specifications will be made in accordance with the latest revision to the standard method in effect at the time of bidding of the American Society of Testing Materials, the New York State Department of Transportation, and American Water Works Association, the American Society of State Highway Officials or any other organization that is recognized as an authority on a particular material unless otherwise specified on the Contract Drawings or Special Conditions. Representative preliminary samples or the material proposed for use shall be submitted, without charge by the Contractor or producer for examination and tested in accordance with specified methods. All materials being used are subject to test or rejection at any time during their preparation and use.

Materials will be rejected by the Engineer whenever, in his judgment, they fail to meet the requirements of the specifications.

The Owner reserves the right to retest all materials which have been tested and accepted at the source of supply, after the same have been delivered, and to reject all materials, which when retested, do not meet the requirements of the specifications.

g. Approval/Acceptance

Approval on any materials shall be general only and shall not constitute a waiver of the Owner's right to demand full compliance with Contract Requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance, and may reject materials and accessories for cause even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such preparation by the Contractor as is equitable.

The Engineer may accept a material or combination of materials and therefore waive noncomplying test results provided that all of the following conditions are met:

1. Results of prior and subsequent series of tests of the material or materials from the same source or sources are found satisfactory.
2. The incidence and degree of nonconformance with the specification requirements are, in the Engineer's judgment within reasonable and practical limits.
3. The Contractor has diligently exercised material controls consistent with good practices in the Engineer's judgment.
4. No adverse effect on the value or serviceability of the completed work could result.

The Engineer may at his discretion waive testing of extremely minor quantities of material when such material is obtained from sources that are prevalently on test.

h. Costs

Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

1. The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, including those samples taken on the project by the Engineer. The Owner shall pay all other testing costs of said samples.
2. The Contractor shall assume all costs of retesting.
3. The Contractor shall assume all costs of testing materials offered in substitution for those found deficient or for those specified.

122 MATERIALS AND WORKMANSHIP

a. Unless otherwise specifically provided for in the Technical Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.

b. All work performed and all materials furnished shall be in conformity with the lines, grades, cross sections, dimensions and material requirements, including tolerances shown on the Contract Drawings or indicated in the Specifications.

c. The Contractor shall furnish to the Owner for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics and all other pertinent information as required, and shall likewise submit for approval as required full information concerning all other materials or articles which he proposes to incorporate in the work. See Section - SAMPLES, CERTIFICATES AND TESTS.

d. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.

e. Materials specified by reference to the number or symbol of a specific standard, such as an ASTM Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in such reference. The standards referred to, except as modified in the Technical Specifications, shall have full force and effect as though printed therein.

f. The Contractor shall employ only competent and skillful workers to do the work and

whenever the Engineer shall notify the Contractor, in writing, that any man on the work is, in his opinion, incompetent or disorderly, the Contractor shall forthwith remove such person and shall not again employ him on any part of the work without the written consent of the Engineer.

g. The Owner may stop any work or any part of the work under the Contract if the methods or conditions are such that unsatisfactory work might result, if improper materials or workmanship is being used, or unsafe conditions exist. Any action by the Owner under this provision shall not be deemed a cause of delay and no extensions of permitted time will be granted because of such action.

h. In the event the materials furnished or the work performed deviates from the requirements of the Contract Drawings and Specifications, but in the opinion of the Owner, constitutes substantial performance, the Owner may accept the same. Should the deviation in question result in a savings to the Contractor, the Owner will be entitled to a credit in the full amount of said savings. Should the deviation in question result in an additional cost to the Contractor, the Owner will not be liable to the Contractor for such additional cost.

If the materials or the finished product in which the materials are used or the work performed are not in conformity with the Contract Drawings and Specifications and have resulted in an inferior or unsatisfactory product, the work and materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor.

123 PERMIT AND CODES

a. The Contractor shall give all notices required by and shall observe and comply with all Federal and State laws and Local by-laws, ordinances and regulations in any manner affecting the conduct of the work, and all such orders or decrees as may exist at present and those which may be enacted later, of bodies or tribunals having any jurisdiction or authority over the work. The Contractor shall indemnify and save harmless the Owner and Engineer and all of its officers, agents and servants against any claim or liability arising from or based on the violation of any such law, by-law, ordinance, regulation, order or decree, whether by himself or his employees. All construction work and/or utility installations shall comply with all applicable ordinances and/or codes including any and all written waivers thereto.

Before commencing any work, the Contractor shall examine the Contract Drawings and Specifications for compliance with applicable ordinances, codes, etc., and shall immediately report any discrepancy to the Owner. Where the requirements of the Contract Drawings and Specifications fail to comply with such applicable ordinances, codes, etc., the Owner will adjust the Contract by Change Order to conform to such ordinances, codes, etc., (unless waivers covering the differences have been granted by the governing body or department) and make appropriate adjustment in the Contract Price.

Should the Contractor fail to observe the foregoing provisions and proceed with the construction or work and/or install any utility at variance with any applicable ordinance,

code, etc., including any written waivers (notwithstanding the fact that such installation is in compliance with the Contract Drawings and Specifications), the Contractor shall remove such work without cost to the Owner, but a Change Order will be issued to cover only the excess cost the Contractor would have been entitled to receive if the change had been made before the Contractor commenced work on the items involved.

b. Unless otherwise specified, the Contractor shall at his own expense, secure and pay to the appropriate department of the Local/State/Federal Government the fees or charges for all permits including but not limited to those required for the making of water taps and the supplying of any equipment required by the Regulations of the Consolidated Water District, Electrical Underwriters permits, and any other permits required by the regulatory body or any of its agencies.

c. The Contractor shall comply with applicable Local/State/Federal laws, ordinances codes, etc., governing noise, the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the work under this Contract.

124 CARE OF WORK

a. The Contractor shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Owner.

b. Materials shall be stored so as to insure the preservation of their quality and fitness for the work and shall be located so as to facilitate prompt inspection. When considered necessary, they shall be place on wooden platforms or other hard, clean surfaces and not on the ground and when directed, shall be placed in weatherproof buildings.

c. Stored materials, even though approved before storage, shall be inspected prior to their use in the work and shall meet the requirements of the specifications at the time it is proposed to use them.

d. The Contractor shall at his sole expense and without any additional cost to the Owner provide watchmen and/or other security measures as may be reasonably required to properly protect and care for materials and work completed, and to otherwise prevent property damage and/or personal injury.

e. In an emergency affecting the safety of life or property including adjoining property, the Contractor, without special instructions or authorization from the Owner, is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Owner. Any compensation claimed by the Contractor on account of such emergency work will be determined by the Owner as provided in the Section - CHANGES IN THE WORK under GENERAL CONDITIONS.

f. The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operation. If any damage is not repaired or acceptable arrangements for repair are not made within a reasonable period of time, the Commissioner may act to repair such damage by the Owner's forces or using another Contractor employed for that purpose, and the costs of such repair shall be deducted from any payment due the Contractor. If a damage claim has been referred by the Contractor to his insurance company, such referral shall in no way relieve the Contractor of his responsibilities.

g. The Contractor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Owner and the Building Inspector from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Owner and the Building Inspector may become liable in consequence of such injury or damage to the work or adjoining and adjacent structures and/or their premises.

125 ACCIDENT PREVENTION

a. The Contractor shall exercise proper precautions and safety measures at all times for the protection of persons and/or property and shall be responsible for all injuries and/or damages to all persons and/or property, either on or off the site, which occur as a result of his prosecution of the work under this Contract. The safety provisions of all applicable Local/State/Federal laws and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the Owner may determine to be reasonably necessary.

b. Machinery, equipment and trucks shall be properly guarded, and operational hazards shall be eliminated in accordance with the provisions and intent of the latest revised edition of the Manual, Accident Prevention in Construction, published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law. A copy of this manual shall be available for reference at all times in the Contractor's field office. The Contractor's attention is also called to the Section - SAFETY PROVISIONS of the GENERAL CONDITIONS.

c. The Contractor 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 of the work under this Contract in accordance with the requirements of the applicable State/Local/Federal regulations. The Contractor

shall promptly furnish the Owner with reports concerning these matters.

d. The Contractor shall indemnify and save harmless the Owner and the Building Inspector from any and all claims for damages resulting from personal injury, death and/or property damage, suffered or alleged to have suffered, by any person as a result of any work conducted under this Contract. See also the Section - INDEMNITY CLAUSE of the GENERAL CONDITIONS.

126 SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the Health/Sanitary Codes of the Local/State/Federal Government. Drinking water shall also be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing Health/Sanitary regulations.

127 USE OF PREMISES

a. The Contractor shall confine his equipment, storage of materials, and construction operations to the Contract Limits as shown on the Drawings and as prescribed by ordinances or permits, or as may be described by the Owner, and shall not unreasonably encumber the site or public right-of-ways with his materials and construction equipment.

b. The Contractor shall comply with all instructions of the Owner, Building Inspector and the ordinances, codes, etc., of the Local/State/Federal Government, regarding signs, advertising, traffic, fires, explosives, danger signals, barricades, etc.

128 REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated materials and debris, and keep the Project Area and public right-of-ways reasonably clear. Upon completion of the work, prior to final inspection, he shall remove all temporary construction facilities, debris and unused materials provided for the work, and restore the whole site of the work and public right-of-ways to a condition satisfactory to the Engineer. Trash burning on the site of the work will be subject to prior approval of the Owner and existing Local/State/Federal regulations.

The cost of all required cleanup shall be included in the various prices bid under this Contract. The Contractor shall also include in the bid price the removal of snow from the project area.

129 LAYOUT OF WORK

The Contractor shall perform all layout work necessary for the satisfactory execution of the construction as shown on the Contract Drawings and all costs in connection therewith shall be included in the contract price. The Contractor shall employ competent personnel and all work shall be subject to the approval of the Engineer.

The Contractor shall be held responsible for the protecting and safe guarding of all control points and bench marks set by the Engineer and his own forces. Any replacement or reestablishment of control points or bench marks by the Engineer, shall be at the expense of the Contractor.

The required horizontal and vertical control necessary to perform this work is furnished on the Contract Drawings.

130 BLASTING

If explosives are used, all requirements for transportation, use and storage of Local/State/Federal laws and regulations must be complied with and all necessary permits and licenses obtained by the Contractor at his expense. Permits and licenses must be shown to the Engineer on request.

Explosives must be carefully transported, stored, handled and used. The Contractor will keep on the job only such quantities of explosives as may be needed for the work underway and only during such time as they are being used. Explosives shall be stored in a secure manner in locked containers and separate from all tools. Caps and detonators shall be stored separately from other explosives. When the need for explosives is ended, all such material remaining on the job shall be promptly removed from the premises. Care must be taken that no explosives, caps or detonators are stolen or get in to the hands of unauthorized persons or left unguarded where they may cause accidents.

An accurate blasting log must be maintained continuously for the duration of the Contract. The log shall record, for each shot, the location, amount of holes, depth, spacing, amount of explosive per hole, number of caps used and the exact date and time of the blast. In addition, a sketch showing displacement of direct and delay caps for each shot shall be recorded.

Explosives shall be such power and placed and used in such quantities and positions as will not make the excavation unduly large, nor shatter unnecessarily the rock upon or against which the main or structure is to be built, nor injure adjacent persons or property, those portions of the new work or structure as may already be in place or other adjacent pipes, ducts or other structures. The quantity of explosives fired at one blast must be small enough and the time for blasting selected to avoid undue annoyance to persons owning or occupying premises near the work.

The rock must be completely matted when blasts are fired to prevent damage or injury to persons or property or the scattering of broken fragments on the adjacent ground. Adequate warning shall be given all persons in the vicinity before any blast is discharged.

When blasting is required, the operation shall be conducted with such care as not to cause damage to any of the existing underground utilities. Should such occur, the cost of repairs shall be the sole

responsibility of the Contractor.

When blasting for trench excavation, each shot sequence shall begin sufficiently ahead of completed work to prevent damage to the completed work which must be properly protected prior to each shot.

The provisions herein shall apply where soil formation resembles rock, whether in trench, structure or general excavation, even if it is of such a nature that it is not classified and paid for as rock excavation, and if so ordered by the Engineer, will apply to openings cut through masonry, nested boulders or other materials not herein classed as rock.

In areas where the proposed construction is built against the face of rock excavation, all loosened or shattered portions of the rock must be completely removed by barring, wedging or other approved means so the masonry can be built firmly in contact with solid rock.

The Contractor shall notify each public utility or others having structures in proximity of the site, and others who may be affected, of his intention to use explosives. Said notice shall be given in accordance with the applicable regulations therefore and sufficiently in advance to enable the involved agencies/companies/persons and the Contractor to take such steps as may be necessary to protect life and property. Such notice shall not in any way relieve the Contractor of responsibility for any damage resulting from his blasting operations.

When in sufficiently close proximity to existing gas, water, sanitary, storm or other utilities and structures and all services connected thereto, the Contractor shall remove the rock by methods other than blasting, if necessary, in order to protect said utilities and their barring wedging, jack hammer, drilling, rock, jacks or other such hand or machinery methods which will not damage the adjacent utility.

No explosive shall be brought into, stored or used on the site of any job by the Contractor unless and until he shall have furnished the Engineer with a satisfactory certificate of insurance showing that the risks arising from the presence of and use of explosives and from blasting are included with the insurance provided by the Contractor to secure his obligations to the Owner. Insurance should also cover damage to any underground utilities or other underground facilities.

131 INSPECTION/ACCEPTANCE OF THE WORK

All materials and workmanship shall be subject to inspection, examination or test by the Owner and the Engineer to determine the acceptability of the work at any and all times during manufacture or construction and at any and all places where such manufacture or construction is carried on and the Contractor shall provide proper facilities for such access and inspection. The Owner or Engineer shall have the right to reject defective material and workmanship or require its correction. The Owner or Engineer shall have the right to reject materials which have not been approved prior to incorporation in the work, and the right to reject work that has been performed without inspection. Rejected materials shall be removed and replaced without charge. Rejected workmanship shall be corrected if possible to the Engineer's satisfaction without additional charge. If in the opinion of the Engineer correction is not feasible, or if correction has been attempted but is not satisfactory to the Engineer, the work must be removed and replaced without additional charge. If the Contractor fails

to proceed at once with the correction or replacement of rejected workmanship or defective materials, the Owner may by Contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any moneys which are due or may become due the Contractor, without prejudice to any rights or remedies of the Owner.

Neither inspection, testing, approval nor acceptance of the work in whole or in part by the Owner or its agents shall relieve the Contractor or his sureties of the full responsibility for materials furnished or work performed not in strict accordance with the Contract.

The assignment of a part time inspector to this project will in no way relieve the Contractor of the requirements to comply with all of the specifications.

Where the Contractor has been directed (by the Engineer) to leave certain items of work exposed for inspection, and he fails to do so, he will be required to uncover such work, at his own expense.

132 FINAL INSPECTION

When the improvements embraced in this Contract are substantially completed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection, and bear the signed concurrence of the representative of the Owner having charge of inspection. If the Owner determines that the status of the improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable. The inspection party may also include the representative of the Federal Agency, other Governmental Agencies and representatives of each department of the Owner having charge of improvements of like character when such improvements are later to be accepted by the Owner.

133 INSURANCE

The insurance requirements for this Contract are specified in Section J of these documents.

134 WARRANTY OF TITLE

No material, supplies or equipment incorporated or to be incorporated in the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and upon completion of all work, shall deliver to same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor, nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract, shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of person

furnishing materials or labor to recover under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all Subcontracts and material Contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal Contract is entered into for such materials.

135 GENERAL GUARANTEE

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with any Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting there from which shall appear within a period of two (2) years from the date of final payment. If any work is done under the guarantee and maintenance provisions, the guarantee and maintenance bond shall be extended with respect to such repair or replacement work for a period of two (2) years from the date the maintenance work was completed.

136 NO ARBITRATION

All claims, counterclaims, disputes and other matters in question between the Owner and the Contractor, not otherwise resolved, arising out of or relating to this agreement or its breach shall be decided in a court of competent jurisdiction. The Owner and the Contractor hereby agree that there shall be no requirement for arbitration of any controversies or disputes hereunder, all such matters to be resolved at law.

137 RISK OF LOSS

The Owner assumes no responsibility for the condition of existing buildings and structures and other property on the Project Area nor for their continuance in the condition existing at the time of issuance of the Invitation for Bids or thereafter. No adjustment of Contract Price or allowance for any change in conditions which may occur after the Invitation for Bids has been issued will be made except as provided for herein.

138 REQUIRED PROVISIONS DEEMED INSERTED

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

139 CORRECTIONS

The Engineer shall have the right to correct any errors or omissions in the Contract, specifications, or Contract expression of their intent.

Such corrections shall take effect from the time that the Engineer gives notice thereof, and any alterations in the work rendered necessary thereby shall be made as corrected. Any conflict between the approved Contract Drawings and specifications, or any disagreement in measurements upon the Contract Drawings must be submitted to the Engineer before construction of the work.

140 SAFETY PROVISIONS

The safety provisions of applicable laws, building and construction codes and the safety codes approved by the State Labor Commissioner shall be observed.

The provisions of the Federal Occupational Safety and Health Administration's "Occupational Safety and Health Standards" and "Safety and Health Regulations for Construction" shall be observed.

Should at any time during the work under this Contract any Local/State/Federal safety inspector visit the site for the purpose of a safety inspection, the Contractor shall immediately notify the Engineer's representative on the job site.

141 CONNECTING TO EXISTING WORK

The Contractor shall remove such existing masonry, concrete, equipment and piping as is necessary, in order to make the proper connections to the existing work at the locations shown. Also, he shall make the necessary pipe line, roadway and other connections at the several points in order that on completion of this Contract, water, sewage, or storm water, as the case may be, will flow through the several pipe lines and structures. Unless otherwise specified herein, no extra payment will be made for this work, but the entire cost of the same shall be included in the unit or lump sum prices Bid for the various items of the work to be done under this Contract.

142 EXISTING IMPROVEMENTS

The Contractor shall conduct his work so as to minimize damage to existing improvements, except where specifically stated otherwise in the specifications or drawings; it will be the responsibility of the Contractor to restore, as nearly as practical, to their original conditions all improvements on public or private property damaged by his operations.

The utility mains, ducts, poles and services in the construction area, where shown on the Contract Drawings are at the approximate locations furnished by various utilities concerned. Whenever existing improvement information is either indicated on the drawings or supplied to the Contractor at a later date, it is understood that such information is furnished in good faith for the Contractor's

convenience. The Contractor must interpret this information according to his own judgment, and must make his own determinations regarding the location of all improvements. No claim will be allowed because of incorrect or incomplete existing improvement information.

The various utility companies have been made aware of the pending construction and are generally familiar with the locations of conflicts in the case of the proposed construction. The various utility companies will make all adjustments to their own lines except where otherwise shown on the Contract Drawings or specified. The Contractor shall give ample notice to the various utilities so that existing lines can be marked in the field and adjustments made. The Contractor shall cooperate fully with the various utilities and shall plan his work so that least interference is caused for all parties concerned. No additional payments shall be made to the Contractor for delays caused by utility interference. The Contractor shall support all utility lines uncovered during excavation.

143 ACCESS TO SITE

The Contractor shall make every effort to minimize damage to all access routes, and he shall be required to restore them to their original condition. The Contractor shall acquire all necessary permits for working in, on or from public streets or right-of-ways and for securing additional access rights thereto with respect to the County and State Agencies. No Street Opening Permits will be required by the Village, but the ordinances and rules and regulations pertaining thereto are in full force and effect as if repeated herein.

All costs of the removal and restoration to original conditions of walls, fences, structures, utility lines, poles, guy wires or anchors, and other improvements required for passage for the Contractor's equipment shall be borne by the Contractor. The Contractor shall notify the proper authorities of the Owner and all utilities of any intended modification or disruption to their property prior to the start of construction and shall cooperate with them in the scheduling and performance of his operation.

If the Contractor, by direct negotiation and bargain with any land owner, lessee or tenant, has secured for himself any right to use more space or greater privileges than the space provided by the

Owner, for purposes incidental to the performance of the Contract, he shall, upon request of the Engineer, furnish to the Engineer proper evidence that such additional rights have been properly secured and assurance that no damage to or claim upon the Owner will arise therefrom. The Owner shall not be liable in any way for any expense incurred by the Contractor in securing any such right to use additional property.

The Contractor shall be responsible for reimbursing the Owner and others for any and all losses, damage or expense which the Owner and/or Local Government or those others may suffer, either directly or indirectly or through any claims of any person or party, for any trespass outside the spaces and right-of-ways provided by the Owner to the Contractor of any violation or disregard of the terms and conditions established for the use or occupancy of those rights or for negligence in the exercise of those rights.

The Owner may retain or deduct from any sum or sums due or to become due to the Contractor such amount or amounts as may be proper to insure the Owner against loss or expense by reason of the

failure of the Contractor to observe the limits and conditions of the right-of-ways, rights-of-access, etc., provided by the Owner.

144 ACCESS TO ADJACENT PROPERTIES

The Contractor shall at all times maintain vehicular and pedestrian access to all properties abutting or adjacent to construction under this Contract, all at the Contractor's sole expense. In the event that normal access is cut off to a particular property due operations or proposed work called for under the Contract, the Contractor shall, at his sole expense, make other arrangements for access to said property satisfactory to the property owner, tenant and the Building Inspector.

145 USE OF ROADWAYS

During the progress of the work, the Contractor shall make ample provision for both vehicular and foot traffic on any public road, and shall indemnify and save harmless the Owner from any expense whatsoever due to his operations on/over said roadways. The Contractor shall also provide free access to all fire hydrants, water and gas valves located along the line or in the vicinity of his work. Gutters and waterways must be kept open or other provisions made for the removal of storm water. Roadway intersections may be blocked but one half at a time and the Contractor shall lay and maintain temporary driveways, bridges and crossings, such as in the opinion of the Building Inspector are necessary to reasonably accommodate the public and to provide access to private roadways. In the event of the Contractor's failure to comply with these provisions, the Owner may cause the same to be done, and will deduct the cost of such work from any moneys due or to become due the Contractor under this Contract, but the performance of such work by the Owner or at its insistence shall serve in no way to release the Contractor from his general or particular liability for the safety of the public or the work.

146 INDEMNITY CLAUSE

The Contractor agrees to protect, defend, indemnify and hold the Owner and its employees free and harmless from and against any and all losses, claims, liens, demands and cause of action of every kind and character including, but not limited to, the amount of judgments, penalties, interest, court costs, legal fees incurred by the Owner arising in favor of any party, including claims, liens, debts, personal injuries, including employees of the Owner, death or damages to property (including property of the Owner's) and without limitation by enumeration, all other claims or demand of every character occurring or in anyway incident to, in connection with or arising directly or indirectly out of the said agreement. The Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto, even if (claims, etc.) is groundless, false or fraudulent.

147 DISPUTES

a. Any disputes between the parties arising out of, or in any way related to this Contract and/or the performance of the same, or its interpretation, shall within ten (10) days of the event or action giving rise to the dispute be presented to the Engineer. All papers pertaining to the dispute shall be filed in quadruplicate. Such notice shall state the facts surrounding the dispute in sufficient detail to identify the dispute, together with its character and scope. In the meantime, the Contractor shall proceed with the work under this Contract as directed. Any dispute not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the dispute is of a continuing character and notice of the dispute is not given within ten (10) days of its commencement, the dispute will be considered only for a period commencing ten (10) days prior to the receipt by the Engineer of notice thereof. The Contractor shall in no case allow any dispute to delay the work under this Contract.

b. As soon as practicable after the final submission of all information, the Owner shall make a determination of the dispute. Said decision of the Owner shall be a condition precedent to any further action on the dispute. However, upon certification in writing by the claimant that the dispute has been submitted in its final form, the Owner shall be obliged to render a decision on said dispute within sixty (60) days of the date of said certification. Should the Owner fail to render its decision within the aforementioned sixty (60) day period, its decision will not be a condition precedent to any further action on the part of the claimant.

c. Each decision by the Owner will be in writing and will be mailed to the Contractor by registered or certified mail, return receipt requested, directed to this last known address.

d. In the event of an unfavorable decision by the Owner, the Contractor shall have the right to contest said decision as provided for under the provision of this Contract. The Contractor shall in no case allow the dispute or decision to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest and he may then except the matter in question from the final release.

148 GENERAL MUNICIPAL LAWS OF NEW YORK STATE

The attention of the Contractor is directed to the fact that all pertinent General Municipal Laws of the State of New York shall be adhered to. In addition, this Contract is subject to all New York State statutes, including but not limited to the Village Law, Highway Law, Real Property Law and Finance Law.

149 "OR EQUAL" CLAUSE UNLESS OTHERWISE SPECIFIED

Whenever a material, article or piece of equipment is identified on the Contract Drawings or in the specifications by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., the intent is to establish a standard. Any material, article or equipment of other manufacturers

and vendors of equally high quality (particularly with regard to points specified in the specifications) which will perform equivalently within the design ranges specified will be equally acceptable provided that the material, article or equipment so proposed is, in the opinion of the Engineer, of equal substance and function. Further, the manufacturer must agree to comply fully with the warranty requirements of the specifications. The Contractor may not assume that substitute equipment will be approved by the Engineer and non-approval of said equipment will form no basis for a claim for additional compensation by the Contractor. No substitute equipment shall be purchased or installed by the Contractor without the Engineer's written approval. If the Engineer's approval is obtained for alternate equipment, the structures, buildings, piping or electrical necessary to accommodate the equipment and if engineering is required due to substitution of other material, the Contractor shall reimburse the Owner for the Engineering service. The Contractor must pay for any laboratory testing required to establish the equality of his proposal.

150 CONSTRUCTION, EXCAVATION AND DEMOLITION OPERATIONS AT OR NEAR UNDERGROUND FACILITIES

The Contractor's attention is directed to the State of New York, Department of Labor, Board of Standards and Appeals Industrial Code Rule 53 - "Construction, Excavation and Demolition Operation at or near Underground Facilities" effective April 1, 1975.

The Contractor will be required to comply with all applicable requirements of Industrial Code Rule 53.

Requests for copies by mail should be directed to State of New York, Department of Labor, Office of Public Information, State Office Building Campus, Albany, New York 11201; or, single copies may be obtained by applying in person at the Department's office in Albany.

151 REVIEW BY OWNER

The Owner, its authorized representatives and agents shall, at all times have access to and be permitted to observe and review all work, material, equipment, payrolls, personnel records, employment conditions, material invoices and other relevant data and records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by the Owner through its authorized representative or agents.

152 DEDUCTIONS FOR UNCORRECTED WORK

If the Owner deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Owner and subject to settlement in case of dispute, as herein provided.

153 PATENTS

The Contractor shall hold and save the Owner and Engineer, their officers, and employees, harmless from liability of any nature of kind, including but not limited to court costs and attorney's fees, for or on account of, any patented or unpatented invention, process, article or appliance manufactured or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Technical Specifications.

154 INFORMATION FROM OWNER

In addition to showing the construction under this Contract, the drawings may show certain information obtained by the Owner regarding conditions and features which exist at the site of the work, both at and below the surface of the ground. The Owner and the Engineer expressly disclaim any responsibility for the accuracy or completeness of the information given on the drawings with regard to the existing conditions and features and the Contractor will not be entitled to any extra compensation on account of inaccuracy or incompleteness of such information. The information which is shown is only for the convenience of the Contractor, who must verify this information to his own satisfaction.

155 EXISTING UTILITIES, STRUCTURES AND FIXTURES

The Contractor will be required, at his own expense, to do everything necessary to support, protect and sustain all sewers, water, gas mains or service pipes; electric light, power poles, telephone or telegraph poles, manholes, valve boxes, conduits and any and all utilities, structures or fixtures laid across or along the site of the work. In case any of the said utilities, structures or fixtures are damaged by the Contractor, they shall be repaired by the Contractor at his own expense, or by the authorities having control of the same and the expense of said repairs shall be deducted from the moneys due or to become due the Contractor under this Contract.

Should it become necessary to remove or relocate any utilities, structures or other fixtures, due to a grade and alignment conflict which would require the proposed utility, structure or fixture (not trench excavation, sheeting or other construction features) to occupy the same space as the existing pipe, pole, conduit and/or other fixture. The Contractor shall notify the Owner of the obstruction and the Engineer of the location and the circumstances and shall cease work (which might prove detrimental to the utility, structure or fixture encountered) if necessary until satisfactory arrangements have been made with the Owners of the same to properly care for and relocate them. Should it be necessary to cease work and a delay is caused thereby, the Contractor shall have no claim for damages or any claim other than for an extension of time. See GENERAL CONDITIONS, CLAIMS FOR EXTRA COST.

The removal or relocation of such interferences may be done by the Owner of the interfering utility or structure with his own forces, or by a Contractor whom he may engage for such purpose, or by private Contract between the utility company and this Contractor; or alternately he may request the Owner to cause this work to be performed under this Contact (at the utility company’s expense). In

the last instance, the Contractor shall perform such work under the terms of this Contract and shall be compensated as described in GENERAL CONDITIONS - CHANGES IN THE WORK, except where SPECIAL CONDITIONS OR TECHNICAL SPECIFICATIONS provide otherwise.

If the Contractor desires temporary changes of location of his convenience for any reason whatsoever, of water lines, gas lines, sewer lines, wire lines, service connections, water and gas meter boxes, valve boxes, light standards, cableways, signals and any other utilities, structure or fixtures, he shall satisfy the Engineer and Owner that the proposed relocation does not interfere with his or other Contractor's operations, or the requirements of the Contract Drawings and does not cause an obstruction or a hazard to traffic. The Contractor shall make his own request to the utility companies, pipe owners or other parties affected for such relocation work. Such relocation work for the convenience of the Contractor shall be made solely at the Contractor's expense.

The Contractor shall not remove or relocate any utility, structure, or fixture without the written approval of the Owner of that utility, structure or fixture unless otherwise shown on the Contract Drawings, specifications or ordered by the Engineer.

156 CONTROL OF EXISTING FLOWS

During the construction of all proposed work, the Contractor shall take every precaution and do the necessary work to maintain the flow of storm drainage, sanitary sewage and natural flows through the working areas. The Contractor is solely responsible for providing his flow control system and there shall be no separate payment for the required work. The Contractor shall be responsible for any flooding or sanitary backup on his work and to the property owners affected by such flooding or backup. The Contractor shall make such provisions as may be required by the Local, State or Federal Health officers or any other public bodies with jurisdiction over the flow of storm drainage, sanitary seepage and natural flows.

In the event the Contractor uses water from natural water sources for his operations, intake methods shall be such as to create no harmful effects; and where water is taken from a stream, reasonable flow downstream from the intake shall be maintained.

157 SEWAGE, SURFACE, GROUNDWATER, AND FLOOD FLOWS

The Contractor shall furnish all the necessary equipment, shall take all necessary precautions, and shall assume the entire cost of handling any sewage, seepage, storm, groundwater, surface and flood flows which may be encountered at any time during the construction of the work. The manner of providing for these flows shall meet the approval of the Engineer and the entire cost of said work shall be included in the unit or lump sum prices bid for the various items of the work to be done under the Contract.

The Contractor shall employ such feasible and practical methods in his operations as will prevent pollution, sedimentation or the introduction of impurities or other objectionable materials that may become suspended or dissolved in waters reaching streams, ponds, lakes, water supplies, or other

water bodies.

Water shall not be disposed of by discharging it into any street gutter, drainage channel, existing drainage system, natural stream, waterway, lake, pond, or bog, etc., without the prior approval of the Authority having jurisdiction thereof. Should such approval be obtained, the Contractor shall ensure that no solids, debris, suspended soil particles, impurities, or pollutants are allowed to enter the drainage system. The Contractor shall be fully responsible for any damages to these systems resulting from his disposal methods and any necessary measures (such as but not limited to cleanup) required to return the system to preconstruction conditions. In addition to the above, disposal on private property shall be only with the prior written permission of the property Owner.

Any water used for any purpose by the Contractor shall not be discharged in such a way as to create pollution, sedimentation or other adverse effects upon the aforementioned streams or waters.

In addition, the Contractor shall provide all necessary pumps, dams, drains, ditches, flumes, well points and other means of excluding and removing groundwater or water from any other source, from trenches, tunnels and other parts of the work and for preventing the trench slopes from sliding or caving. He shall sufficiently dewater all trenches, tunnels or other excavations to completely dry out and solidify the bottom of the trench to whatever depth is necessary below said bottom of the trench to provide a firm solid, completely dry bottom on which to place foundation material, lay pipe or build a structure.

It is expressly understood that the Engineer or Owner is not responsible for any flooding, high water tables, underground water or any other water problems which may be encountered on any portion of the work called for under this Contract and that the Contractor must include all anticipated costs for dewatering all excavations in the price bid under this Contract.

158 WEATHER CONDITIONS/WORK IN FREEZING WEATHER

In the event of temporary suspension of work, or during inclement weather, or whenever the Engineer shall direct, the Contractor will, and will cause his Subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Engineer, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his Subcontractors so to protect his and their work, such materials shall be removed and replaced at the expense of the Contractor.

Unless written permission be given, work liable to be affected by frost or freezing shall be suspended during freezing weather. When work proceeds under such a condition, the Contractor shall provide approved facilities for heating the materials and for protecting the finished work.

159 MAINTENANCE AND PROTECTION OF TRAFFIC

The provisions herein shall be deemed in effect unless more stringent provisions are called for within the Technical Specifications. The Contractor will be required to protect and maintain pedestrians

and vehicular traffic.

The Contractor shall maintain and protect traffic by so conducting his construction operations that the traveling public is subjected to a minimum of delay and hazard.

Residents along the existing roads and those having business along them shall have safe means of ingress and egress at all times. Traffic shall be maintained at the intersections of all roads or streets crossing the road construction. Where directed by the Commissioner, the Contractor shall provide such adequate and proper bridges over excavations as may be necessary or directed for the purpose of accommodating pedestrians or vehicles.

In the event any portion of a public road must be closed to traffic, permission shall be secured by the Contractor from the Village Superintendent of Highways or County or State Highway Department if in their jurisdiction and notice must be given by the Contractor to the Police and Fire Departments, and adequate detour sign posted.

Approved signs shall be provided along all highways while work is in progress, and where traffic direction is required, flagmen shall be designated by the Contractor to direct traffic past the equipment, machinery or construction operations. Construction equipment shall be removed entirely from the traveled roadway when work is shut down for the day and two lanes of traffic shall be maintained at night. Barricades shall be placed wherever the safety of the traveling public requires, where a road is officially closed, where an excavation is being made, or where heavy construction equipment is operating. In addition barricades shall be placed where they are deemed necessary in the opinion of the Commissioner of Public Works or the Chief of Police, to direct traffic or to prevent entrance to streets of areas where construction is in progress.

Barricades shall be in accordance with the Owner's Public Works Specifications, and shall be lighted as provided therein. On traveled roads, a lighted warning sign is to be placed two hundred (200') feet before the approach of barricades, or as is necessary for safety along the approach line.

Where trenches have been cut, barricades, red flags, and warning signs, all properly lighted, shall be placed at frequent intervals and maintained until the trenches have been properly backfilled and compacted.

All barricades, lights, flags, and bombs shall be maintained intact at all times overnight, over the weekends, holidays or if the project is shut down for any period of time.

160 HOURS OF WORK

No work shall be done on the job before 7:30 a.m. nor after 6:30 p.m. unless the Owner is notified, nor shall any work be done on Saturdays, Sundays, or legal holidays unless Contractor shall have given Owner written request at least forty-eight (48) hours in advance. No additional payment will be made by Owner for overtime work under any circumstances unless a prior written order has been given to the Building Inspector. The Contractor shall comply with the Village Noise Ordinance which prohibits all work except emergency repair work, before 7:30 a.m. and after 7:00 p.m.

161 WATCHMAN

Contractor may, at his option and expense, employ a watchman to protect property at all times during which work is not under active supervision of his Construction Superintendent. Owner will not assume responsibility for losses or damage to property through theft or vandalism.

162 FIELD COPIES

The Contractor shall keep one copy of the specifications, plans and all shop drawings in good order, available to the Commissioner and his representative at the job location.

163 EMERGENCY WORK

If in the opinion of the Commissioner of Public Works, the work is carried on in such fashion that the public safety, private property, streets or utilities are endangered, or that the work is carried on in such a manner as to create unnecessary inconvenience to the public the Commissioner shall, immediately upon given notice, be authorized to undertake such corrective measures as he may deem to be necessary.

164 PROTECTION

The Contractor shall protect and maintain all property, structures and utilities, public or private and shall provide whatever means are required to do so, as part of this Contract. The Contractor shall take steps to protect the site and neighborhood from dust, mud, paint, and inconvenience. He shall take such steps as are necessary to prevent mud and silt from washing off the project area, prevent dust from blowing about the neighborhood, and prevent loaded trucks from spilling material upon traveled roadways. Calcium chloride shall be used to settle dust whenever required by the Engineer.

If the work is stopped for any purpose, all rigging, scaffolds, and equipment shall be made secure to prevent any danger from wind, storm or accidents.

The Contractor must put up and maintain such barriers, signs and red lights as will effectively protect his work, materials, and prevent accidents in consequence of the work. Steps shall be taken to prevent trespass wherever the public may be endangered. He shall assume all liability occasioned in any way by his acts or neglect, or those of his agents, employees or workmen.

The Contractor shall so control his operation as to prevent damage to trees and shrubs which are to be preserved. Protection may include coverings, fences and boards lashed to trees to prevent damage from blasting or machine operations or hand tunneling through root areas. The Contractor shall carefully cut off all branches of trees which may have been broken or injured during construction. All tree repairs and painting of tree wounds shall be as specified in the New York State Department of Transportation Specifications.

Should work necessitate the moving of a survey monument, the property owner, Village, County or other agency which can reasonably be assumed to have established the monument, shall be informed far enough in advance to arrange for adequate referencing. In no case, however, shall a monument be disturbed without prior approval of the Engineer.

All barricades, lights, flags, bombs and any other means set up to protect the public or the work from injury or damage shall be maintained overnight, over weekends and holidays, or for any duration during which the job is not complete but the work may be shut down. Additional precaution such as filling of trenches or installation of steel plates may be required in areas of heavy traffic, on weekends extended by legal holidays or when there is expectation of inclement weather.

165 PAYMENT FOR GENERAL CONDITIONS

The cost of the performance of any work required by these General Conditions shall be considered to be a part of the Contractor's Base Bid if the Contract is a Lump Sum Contract, and spread out among all the unit prices, if the Contract is a Unit Price Contract. There will be no additional payment for work required by these General Conditions.

166 DAMAGE TO PRIVATE PROPERTY

If the Contractor damages private property or facilities outside the designated work area (which work area is to be restored under the restoration provisions of the Contract), he shall restore the private property or facilities promptly and completely in the same manner as specified under the restoration provisions of these specifications. If he does not do so within a reasonable period of time, as determined by the Commissioner, the Owner may retain or deduct from any sum or sums due to the Contractor such amount or amounts as are necessary to correct the condition and employ the Owner's forces or another Contractor to do the corrective work. The fact that the Contractor has referred a damage claim to his insurance carrier shall not relieve him of liability for prompt and full restoration of damage. For purposes of this section of the Contract, the Owner will treat what are essentially private facilities within a public right-of-way (including but not limited to mailboxes, shrubs, flowers and other plantings, walls, light poles, etc.,) in the same manner as described above for private property.

167 RESTORATION

All man-made and natural features in the construction site disturbed or removed for the proper completion of the work shall be reset or replaced. All man-made or natural features damaged or destroyed shall be repaired or restored to a condition equal to or better than that existing at the start of the work, with materials equal to or better than the original ones.

In cases where it is impossible to replace an item with an equivalent item (large trees, exotic plants) the Contractor may, subject to the approval of the Engineer, substitute other similar items whose total value shall equal that of the destroyed one.

Where the work area extends onto private property, the Contractor shall make all reasonable attempts to satisfy the Owners. In case of dispute, the Commissioner of Public Works shall be the judge as to the reasonableness of equivalency of repaired and restored features.

If the Contract documents contain more detailed or more stringent specifications for restoration than in this section, the more detailed or stringent specifications shall take precedence over this section. If the Contract documents do not contain detailed specifications for restoration, then this section expresses the intent of the Owner; all published specifications of the Owner containing details of construction applicable to items of restoration (e.g. grass, pavement, etc.) shall be deemed included in these Contract documents as if set forth in full, if not actually printed herein.

All restoration work shall be maintained for a period of one year after completion of the project by this Contract and secured by the maintenance bond.

If the Contract documents contain a specific payment clause for restoration, then that clause shall apply; otherwise payment for restoration shall be as described in Section 165.

168 DRUG AND ALCOHOL TESTING

As a Contractor providing services to the Owner involving the driving of commercial vehicles, we are obligated by federal law/regulation to ensure that you are in compliance with drug and alcohol testing requirements under 49 CFR Part 382. If your company's services involve driving commercial motor vehicles with a gross vehicle weight of more than 26,000 pounds (inclusive of a towed unit with a gross vehicle weight of more than 10,000 pounds), or are used in the transportation of hazardous materials in a quantity requiring "placarding," or are designed to carry more than 15 passengers including the driver, this is applicable to you. By federal regulation, verification must be completed and submitted to the Owner every six months.

169 OSHA REGULATIONS - Standards - 29 CFR

Standard Number: 1926.650
Standard Title: Scope, application, and definitions applicable to this subpart.
Subpart Number: P
Subpart Title: Excavations

(a) Scope and application. This subpart applies to all open excavations made in the earth's surface. Excavations are defined to include trenches.

(b) Definitions applicable to this subpart.

"Accepted engineering practices" means those requirements which are compatible with standards of practice required by a registered professional engineer.

"Aluminum Hydraulic Shoring" means a pre-engineered shoring system comprised of aluminum hydraulic cylinders (crossbraces) used in conjunction with vertical rails (uprights) or horizontal rails (wales). Such system is designed specifically to support the sidewalls of an excavation and prevent cave-ins.

"Bell-bottom pier hole" means a type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.

"Benching (Benching system)" means a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

"Cave-in" means the separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or other wise injure and immobilize a person.

"Competent person" means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

"Cross braces" mean the horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

"Excavation" means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

"Faces" or "sides" means the vertical or inclined earth surfaces formed as a result of excavation work.

"Failure" means the breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

"Hazardous atmosphere" means an atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

"Kickout" means the accidental release or failure of a cross brace.

"Protective system" means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

"Ramp" means an inclined walking or working surface that is used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood.

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

"Sheeting" means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

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

"Shoring (Shoring system)" means a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

"Sides". See "Faces."

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

"Stable rock" means natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against caving-in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.

"Structural ramp" means a ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rocks are not considered structural ramps.

"Support system" means a structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

"Tabulated data" means tables and charts approved by a registered professional engineer and used to design and construct a protective system.

“Trench (Trench excavation)" means a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m). If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

"Trench box." See "Shield.”

"Trench shield." See "Shield."

"Uprights" means the vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

"Wales" means horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

Standard Number: 1926.651
Standard Title: Specific Excavation Requirements.
Subpart Number: P
Subpart Title: Excavations

a. Surface encumbrances. All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.

b. Underground installations.

1 The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation.

2 Utility companies or owners shall be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law), or cannot establish the exact location of these installations, the employer may proceed, provided the employer does so with caution, and provided detection equipment or other acceptable means to locate utility installations are used.

3 When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means.

4 While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.

c. Access and egress -

1 Structural ramps.

i. Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

ii. Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.

iii. Structural members used for ramps and runways shall be of uniform thickness.

iv. Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.

v. Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments o the top surface to prevent slipping.

2 Means of egress from trench excavations. A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees.

d. Exposure to vehicular traffic. Employees exposed to public vehicular traffic shall be provided with, and shall wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

e. Exposure to falling loads. No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.

f. Warning system for mobile equipment. When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

g. Hazardous atmospheres -

1 Testing and controls. In addition to the requirements set forth in subparts D and E of this part (29 CFR 1926.50 - 1926.107) to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements shall apply:

i. Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet (1.22 m) in depth.

ii. Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation in accordance with subparts D and E of this part respectively.

iii. Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.

iv. When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.

2 Emergency rescue equipment.

i. Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.

ii. Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials, and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

h. Protection from hazards associated with water accumulation.

1 Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of

accumulating water, or use of a safety harness and lifeline.

2 If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.

3 If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with paragraphs (h)(1) and (h)(2) of this section.

i. Stability of adjacent structures.

1 Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.

2 Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when:

i. A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or

ii. The excavation is in stable rock; or

iii. A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or

iv. A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

3 Sidewalks, pavements and appurtenant structure shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

j. Protection of employees from loose rock or soil.

1 Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

2 Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

k. Inspections.

1 Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

2 Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

l. Fall protection.

1 Walkways shall be provided where employees or equipment are required or permitted to cross over excavations. Guardrails which comply with 1926.502(b) shall be provided where walkways are 6 feet (1.8 m) or more above lower levels. [59 FR 40730, Aug 9, 1994]

Requirements For Protective Systems. - 1926.652

Standard Number: 1926.652
Standard Title: Requirements For Protective Systems.
Subpart Number: P
Subpart Title: Excavations

a. Protection of employees in excavations.

1 Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with paragraph (b) or (c) of this section except when:

i. Excavations are made entirely in stable rock; or

ii. Excavations are less than 5 feet (1.52 m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

2 Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

b. Design of sloping and benching systems. The slopes and configurations of sloping and benching systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (b)(1); or, in the alternative, paragraph (b)(2); or, in the alternative, paragraph (b)(3); or, in the alternative, paragraph (b)(4), as follows:

1 Option (1) - Allowable configurations and slopes.

i. Excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the employer uses one of the other options listed below.

ii. Slopes specified in paragraph (b)(1)(i) of this section, shall be excavated to form configurations that are in accordance with the slopes shown for Type C soil in Appendix B to this subpart.

2 Determination of slopes and configurations using Appendices A and B. Maximum allowable slopes, and allowable configurations for sloping and benching systems, shall be determined in accordance with the conditions and requirements set forth in appendices A and B to this subpart.

3 Option (3) - Designs using other tabulated data.

i. Designs of sloping or benching systems shall be selected from and in accordance with tabulated data, such as tables and charts.

ii. The tabulated data shall be in written form and shall include all of the following:

(a) Identification of the parameters that affect the selection of a sloping or benching system drawn from such data;
(b) Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe;
(c) Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

iii. At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

4 Option (4) - Design by a registered professional engineer.

i. Sloping and benching systems not utilizing Option (1) or Option (2) or Option (3) under paragraph (b) of this section shall be approved by a registered professional engineer.

ii. Designs shall be in written form and shall include at least the following:

(a) The magnitude of the slopes that were determined to be safe for the particular project;

(b) The configurations that were determined to be safe for the particular project;

iii. At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the Secretary upon request.

c. Design of support systems, shield systems, and other protective systems. Designs of support systems , shield systems, and other protective systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (c)(1); or, in the alternative, paragraph (c)(2); or, in the alternative, paragraph (c)(3); or, I the alternative, paragraph (c)(4) as follows:

1 Option (1) - Designs using appendices A, C and D. Designs for timber shoring in trenches shall be determined in accordance with the conditions and requirements set forth in appendices A and C to this subpart. Designs for aluminum hydraulic shoring shall be in accordance with paragraph (c)(2) of this section, but if manufacturer's tabulated data cannot be utilized, designs shall be in accordance with appendix D.

2 Option (2) - Designs Using Manufacturer's Tabulated Data.

i. Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.

ii. Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer shall only be allowed after the manufacturer issues specific written approval.

iii. Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations shall be in written form at the jobsite

Soil Classification - 1926 Subpart P App A
Standard Number: 1926 Subpart P App A
Standard Title: Soil Classification
Subpart Number: P
Subpart Title: Excavations

a. Scope and application -

1 Scope. This appendix describes a method of classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. The appendix contains definitions, sets forth requirements, and describes acceptable visual and manual tests for use in classifying soils.

2 Application. This appendix applies when a sloping or benching system is designed in accordance with the requirements set forth in 1926.652(b) (2) as a method of protection for employees from cave-ins. This appendix also applies when timber shoring for excavations is designed as a method of protection from cave-ins in accordance with appendix C to subpart P of part 1926, and when aluminum hydraulic shoring is designed in accordance with appendix D. This Appendix also applies if other protective systems are designed and selected for use from data prepared in accordance with the requirements set forth in 1926.652(c), and the use of the data is predicated on the use of the soil classification system set forth in this appendix.

b. Definitions. The definitions and examples given below are based on, in whole or in part, the following; American Society for Testing Materials (ASTM) Standards D653-85 and D2488; The Unified Soils Classification System; The U.S. Department of Agriculture (USDA) Textural Classification Scheme; and The National Bureau of Standards Report BSS-121.

"Cemented soil" means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

"Cohesive soil" means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical sideslopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

"Dry soil" means soil that does not exhibit visible signs of moisture content.

"Fissured" means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

"Granular soil" means gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

"Layered system" means two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

"Moist soil" means a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

"Plastic" means a property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.

"Saturated soil" means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.

"Soil classification system" means, for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the characteristics of the deposits and the environmental conditions of exposure.

"Stable rock" means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

"Submerged soil" means soil which is underwater or is free seeping.

"Type A" means cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

(1) The soil is fissured; or
(2) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
(3) The soil has been previously disturbed; or
(4) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
(5) The material is subject to other factors that would require it to be classified as a less stable material.

"Type B" means:

(1) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
(2) Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
(3) Previously disturbed soils except those which would otherwise be classed as Type C soil.
(4) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or
(5) Dry rock that is not stable; or
(6) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but

only if the material would otherwise be classified as Type B.

"Type C" means:

(1) Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or
(2) Granular soils including gravel, sand, and loamy sand; or
(3) Submerged soil or soil from which water is freely seeping; or
(4) Submerged rock that is not stable, or
(5) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

"Unconfined compressive strength" means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

"Wet soil" means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

c. Requirements -

1 Classification of soil and rock deposits. Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the definitions set forth in paragraph (b) of this appendix.

2 Basis of classification. The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses shall be conducted by a competent person using tests described in paragraph (d) below, or in other recognized methods of soil classification and testing such as those adopted by the American Society for Testing Materials, or the U.S. Department of Agriculture textural classification

3 Visual and manual analyses. The visual and manual analyses, such as those noted as being acceptable in paragraph (d) of this appendix, shall be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.

4 Layered systems. In a layered system, the system shall be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.

5 Reclassification. If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes shall be evaluated by a competent person. The deposit shall be reclassified as necessary to reflect the changed circumstances.

d. Acceptable visual and manual tests.

1 Visual tests. Visual analysis is conducted to determine qualitative information regarding

the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.

i. Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.

ii. Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.

iii. Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.

iv. Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.

v. Observed the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.

vi. Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.

vii. Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

2 Manual tests. Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.

i. Plasticity. Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.

ii. Dry strength. If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.

iii. Thumb penetration. The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. (This test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designation D2488 - "Standard Recommended Practice for Description of Soils (Visual - Manual Procedure).") Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with

very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.

iv. Other strength tests. Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shearvane.

v. Drying test. The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry:

   (a) If the sample develops cracks as it dries, significant fissures are indicated.
   (b) Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as an unfissured cohesive material and the unconfined compressive strength should be determined.
   (c) If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

Standard Number: 1926 Subpart P App B
Standard Title: Sloping and Benching
Subpart Number: P
Subpart Title: Excavations

a. Scope and application. This appendix contains specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins. The requirements of this appendix apply when the design of sloping and benching protective systems is to be performed in accordance with the requirements set forth in 1926.652(b)(2).

b. Definitions.

"Actual slope" means the slope to which an excavation face is excavated.

"Distress" means that the soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the face of an excavation; and ravelling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

"Maximum allowable slope" means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

"Short term exposure" means a period of time less than or equal to 24 hours that an excavation is open.

c. Requirements

1 Soil classification. Soil and rock deposits shall be classified in accordance with appendix A to subpart P of part 1926.

2 Maximum allowable slope. The maximum allowable slope for a soil or rock deposit shall be determined from Table B-1 of this appendix.

3 Actual slope

i. The actual slope shall not be steeper than the maximum allowable slope.

ii. The actual slope shall be less steep than the maximum allowable slope, when there are signs of distress. If that situation occurs, the slope shall be cut back to an actual slope which is at least 1/2 horizontal to one vertical (1/2H:1V) less steep than the maximum allowable slope.

iii. When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person shall determine the degree to which the actual slope must be reduced below the maximum allowable slope, and shall assure that such reduction is achieved. Surcharge loads from adjacent structures shall be evaluated in accordance with 1926.651(i).

4 Configurations. Configurations of sloping and benching systems shall be in accordance with Figure B-1.

TABLE B-1

MAXIMUM ALLOWABLE SLOPES

Soil or Rock Type	Maximum Allowable Slopes (H:V) [1] For Excavations Less Than 20 Feet Deep [3]
Stable Rock	Vertical (90°)
Type A [2]	3/4:1 (53°)
Type B	1:1 (45°)
Type C	1 1/2:1 (34°)

[1] Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

[2]A short-term maximum allowable slope of 1/2H:1V (63 degrees) is allowed in excavations in Type A soil that are 12 feed (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be ¾ H:1V (53 degrees).

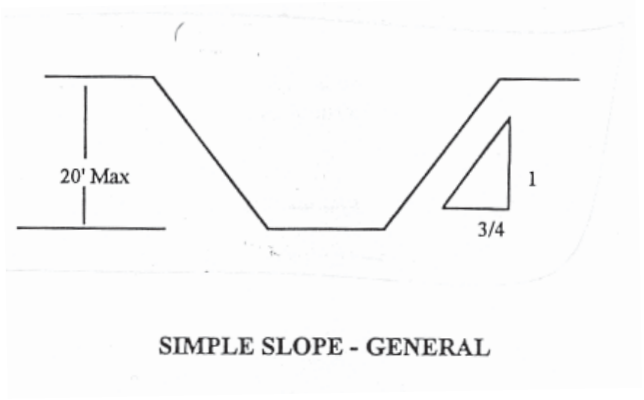
[3]Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

Figure B-1 - Slope Configurations

(All slopes stated below are in the horizontal to vertical ratio)

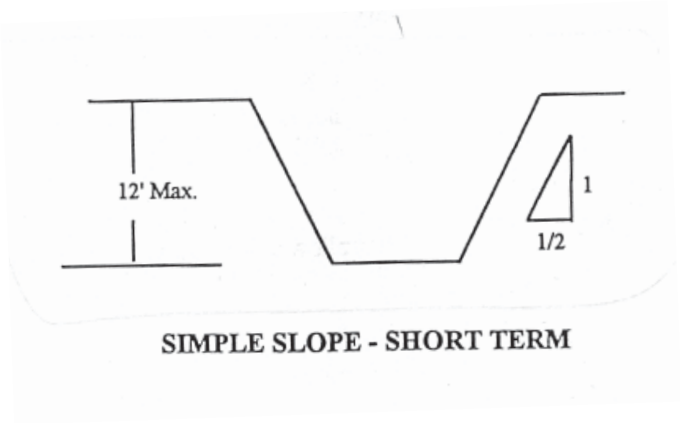
B - 1.1 Excavations made in Type A soil.

1. All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of 3/4:1.



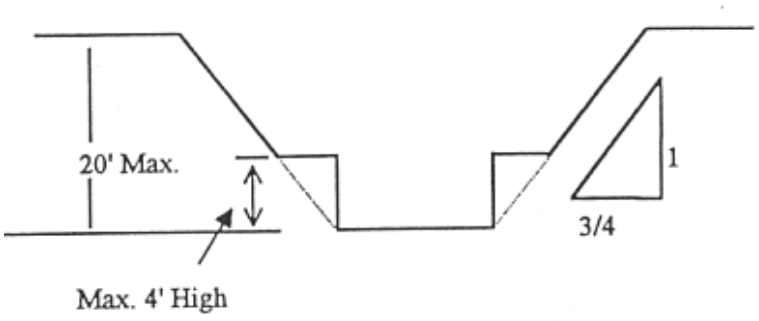
SIMPLE SLOPE - GENERAL

Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of 1/2:1.

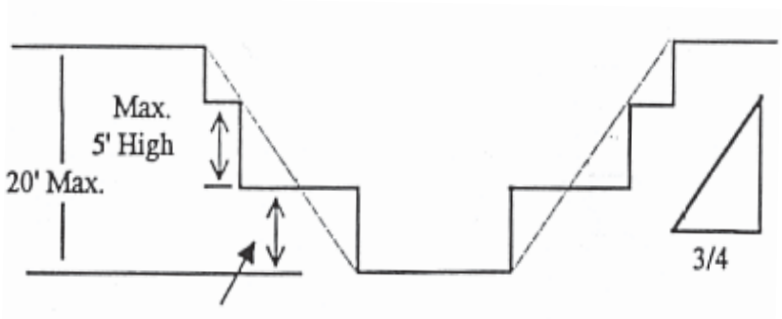


SIMPLE SLOPE - SHORT TERM

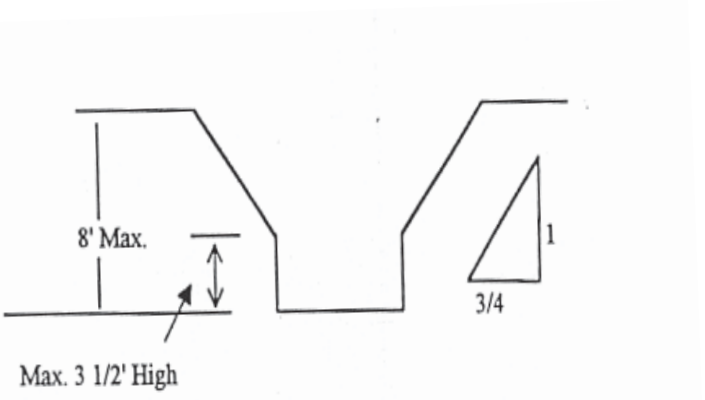
2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4 to 1 and maximum bench dimensions as follows:



SIMPLE BENCH

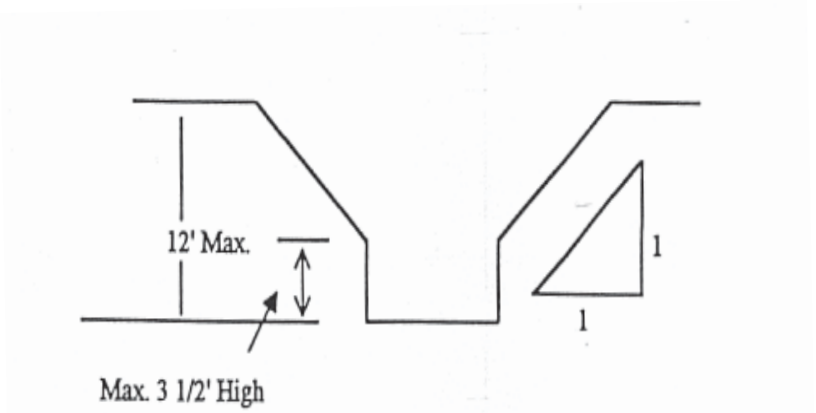


MULTIPLE BENCH



UNSUPPORTED VERTICALLY SIDED LOWER PORTION
MAXIMUM 8 FEET DEEP

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3 1/2 feet.

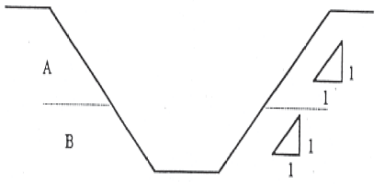


UNSUPPORTED VERTICALLY SIDED LOWER PORTION
MAXIMUM 12 FEET DEEP

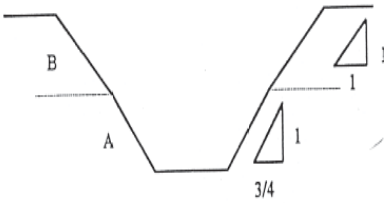
All excavations more than 8 feet but not more than 12 feet in depth with unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3 1/2 feet.

B - 1.4 Excavations Made in Layered Soils

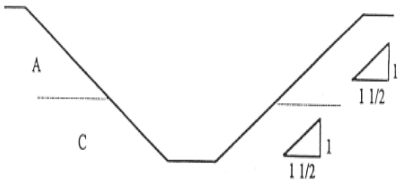
1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



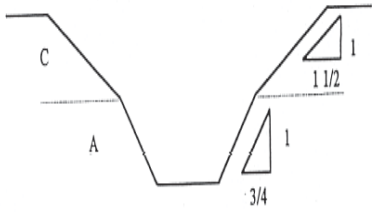
A OVER B



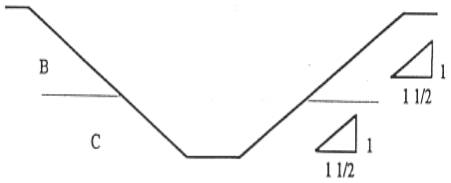
B OVER A



A OVER C



C OVER A



B OVER C

2. All other sloped excavations shall be in accordance with the other options permitted in 1926.652(b).

Standard Number: 1926 Subpart P App C
Standard Title: Timber Shoring for Trenches
Subpart Number: P
Subpart Title: Excavations

a. Scope. This appendix contains information that can be used when timber shoring is provided as a method of protection from cave-ins in trenches that do not exceed 20 feet (6.1 m) in depth. This appendix must be used when design of timber shoring protective systems is to be performed in accordance with 1926.652(c)(1). Other timber shoring configurations; other systems of support such as hydraulic and pneumatic systems; and other protective systems such as sloping, benching, shielding, and freezing systems must be designed in accordance with the requirements set forth in 1926.652(b) and 1926.652(c).

b. Soil Classification. In order to use the data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the soil classification method set forth in appendix A of subpart P of this part.

c. Presentation of Information. Information is presented in several forms as follows:

1 Information is presented in tabular form in Tables C-1.1, C-1.2 and C-1.3, and Tables C-2.1, C-2.2 and C-2.3 following paragraph (g) of the appendix. Each table presents the minimum sizes of timber members to use in a shoring system, and each table contains data only for the particular soil type in which the excavation or portion of the excavation is made. The data are arranged to allow the user the flexibility to select from among several acceptable configurations of members based on varying the horizontal spacing of the crossbraces. Stable rock is exempt from shoring requirements and therefore, no data are presented for this condition.

2 Information concerning the basis of the tabular data and the limitations of the data is presented in paragraph (d) of this appendix, and on the tables themselves.

3 Information explaining the use of the tabular data is presented in paragraph (e) of this appendix.

4 Information illustrating the use of the tabular data is presented in paragraph (f) of this appendix.

5 Miscellaneous notations regarding Tables C-1.1 through C-1.3 and Tables C-2.1 through C-2.3 are presented in paragraph (g) of this Appendix.

d. Basis and limitations of the data.

1 Dimensions of timber members.

i. The sizes of the timber members listed in Tables C-1.1 through C-1.3 are taken from the National Bureau of Standards (NBS) report, "Recommended Technical Provisions for Construction Practice in Shoring and Sloping of Trenches and Excavations." In addition, where NBS did not recommend specific sizes of members, member sizes are based on an analysis of the sizes required for use by existing codes and on empirical practice.

ii. The required dimensions of the members listed in Tables C-1.1 through C-1.3 refer to

actual dimensions and not nominal dimensions of the timber. Employers wanting to use nominal size shoring are directed to Tables C-2.1 through C-2.3, or have this choice under 1926.652(c)(3), and are referred to The Corps of engineers, The Bureau of Reclamation or data from other acceptable sources.

2 Limitation of application.

i. It is not intended that the timber shoring specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be designed as specified in 1926.652(c).

ii. When any of the following conditions are present, the members specified in the tables are not considered adequate. Either an alternate timber shoring system must be designed or another type of protective system designed in accordance with 1926.652.

a) When loads imposed by structures or by stored material adjacent to the trench weigh in excess of the load imposed by a two-foot soil surcharge. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.

b) When vertical loads imposed on cross braces exceed a 240-pound gravity load distributed on a one-foot section of the center of the crossbrace.

c) When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

d) When only the lower portion of a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

e. Use of Tables.

The members of the shoring system that are to be selected using this information are the cross braces, the uprights, and the wales, where wales are required. Minimum sizes of members are specified for use in different types of soil. There are six tables of information, two for each soil type. The soil type must first be determined in accordance with the soil classification system described in appendix A to subpart P of part 1926. Using the appropriate table, the selection of the size and spacing of the members is then made. The selection is based on the depth and width of the trench where the members are to be installed and, in most instances, the selection is also based on the horizontal spacing of the crossbraces. Instances where a choice of horizontal spacing of cross bracing is available, the horizontal spacing of the crossbraces must be chosen by the user before the size of any member can be determined. When the soil type, the width and depth of the trench, and the horizontal spacing of the crossbraces are known, the size and vertical spacing of the crossbraces are known, the size and vertical spacing of the crossbraces, the size and vertical spacing of the wales, and the size and horizontal spacing of the uprights can be read from the appropriate table.

f. Examples to Illustrate the Use of Tables C-1.1 through C-1.3.

1 Example 1.

A trench dug in Type A soil is 13 feet deep and five feet. From Table C-1.1, for acceptable arrangements of timber can be used.

Arrangement #1

Space 4X4 crossbraces at six feet horizontally and four feet vertically. Wales are not required. Space 3x8 uprights at six feet horizontally. This arrangement is commonly called "skip shoring."

Arrangement #2

Space 4X6 crossbraces at eight feet horizontally and four feet vertically. Space 8X8 wales at four feet vertically. Space 2x6 uprights at four feet horizontally.

Arrangement #3

Space 6X6 crossbraces at 10 feet horizontally and four feet vertically. Space 8X10 wales at four feet vertically. Space 2x6 uprights at five feet horizontally.

Arrangement #4

Space 6X6 crossbraces at 12 feet horizontally and four feet vertically. Space 10X10 wales at four feet vertically. Space 3x8 uprights at six feet horizontally.

2 Example 2.

A trench dug in Type B soil is 13 feet deep and five feet wide. From Table C-1.2 three acceptable arrangements of members are listed.

Arrangement #1

Space 6X6 crossbraces at six feet horizontally and five feet vertically. Space 8X8 wales at five feet vertically. Space 2X6 uprights at two feet horizontally.

Arrangement #2

Space 6X8 crossbraces at eight feet horizontally and five feet vertically. Space 10X10 wales at five feet vertically. Space 2X6 uprights at two feet horizontally.

Arrangement #3

Space 8X8 crossbraces at 10 feet horizontally and five feet vertically. Space 10X12 wales at five feet vertically. Space 2X6 uprights at two feet vertically.

3 Example 3.

A trench dug in Type C soil is 13 feet deep and five feet wide. From Table C-1.3 two

acceptable arrangements of members can be used.

Arrangement #1

Space 8X8 crossbraces at six feet horizontally and five feet vertically. Space 10X12 wales at five feet vertically. Position 2X6 uprights as closely together as possible. If water must be retained use special tongue and groove uprights to form tight sheeting.

Arrangement #2

Space 8X10 crossbraces at eight feet horizontally and five feet vertically. Space 12X12 wales at five feet vertically. Position 2x6 uprights in a close sheeting configuration unless water pressure must be resisted. Tight sheeting must be used where water must be retained.

4 Example 4.

A trench dug in Type C soil is 20 feet deep and 11 feet wide. The size and spacing of members for the section of trench that is over 15 feet in depth is determined using Table C-1.3. Only one arrangement of members is provided.

Space 8X10 crossbraces at six feet horizontally and five feet vertically. Space 12X12 wales at five feet vertically. Use 3X6 tight sheeting. Use of Tables C-2.1 through C-2.3 would follow the same procedures.

g. Notes for all Tables.

1 Member sizes at spacings other than indicated are to be determined as specified in 1926.652(c), "Design of Protective Systems."

2 When conditions are saturated or submerged use Tight Sheeting. Tight Sheeting refers to the use of specially-edged timber planks (e.g., tongue and groove) at least three inches thick, steel sheet piling, or similar construction that when driven or placed in position provide a tight wall to resist the lateral pressure of water and to prevent the loss of backfill material. Close Sheeting refers to the placement of planks side-by-side allowing as little space as possible between them.

3 All spacing indicated is measured center to center.

4 Wales to be installed with greater dimension horizontal.

5 If the vertical distance from the center of the lowest crossbrace to the bottom of the trench exceeds two and one-half feet, uprights shall be firmly embedded or a mudsill shall be used. Where uprights are embedded, the vertical distance from the center of the lowest crossbrace to the bottom of the trench shall not exceed 36 inches. When mudsills are used, the vertical distance shall not exceed 42 inches. Mudsills are wales that are installed at the tow of the trench side.

6 Trench jacks may be used in lieu of or in combination with timber crossbraces.

7 Placement of crossbraces. When the vertical spacing of crossbraces is four feet, place the top crossbrace no more than two feet below the top of the trench. When the vertical spacing of crossbraces is five feet, place the top crossbrace no more than 2.5 feet below the top of the trench.

TABLE C-1.1

Timber Trench Shoring -- Minimum Requirements *
Soil Type A Pa = 25 X H + 72 psf (2 ft Surcharge)

Depth of Trench (feet)	Size (Actual) and Spacing of Members **														
	Cross Braces							Wales		Uprights					
	Horizontal Spacing (ft)	Width of Trench (feet)					Vertical Spacing (ft)	Size (in)	Vertical Spacing (ft.)	Max. Allow. Horiz. Spacing (ft.)					
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15				Close	4	5	6	8	
5 to 10	Up to 6	4x4	4x4	4x6	6x6	6x6	4	Not Required	-----				2x6		
	Up to 8	4x4	4x4	4x6	6x6	6x6	4	Not Required	-----					2x8	
	Up to 10	4x6	4x6	4x6	6x6	6x6	4	8x8	4			2x6			
	Up to 12	4x6	4x6	6x6	6x6	6x6	4	8x8	4				2x6		
10 to 15	Up to 6	4x4	4x4	4x6	6x6	6x6	4	Not Required	-----				3x8		
	Up to 8	4x6	4x6	6x6	6x6	6x6	4	8x8	4		2x6				
	Up to 10	6x6	6x6	6x6	6x8	6x8	4	8x10	4			2x6			
	Up to 12	6x6	6x6	6x6	6x8	6x8	4	10x10	4				3x8		
15 to 20	Up to 6	6x6	6x6	6x6	6x8	6x8		6x8	4	3x6					
	Up to 8	6x6	6x6	6x6	6x8	6x8	4	8x8	4	3x6					
	Up to 10	8x8	8x8	8x8	8x8	8x10	4	8x10	4	3x6					
	Up to 12	8x8	8x8	8x8	8x8	8x10	4	8x10	4	3x6					
Over 20	See Note 1														

* Mixed oak or equivalent with a bending strength not less than 850 psi.
** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-1.2

Timber Trench Shoring -- Minimum Requirements *
Soil Type B Pa = 45 X H + 72 psf (2 ft Surcharge)

Depth of Trench (feet)	Size (Actual) and Spacing of Members **												
	Cross Braces						Wales		Uprights				
	Horizontal Spacing (ft)	Width of Trench (feet)					Vertical Spacing (ft)	Size (in)	Vertical Spacing (ft.)	Max. Allow. Horiz. Spacing (ft.)				
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15				Close	4	5	6	8
5 to 10	Up to 6	4x6	4x4	4x6	6x6	6x6	4	Not Required	-----				2x6	
	Up to 8	4x4	4x4	4x6	6x6	6x6	4	Not Required	-----					2x8
	Up to 10	4x6	4x6	4x6	6x6	6x6	4	8x8	4			2x6		
	Up to 12	4x6	4x6	6x6	6x6	6x6	4	8x8	4				2x6	
10 to 15	Up to 6	4x4	4x4	4x6	6x6	6x6	4	Not Required	-----				3x8	
	Up to 8	4x6	4x6	6x6	6x6	6x6	4	8x8	4		2x6			
	Up to 10	6x6	6x6	6x6	6x8	6x8	4	8x10	4			2x6		
	Up to 12	6x6	6x6	6x6	6x8	6x8	4	10x10	4				3x8	
15 to 20	Up to 6	6x6	6x6	6x6	6x8	6x8		6x8	4	3x6				
	Up to 8	6x6	6x6	6x6	6x8	6x8	4	8x8	4	3x6				
	Up to 10	8x8	8x8	8x8	8x8	8x10	4	8x10	4	3x6				
	Up to 12	8x8	8x8	8x8	8x8	8x10	4	8x10	4	3x6				
Over 20	See Note 1													

TABLE C-1.3

Timber Trench Shoring -- Minimum Requirements * Soil Type C Pa = 80 X H + 72 psf (2 ft Surcharge)															
Depth of Trench (feet)	Size (Actual) and Spacing of Members **														
	Cross Braces							Wales		Uprights					
	Horizontal Spacing (ft)	Width of Trench (feet)					Vertical Spacing (ft)	Size (in)	Vertical Spacing (ft.)	Max. Allow. Horizontal. Spacing (ft.)					
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15				Close					
5 to 10	Up to 6	6x8	6x8	6x8	8x8	8x8	5	8x10	5	2x6					
	Up to 8	8x8	8x8	8x8	8x8	8x10	5	10x12	5	2x6					
	Up to 10	8x10	8x10	8x10	8x10	10x10	5	12x12	5	2x6					
	See Note 1														
10 to 15	Up to 6	8x8	8x8	8x8	8x8	8x10	5	10x12	5	2x6					
	Up to 8	8x10	8x10	8x10	8x10	10x10	5	12x12	5	2x6					
	See Note 1														
	See Note 1														
15 to 20	Up to 6	8x10	8x10	8x10	8x10	10x10	5	12x12	5	3x6					
	See Note 1														
	See Note 1														
	See Note 1														
Over 20	See Note 1														

* Mixed oak or equivalent with a bending strength not less than 850 psi.

** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.1

Timber Trench Shoring -- Minimum Requirements *
Soil Type A Pa = 25 X H + 72 psf (2 ft Surcharge)

Depth of Trench (feet)	Size (Actual) and Spacing of Members **													
	Cross Braces							Wales		Uprights				
	Horizontal Spacing (ft)	Width of Trench (feet)					Vertical Spacing (ft)	Size (in)	Vertical Spacing (ft.)	Max. Allow. Horiz. Spacing (ft.)				
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15				Close	4	5	6	8
5 to 10	Up to 6	4x4	4x4	4x4	4x4	4x6	4	Not Required	Not Required				4x6	
	Up to 8	4x4	4x4	4x4	4x6	4x6	4	Not Required	Not Required					4x8
	Up to 10	4x6	4x6	4x6	6x6	6x6	4	8x8	4			4x6		
	Up to 12	4x6	4x6	4x6	6x6	6x6	4	8x8	4				4x6	
10 to15	Up to 6	4x4	4x4	4x4	6x6	6x6	4	Not Required	Not Required				4x10	
	Up to 8	4x6	4x6	4x6	6x6	6x6	4	6x8	4		4x6			
	Up to 10	6x6	6x6	6x6	6x6	6x6	4	8x8	4			4x8		
	Up to 12	6x6	6x6	6x6	6x6	6x6	4	8x10	4		4x6		4x10	
15 to 20	Up to 6	6x6	6x6	6x6	6x6	6x6	4	6x8	4	3x6				
	Up to 8	6x6	6x6	6x6	6x8	6x8	4	8x8	4	3x6	4x12			
	Up to 10	6x6	6x6	6x6	6x6	6x8	4	8x10	4	3x6				
	Up to 12	6x6	6x6	6x6	6x8	6x8	4	8x12	4	3x6	4x12			
Over 20	See Note 1													

* Douglas fir or equivalent with a bending strength not less than 1500 psi.

** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.2														
Timber Trench Shoring -- Minimum Requirements * Soil Type B Pa = 45 X H + 72 psf (2 ft Surcharge)														
Depth of Trench (feet)	Size (Actual) and Spacing of Members **													
	Cross Braces							Wales		Uprights				
	Horizontal Spacing (ft)	Width of Trench (feet)					Vertical Spacing (ft)	Size (in)	Vertical Spacing (ft)	Max. Allow. Horiz. Spacing (ft.)				
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15				Close	2	3	4	6
5 to 10	Up to 6	4x6	4x6	4x6	6x6	6x6	5	6x8	5			3x12 4x8		4x12
	Up to 8	4x6	4x6	6x6	6x6	6x6	5	8x8	5		3x8		4x8	
	Up to 10	4x6	4x6	6x6	6x6	6x8	5	8x10	5			4x8		
	See Note 1													
10 to 15	Up to 6	6x6	6x6	6x6	6x8	6x8	5	8x8	5	3x6	4x10			
	Up to 8	6x8	6x8	6x8	8x8	8x8	5	10x10	5	3x6	4x10			
	Up to 10	6x8	6x8	8x8	8x8	8x8	5	10x12	5	3x6	4x10			
	See Note 1													
15 to 20	Up to 6	6x8	6x8	6x8	6x8	8x8	5	8x10	5	4x6				
	Up to 8	6x8	6x8	6x8	8x8	8x8	5	10x12	5	4x6				
	Up to 10	8x8	8x8	8x8	8x8	8x8	5	12x12	5	4x6				
	See Note 1													
Over 20	See Note 1													

* Douglas fir or equivalent with a bending strength not less than 1500 psi.

** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.3

Timber Trench Shoring -- Minimum Requirements *
Soil Type C Pa = 80 X H + 72 psf (2 ft Surcharge)

Depth of Trench (feet)	Size (Actual) and Spacing of Members **												
	Cross Braces						Wales		Uprights				
	Horizontal Spacing (ft)	Width of Trench (feet)					Vertical Spacing (ft)	Size (in)	Vertical Spacing (ft.)	Max. Allow. Horiz. Spacing (ft.)				
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15				Close				
5 to 10	Up to 6	6x6	6x6	6x6	6x6	8x8	5	8x10	5	3x6				
	Up to 8	6x6	6x6	6x6	8x8	8x8	5	10x10	5	3x6				
	Up to 10	6x6	6x6	8x8	8x8	8x8	5	10x12	5	3x6				
	See Note 1													
10 to 15	Up to 6	6x8	6x8	6x8	8x8	8x8	5	10x12	5	4x6				
	Up to 8	8x8	8x8	8x8	8x8	8x8	5	12x12	5	4x6				
	See Note 1													
	See Note 1													
15 to 20	Up to 6	8x8	8x8	8x8	8x10	8x10	5	10x12	5	4x6				
	See Note 1													
	See Note 1													
	See Note 1													
Over 20	See Note 1													

* Douglas fir or equivalent with a bending strength not less than 1550 psi.

** Manufactured members of equivalent strength may be substituted for wood.

Standard Number: 1926 Subpart P App D
Standard Title: Aluminum Hydraulic Shoring for Trenches
Subpart Number: P
Subpart Title: Excavations

a. Scope. This appendix contains information that can be used when aluminum hydraulic shoring is provided as a method of protection against cave-ins in trenches that do not exceed 20 feet (6.1m) in depth. This appendix must be used when design of the aluminum hydraulic protective system cannot be performed in accordance with 1926.652(c) (2).

b. Soil Classification. In order to use data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the soil classification method set forth in appendix A of subpart P of part 1926.

c. Presentation of Information. Information is presented in several forms as follows:

1 Information is presented in tabular form in Tables D-1.1, D-1.2, D-1.3 and D-1.4. Each table presents the maximum vertical and horizontal spacing that may be used with various aluminum member sizes and various hydraulic cylinder sizes. Each table contains data only for the particular soil type in which the excavation or portion of the excavation is made. Tables D-1.1 and D-1.2 are for vertical shores in Types A and B soil. Tables D-1.3 and D-1.4 are for horizontal waler systems in Types B and C soil.

2 Information concerning the basis of the tabular data and the limitations of the data is presented in paragraph (d) of this appendix.

3 Information explaining the use of the tabular data is presented in paragraph (e) of this appendix.

4 Information illustrating the use of the tabular data is presented in paragraph (f) of this appendix.

5 Miscellaneous notations (Footnotes) regarding Table D-1.1 through D-1.4 are presented in paragraph (g) of this appendix.

6 Figures, illustrating typical installations of hydraulic shoring, are included just prior to the Tables. The illustrations page is entitled "Aluminum Hydraulic Shoring: Typical Installations."

d. Basis and limitations of the data.

1 Vertical shore rails and horizontal wales are those that meet the Section Modulus requirements in the D-1 Tables. Aluminum material is 6061-T6 or material of equivalent strength and properties.

2 Hydraulic cylinders specifications.

i. 2-inch cylinders shall be a minimum 2-inch inside diameter with a minimum safe working capacity of no less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

ii. 3-inch cylinders shall be a minimum 3-inch inside diameter with a safe working capacity of not less than 30,000 pounds axial compressive load at extensions as recommended by product manufacturer.

3 Limitation of application.

i. It is not intended that the aluminum hydraulic specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be otherwise designed as specified in 1926.652(c).

ii. When any of the following conditions are present, the members specified in the Tables are not considered adequate. In this case, an alternative aluminum hydraulic shoring system or other type of protective system must be designed in accordance with 1926.652.

(A) When vertical loads imposed on cross braces exceed a 100 Pound gravity load distributed on a one foot section of the center of the hydraulic cylinder.

(B) When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

(C) When only the lower portion of a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

e. Use of Tables D-1.1, D-1.2, D-1.3 and D-1.4. The members of the shoring system that are to be selected using this information are the hydraulic cylinders, and either the vertical shores or the horizontal wales. When a waler system is used the vertical timber sheeting to be used is also selected from these tables. The Tables D-1.1 and D-1.2 for vertical shores are used in Type A and B soils that do not require sheeting. Type B soils that may require sheeting, and Type C soils that always require sheeting, are found in the horizontal wale Tables D-1.3 and D-1.4. The soil type must first be determined in accordance with the soil classification system described in appendix A to subpart P of part 1926. Using the appropriate table, the selection of the size and spacing of the members is made. The selection is based on the depth and width of the trench where the members are to be installed. In these tables the vertical spacing is held constant at four feet on center. The tables show the maximum horizontal spacing of cylinders allowed for each size of wale in the waler system tables, and in the vertical shore tables, the hydraulic cylinder horizontal spacing is the same as the vertical shore spacing.

f. Example to Illustrate the Use of the Tables:

1 Example 1:

A trench dug in Type A soil is 6 feet deep and 3 feet wide. From Table D-1.1: Find vertical shores and 2 inch diameter cylinders spaced 8 feet on center (o.c.) horizontally and 4 feet on center (o.c.) vertically. (See Figures 1 & 3 for typical installations.)

2 Example 2:

A trench is dug in Type B soil that does not require sheeting, 13 feet deep and 5 feet wide. From Table D-1.2: Find vertical shores and 2 inch diameter cylinders spaced 6.5 feet o.c. horizontally and 4 feet o.c. vertically. (See Figures 1 & 3 for typical installations.)

3 Example 3:

A trench is dug in Type B soil that does not require sheeting, but does experience some minor raveling of the trench face. The trench is 16 feet deep and 9 feet wide. From Table D-1.2: Find vertical shores and 2 inch diameter cylinder (with special oversleeves as designated by Footnote #2) spaced 5.5 feet o.c. horizontally and 4 feet o.c. vertically. Plywood (per Footnote (g) (7) to the D-1 Table) should be used behind the shores. (See Figures 2 & 3 for typical

4 Example 4:

A trench is dug in previously disturbed Type B soil, with characteristics of a Type C soil, and will require sheeting. The trench is 18 feet deep, and 12 feet wide 8 foot horizontal spacing between cylinders is desired for working space. From Table D-1.3: Find horizontal wale with a section modulus of 14.0 spaced at 4 feet o.c. vertically and 3 inch diameter cylinder spaced at 9 feet maximum o.c. horizontally, 3 x 12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

5 Example 5

A trench is dug in Type C soil, 9 feet deep and 4 feet wide. Horizontal cylinder spacing in excess of 6 feet is desired for working space. From Table D-1.4: Find horizontal wale with a section modulus of 7.0 and 2 inch diameter cylinders spaced at 6.5 feet o.c. horizontally. Or, find horizontal wale with a 14.0 section modulus and 3 inch diameter cylinder spaced at 10 feet o.c. horizontally. Both wales are spaced 4 feet o.c. vertically, 3 x 12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

g. Footnotes, and general notes, for Tables D-1.1, D-1.2, D-1.3, and D-1.4.

1 For applications other than those listed in the tables, refer to 1926.652(c)(2) for use of manufacturer's tabulated data. For trench depths in excess of 20 feet, refer to 1926.652(c) (2) and 1926.652(c) (3).

2 2 inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

3 Hydraulic cylinders capacities

i. 2-inch cylinders shall be a minimum 2-inch inside diameter with a safe working capacity of not less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as

recommended by product manufacturer.

ii. 3-inch cylinders shall be a minimum 3-inch inside diameter with a safe work capacity of not less than 30,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

4 All spacing indicated is measured center to center.

5 Vertical shoring rails shall have a minimum section modulus of 0.40 inch.

6 When vertical shores are used, there must be a minimum of three shores spaced equally, horizontally, in a group.

7 Plywood shall be 1.125 inch thick softwood or 0.75 inch thick, 14 ply arctic white birch (Finland form). Please note that plywood is not intended as a structural member, but only for prevention of local raveling (sloughing of the trench face) between shores.

8 See appendix C for timber specifications.

9 Wales are calculated for simple span conditions.

10 See appendix D, item (d), for basis and limitations of the data.

ALUMINUM HYDRAULIC SHORING

TYPICAL INSTALLATIONS

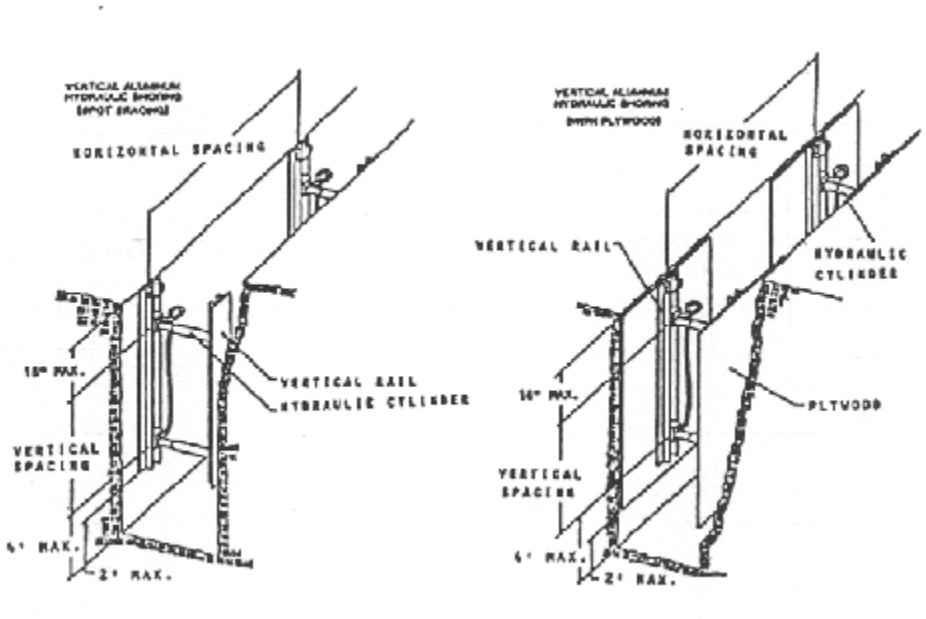


Figure No. 1 - Vertical aluminum hydraulic shoring (spot bracing)
Figure No. 2 - Vertical aluminum hydraulic shoring (with plywood)

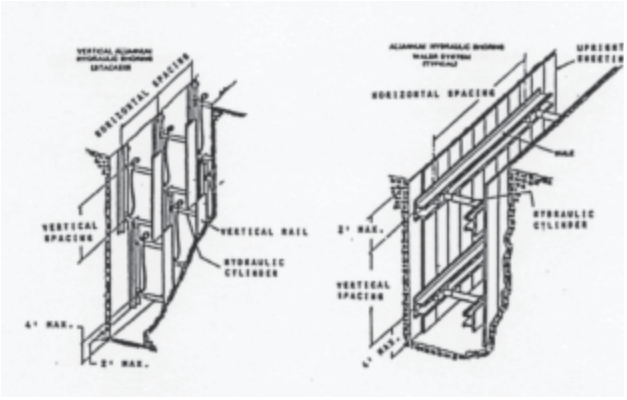


Figure No. 3 - Vertical aluminum hydraulic shoring (stacked)
Figure No. 4 - Aluminum hydraulic shoring - Waler System (typical)

Table D-1.1
Aluminum Hydraulic Shoring
Vertical Shores
For Soil Type A

<table>
<tr><td rowspan="3">Depth of Trench (Feet)</td><td colspan="5">Hydraulic Cylinders</td></tr>
<tr><td rowspan="2">Maximum Horizontal Spacing (Feet)</td><td rowspan="2">Maximum Vertical Spacing (Feet)</td><td colspan="3">Width of Trench (Feet)</td></tr>
<tr><td>Up to 8</td><td>Over 8
Up to 12</td><td>Over 12
up to 15</td></tr>
<tr><td>Over 5
Up to10</td><td>8</td><td rowspan="3">4</td><td rowspan="3">2 inch diameter</td><td rowspan="3">2 inch diameter Note (2)</td><td rowspan="3">2 inch diameter</td></tr>
<tr><td>Over 10
Up to
15</td><td>8</td></tr>
<tr><td>Over 15
Up to
20</td><td>7</td></tr>
<tr><td>Over 20</td><td colspan="5">Note (1)</td></tr>
</table>

Footnote to table and general notes on hydraulic shoring are found in Appendix D, Item (g)
Note (1): See Appendix D, Item (g) (1)
Note (2): See Appendix D; Item (g) (2)

Table D-1.2
Aluminum Hydraulic Shoring
Vertical Shores
For Soil Type B

Depth of Trench (Feet)	Hydraulic Cylinders				
	Maximum Horizontal Spacing (Feet)	Maximum Vertical Spacing (Feet)	Width of Trench (Feet)		
			Up to 8	Over 8 up to 12	Over 12 up to 15
Over 5 Up to 10	8	4	2 inch diameter	2 inch diameter Note (2)	2 inch diameter
Over 10 Up to 15	6.5				
Over 15 Up to 20	5.5				
Over 20	Note (1)				

Footnote to table and general notes on hydraulic shoring are found in Appendix D, Item (g)
Note (1): See Appendix D; Item (g) (1)
Note (2): See Appendix D; Item (g) (2)

Table D-1.3
Aluminum Hydraulic Shoring
Waler Systems
For Soil Type B

Depth of Trench (Feet)	Wales		Hydraulic Cylinders						Timber Uprights		
	Vertical Spacing (Feet)	Section Modulus (in^3)	Width of Trench (Feet)						Max. Horizontal Spacing (On Center)		
			Up to 8		Over 8 Up to 12		Over 12 Up to 15		Solid Sheet	2 Ft	3 Ft
			Horiz. Spacing	Cyldr. Dia.	Horiz. Spacing.	Cyldr. Dia.	Horiz. Spacing.	Cyldr. Dia.			
Over 5 Up To 10	4	3.5	8.0	2 in.	8.0	2 in. Note 2	8.0	3 in.	—	—	3x 12
		7	9.0	2 in.	9.0	2 in. Note 2	9.0	3 in.			
		14	12.0	3 in.	12.0	3 in.	12.0	3 in.			
Over 10 Up To 15	4	3.5	6.0	2 in.	6.0	2 in. Note 2	6.0	3 in.	—	3x 12	—
		7	8.0	3 in.	8.0	3 in.	8.0	3 in.			
		14	10.0	3 in.	10.0	3 in.	10.0	3 in.			
Over 15 Up to 20	4	3.5	5.5	2 in.	5.5	2 in. Note 2	5.5	3 in.	3x 12	—	—
		7	6.0	3 in.	6.0	3 in.	6.0	3 in.			
		14	9.0	3 in.	9.0	3 in.	9.0	3 in.			
Over 20	Note (1)										

Footnote to tables and general notes on hydraulic shoring are found in Appendix D, Item (g)
Note (1): See Appendix D; Item (g) (1)
Note (2): See Appendix D; Item (g) (2)
* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

Table D-1.4
Aluminum Hydraulic Shoring
Waler Systems
For Soil Type C

Depth of Trench (Feet)	Wales		Hydraulic Cylinders						Timber Uprights		
	Vertical Spacing (Feet)	Section Modulus (in^3)	Width of Trench (Feet)						Max. Horizontal Spacing (On Center)		
			Up to 8		Over 8 Up to 12		Over 12 Up to 15		Solid Sheet	2 Ft	3 Ft
			Horiz. Spacing.	Cyldr. Dia.	Horiz. Spacing.	Cyldr. Dia.	Horiz. Spacing.	Cyldr. Dia.			
Over 5 Up To 10	4	3.5	6.0	2 in.	6.0	2 in. Note 2	6.0	3 in.	3 x 12	—	—
		7	6.5	2 in.	6.5	2 in. Note 2	6.5	3 in.			
		14	10.0	3 in.	10.0	3 in.	10.0	3 in.			
Over 10 Up To 15	4	3.5	4.0	2 in.	4.0	2 in. Note 2	4.0	3 in.	3 x 12	—	—
		7	5.5	3 in.	5.5	3 in.	5.5	3 in.			
		14	8.0	3 in.	8.0	3 in.	8.0	3 in.			
Over 15 Up to 20	4	3.5	3.5	2 in.	3.5	2 in. Note 2	3.5	3 in.	3 x 12	—	—
		7	5.0	3 in.	5.0	3 in.	5.0	3 in.			
		14	6.0	3 in.	6.0	3 in.	6.0	3 in.			
Over 20	Note (1)										

Footnote to tables and general notes on hydraulic shoring are found in Appendix D, Item (g)
Note (1): See Appendix D; Item (g) (1)
Note (2): See Appendix D; Item (g) (2)
* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

Appendix E to 1926 Subpart P -
Alternatives to Timber Shoring

Figure 1 - Aluminum Hydraulic Shoring

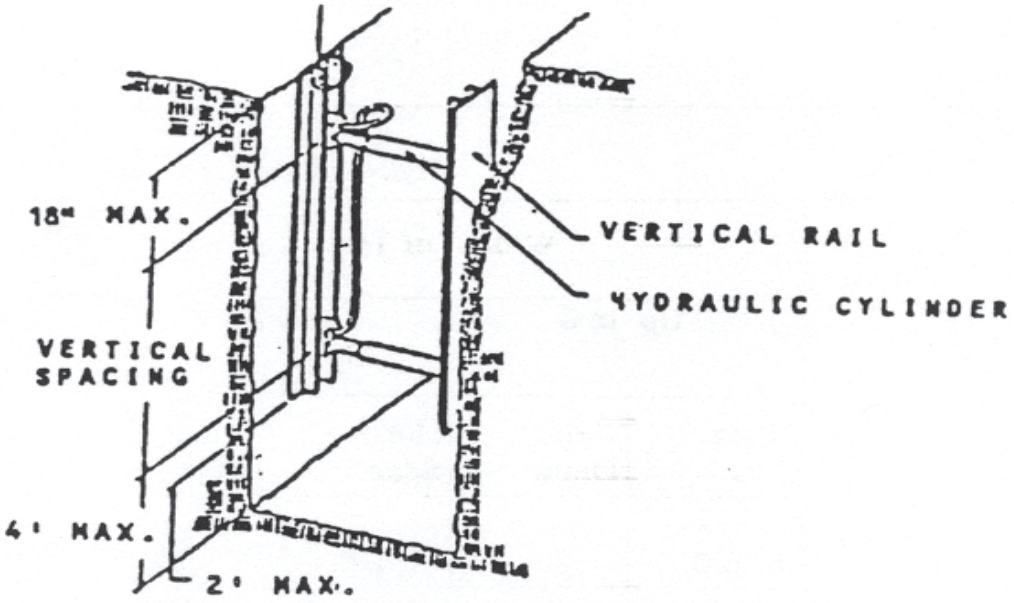
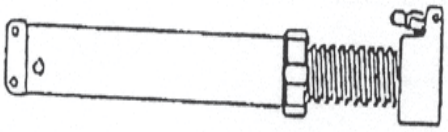


Figure 2: Pneumatic/hydraulic Shoring



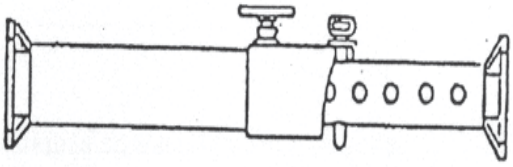


Figure 3. Trench Jacks (Screw Jacks)

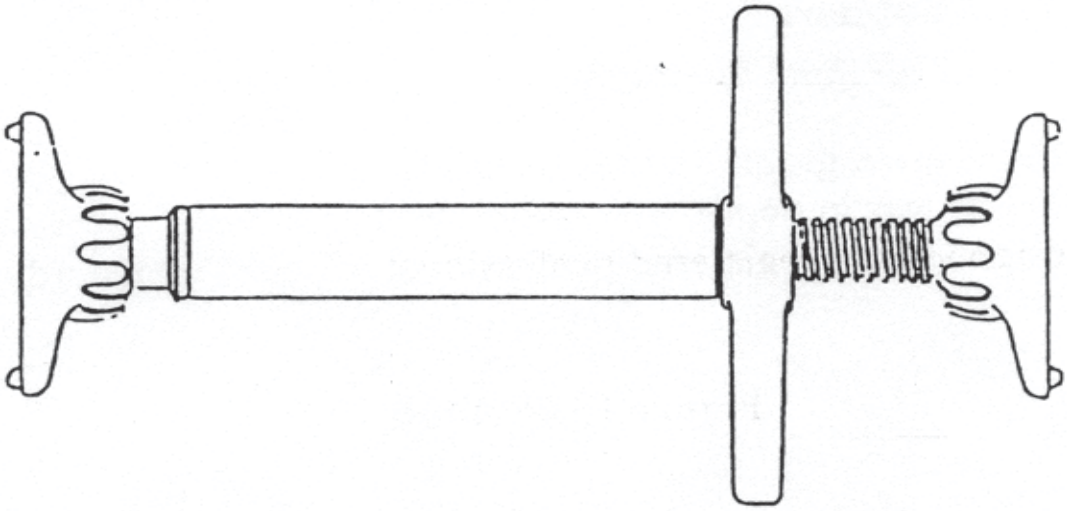
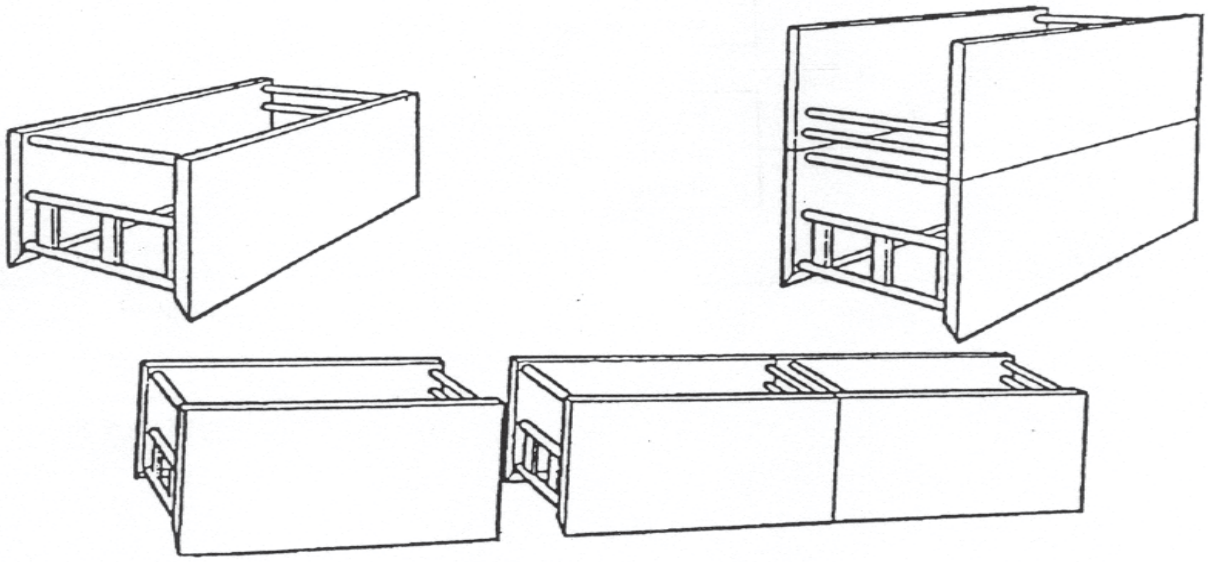


Figure 4. Trench Shields



Appendix F to 1926 Subpart P

Selection of Protective Systems

The following figures are a graphic summary of the requirements contained in subpart P for excavations 20 feet or less in depth. Protective systems for use in excavations more than 20 feet in depth must be designed by a registered professional engineer in accordance with 1926.652(b) and (c).

Figure 1 - Preliminary Decisions

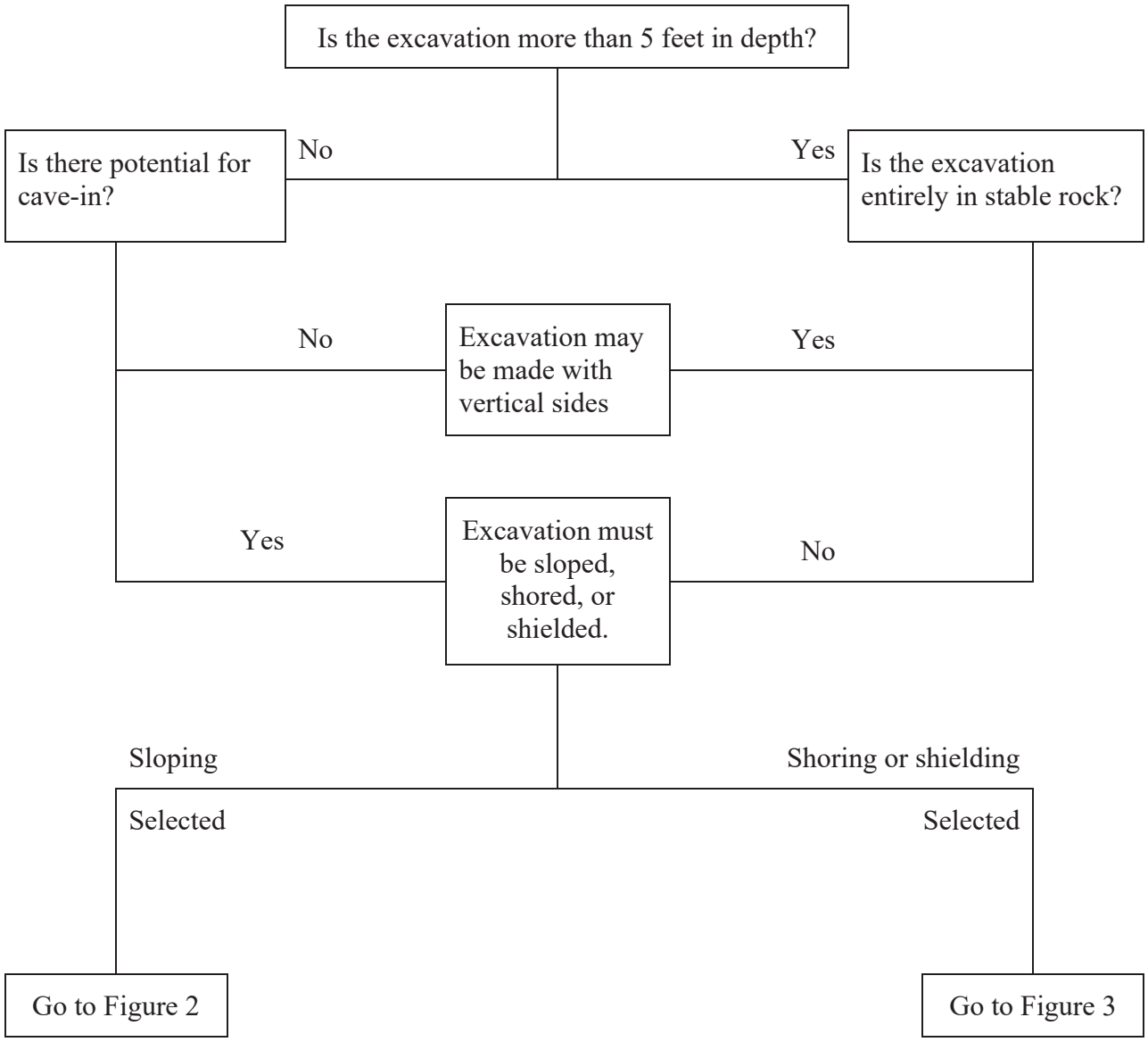


Figure 2 - Sloping Options

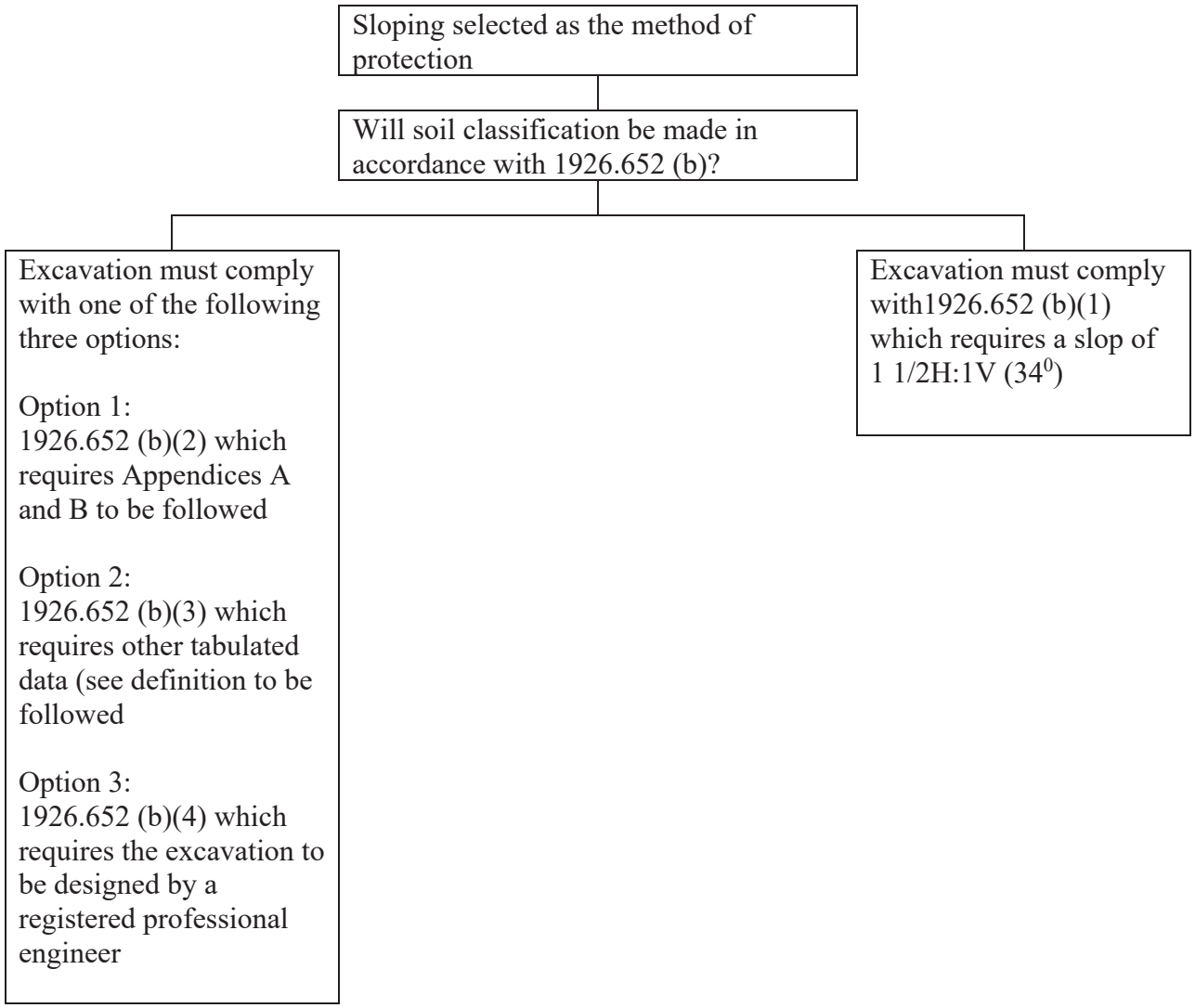
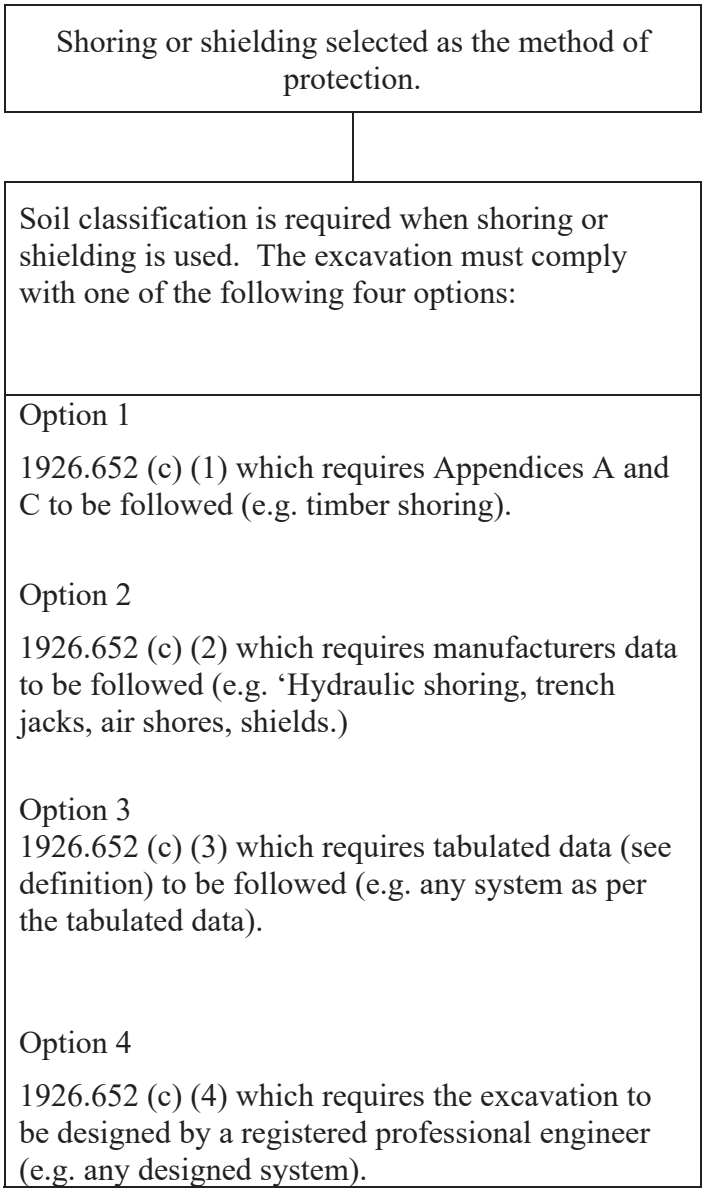


Figure 3 - Shoring and Shielding Options



SECTION N

SPECIAL CONDITIONS

201 SCOPE OF WORK

Under this Contract, the work consists of the replacement and addition of stormwater piping, catch basins, earthwork and slope restoration, concrete curbs, and site restoration. The project is located on Chemka Pool Road in the Village of Hastings-on-Hudson. Other related work shall include preparing, restoring and cleaning the project area all in accordance with the plans and specifications as directed by the Engineer.

202 TIME OF COMPLETION

The Contractor shall provide the required insurance and other documents as may be required to complete this agreement within ten (10) business days (in the State of New York) of notice of award.

Work shall proceed in the field within five (5) business days of the Contract signing. Once work has started, it shall proceed continuously and diligently. All items of work for this project shall be completed in one-hundred and twenty (120) days. Lead times will be considered by the Engineer for completion date.

203 LIQUIDATED DAMAGES

As actual damages for any delay in completion of the work which the Contractor is required to perform under this Contract are impossible to determine, the Contractor and his Sureties shall be liable for and shall pay to the Owner the sum of three-hundred dollars ($300.00) as fixed, agreed as liquidated damages for each calendar day of delay from the above stipulated completion, or as modified in accordance with the GENERAL CONDITIONS, until such work is satisfactorily completed and accepted.

204 COORDINATION WITH OTHER AGENCIES

Contractor shall allow Village personnel and any other agencies to carry out all work that is required to be completed simultaneously with his own work.

The Contractor is responsible to insure that his work is coordinated with any outside agency for work that must be accomplished prior to installation of any final restoration. The Contractor will not be allowed to proceed until such coordination and work have been completed.

205 BACKFILL AND SETTLEMENT

The Contractor is hereby advised that he bears the sole responsibility for all backfilling work, and will be responsible for all settlement occurring within the project area resulting from the work of this project. He shall take whatever methods are necessary to assure that settlement does not occur beneath the finished work of the project and shall repair any and all work that is damaged by settlement.

206 RESTORATION

The Contractors attention is directed to "RESTORATION" in the technical specifications and the General Conditions Section 167. The Contractor shall be required to restore all disturbed areas due to project construction and shall provide all labor, materials and equipment required to satisfactorily replace items disturbed as detailed in the referenced specification. The costs related to all restoration work should be included in other bid items of work for this project.

207 EXISTING UTILITY LINES AND VALVES

The Contractor shall be responsible for locating all existing water mains and valves, gas mains and valves, storm drain pipes and all private and public utility service laterals prior to beginning any construction work. The Contractor shall perform all work to comply with Code 53 in addition to its designation as Part 753. He shall also be responsible for all costs to repair damage to underground and overhead utility lines marked and unmarked.

208 PONDING AND REDIRECTION OF SURFACE RUNOFF

The Contractor shall prevent low spots where water can collect behind new pavement or curbs. The Contractor is responsible, at no cost to the Owner, to correct any deleterious water ponding areas. The Contractor shall also prevent possible redirection of water onto private property and shall take whatever corrective measures necessary to control surface runoff during construction as directed by the Engineer, at no cost to the Owner.

209 RESIDENTIAL & BUSINESS ACCESS

The Contractor shall maintain at all times egress and ingress to all residential locations. The Contractor shall provide such adequate and proper bridging over excavations as may be necessary to maintain normal residential and business operations. The Contractor shall insure that during the course of his work that pedestrians and vehicles shall have full access to walkways, driveways and roadways within the project areas. Failure to provide proper access will result in a Contract payment deduction as determined by the Engineer.

210 PROGRESS SCHEDULE

The Contractor is advised that construction operations on this project are to be confined to as short a time period as possible. That is, once any work has begun in this area, the Contractor will be required to proceed diligently and continuously until all of the work in this area is completed. The Progress Schedule submitted by the Contractor under Article 109 of the GENERAL CONDITIONS shall indicate the Contractor's compliance with this requirement, and the Progress Schedule will not be approved unless such compliance is incorporated in the chronological order of the work. The progress schedule shall reflect a construction completion date and engineer’s sign off by June 1, 2011.

211 TEMPORARY SANITARY FACILITIES

As outlined in the General Conditions of the Specifications under Article 126 - Sanitary Facilities, the Contractor shall furnish, install and maintain, for the duration of the project, temporary toilet facilities. Any costs involved for satisfying this requirement shall be included in

other bid items of work. Prior to construction, the Contractor shall request approval from the Village Highway Superintendent for a safe and proper location to set up the facility for the duration of the project.

212 PERMITS

There are no permits required to be obtained for this project.

213 MATERIAL AVAILABILITY

The Contractor shall schedule construction work to coordinate with the availability of construction materials. The Contractor will not be permitted to begin certain phases of excavation work until the materials required to complete the work are approved by the Engineer and are readily available for installation.

214 STORED MATERIALS

The Contractor shall not be paid for stored materials. The Contractor shall only be paid for material completely and properly installed and approved by the Engineer.

215 DISCREPANCY

Where there is a discrepancy in the plans and specifications, the contractor shall bid the item of higher cost.

216 AS-BUILT

The Contractor shall be responsible to meet proposed grades and inverts as shown on the plans. Any discrepancies will be the responsibility of the Contractor to correct. No as-built shall be required as part of this project.

217 CONTRACTOR STAGING AREA

The Contractor shall coordinate a staging area with the Village of Hastings-on-Hudson Commissioner of Public Works.

BITUMINOUS BASE COURSE

WORK

Under this item the Contractor shall furnish all labor, materials and equipment necessary to place an asphaltic concrete base course on top of a prepared subgrade in accordance with the plans and specifications. The thickness of this course shall be as shown on the plans or as directed in the field by the Engineer.

MATERIALS

The base course material used shall be Base Course Type 402.378903 of the State of New York Department of Transportation most recent specifications and all subsequent addenda. Tack coat, if required, shall be NYSDOT Item 407.01. Product data, mix design and shop drawings shall be provided for the asphalt and, if required, tack coat.

CONDITIONS

The laying of this course shall not be allowed if the temperature is below forty (40°F) degrees Fahrenheit in the shade, or if there is any indication of possible rain, or if the bottom course is wet, except by permission of the Engineer.

The subgrade shall be dry, protected from water that might run onto it, and properly installed.

Manhole frames, catch basin frames, valve boxes and other structures shall be adjusted to finished grade, if necessary, prior to placing of this paving course. Adjustment of structures are specified under a separate section.

When the conditions, equipment, plant and force is, in the opinion of the Engineer, proper for the work, the operation may proceed.

METHOD

Curbs and other structures shall be protected at all times from asphaltic materials and caution shall be taken to prevent damage to curbs and other structures by rollers and other equipment.

The materials shall be hauled to the site in steel bodied trucks and covered with tarpaulins to prevent cooling. Any base course that is poorly mixed, separated, dirtied or cooled to a point of beginning to stiffen shall be rejected and removed from the site.

Unless otherwise permitted by the Engineer, the base course shall be placed by means of a mechanical spreader so operated that the mixture as spread, is free from lumps, is of uniform

density, and is to the desired cross section.

After spreading, the mixture shall be thoroughly and uniformly compressed by a power-driven two-wheel tandem roller weighing not less than ten (10) tons, as soon after being spread as it will bear the roller without undue displacement. Delays in rolling freshly spread mixture will not be tolerated. Rolling shall be longitudinal, starting at the sides and proceeding toward the center of the pavement, overlapping on successive trips. At intersections and other widened areas, the pavement shall be subject to diagonal rolling in two directions. Where roller width is limited, the Engineer shall determine the equipment to be used.

The speed of the roller shall not exceed three (3) miles per hour and shall at all times be slow enough to avoid displacement of the mixture. Any displacements occurring as a result of reversing the direction of the roller, or from any other cause, shall at once be corrected by the use of rakes and of fresh mixtures where required. Rolling shall proceed continuously until all roller marks are eliminated and until the finished course shall have a density not less than ninety-five (95%) percent of the laboratory compacted density. If the course is being placed at a rate in excess of three hundred (300) square yards per hour, the Contractor shall use an extra roller. To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened, but excess of either water or oil will not be permitted.

MEASUREMENT AND PAYMENT

The quantity to be paid for under this item shall be the number of "TONS" of asphaltic material placed in accordance with the plans and specifications and directions of the Engineer. This quantity shall be subject to verification by field measurements and calculations.#Batch tickets from the asphalt plant shall be provided to the Engineer for review.

The unit price bid for this item shall be full payment for furnishing all labor, equipment and materials, including the preparation, the mixing, transportation, placing and rolling, necessary to complete this course as shown on the drawings and specified herein.

BOX BEAM GUIDE RAIL

WORK

Under this item the Contractor shall furnish all labor, materials and equipment necessary to remove existing guide railing and to install new box beam guide railing in accordance with the plans, specifications, and as directed by the Engineer. All guide rail materials and installation shall strictly conform to New York State Department of Transportation (NYSDOT) specifications for box beam guide railing.

This specification covers the material and quality requirements for rustic barrier guide rail fabricated from structural and high-strength low alloy structural steel that in a reasonable time after erection in a rural environment of average atmosphere, will develop a uniform, permanent and tightly adhering protective oxide coating.

MATERIALS

All work performed and materials utilized for construction shall be as specified in Section 606, 701, 704, 710, 723 and 730 of the NYSDOT Standard Specifications, latest edition.

The base metal for the structural shape, plate, and bar components of box beam guide rail shall meet the requirements of ASTM A242 “Standard Specification for High-Strength Low-Alloy Structural Steel” or ASTM A588 “Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi Minimum Yield Point, with Atmospheric Corrosion Resistance”.

METHOD

All box beam guide railing systems and transitions described by these specifications shall be subject to the following requirements.

Drawings

For end terminals and end assemblies not shown on the standard sheets or detailed in the plans, the Contractor shall submit two copies of the manufacturer’s drawings, modified as necessary to reflect site conditions, to the Engineer for approval prior to ordering any materials required under this section. Drawings of parts not detailed on the plans, but which are necessary to develop the full performance of the end assemblies or terminals shall also be provided. The Contractor shall order materials and commence work on the installation of end assemblies or terminals only after approval of the aforementioned drawings and authorization from the Engineer to do so.

Manuals

In addition to the drawings, the Contractor shall provide the Engineer with two (2) copies of design

manuals, installation manuals, parts lists, and maintenance manuals prepared for each type end terminal or assembly being installed but not shown on the standard sheet.

Removing and storing existing guide railing

Where shown on the Drawings or as directed by the Engineer, the Contractor shall remove existing guide railing and/or median barrier and neatly store the component parts in separate piles at locations designated for future pick up by the Owner's work forces, or its designee. The work shall be done in a workmanlike manner so as to salvage all usable parts. Unusable material shall be disposed of by the Contractor.

Removing and disposing of guide railing

Where shown on the Drawings or as directed by the Engineer, existing guide railing and guide posts designated by the Engineer as unusable shall be removed and disposed of by the Contractor. Holes shall be backfilled with a suitable material and compacted in a manner approved by the Engineer.

Inspection of rail elements

Immediately prior to erection, the rail elements shall be inspected for damage. Bends, kinks, or any deformities in the railing, not specifically required by the contract documents, shall constitute sufficient cause for rejection. Straightening of such bends or kinds will not be allowed. Such materials shall be disposed of or returned to the manufactured and immediately replaced by the Contractor.

Erection of all guide rail, median barrier, transmissions, and connections shall be subject to the inspection of the Engineer who shall be given all facilities required for a visual inspection of workmanship and materials.

Erection

Posts, railing, barrier systems, rail transitions, end assemblies, anchorage units, and pier protection shall be erected in the position and manner indicated on the standard sheets, manufacturer's drawings', manufacturer's directions, contract plans, and a manner approved by the Engineer. Rail mounting height shall be within ± 0.25" of that indicated on the standard sheets and plans.

Posts and foundation tube(s) shall be driven unless otherwise specified by the Engineer. The driving shall be accomplished with approved equipment and methods that will leave the posts and foundation tube(s) in their final position, free of any distortion, burring or other damage. When posts and foundation tube(s) are driven through asphalt concrete or a bituminous treated material, the Contractor shall take care to prevent damage to the paved or treated areas. Large holes and voids caused by driving the posts and foundation tube(s) shall be filled and compacted with bituminous treated material or asphalt concrete similar to that damaged. The small area adjacent to the post and foundation tube(s) disturbed during installation or where gaps exist at the post and foundation tube(s) after pavement repairs shall be sealed with a bituminous material approved by

the Engineer.

All underground utilities (including, gas, water, drainage, sewer, telecom, etc.) shall be marked out prior to the driving of posts or foundation tubes. Wherever possible, posts shall straddle utility lines to the greatest extent allowable. Where posts are located within the tolerances of the utility mark-out, post holes shall be hand dug to avoid damage to the utilities. The Contractor is responsible for notifying for notifying the Utility Owners of the work in the vicinity of their utilities. The Engineer or the Utility Owner shall be allowed to impose additional requirements on the Contractor for work near underground utilities.

The work of installing the guide railing system when it abuts stabilized shoulder courses shall be coordinated and progressed to provide the least disturbance between the two phases of the work.

All posts shall be aligned to a tolerance of ± 0.25" for plumb and grade line.

Coordination with other work

The work of furnishing and installing all types of end assemblies shall be coordinated with the removal of existing impact attenuators or end assemblies, the installation of guide railing or median barrier, or the installation of the object to be shielded, so as to minimize the time that motorists are exposed to the possibility of collision with the shielded object, unprotected ends of barriers, or incomplete end terminals or assemblies. Also, the contractor shall minimize exposure of approaching vehicular traffic to the possibility of impact on the back of the end assembly. Unless modified in the Contract Documents, minimization shall mean seven (7) or fewer calendar days.

Traffic protection

Traffic protection devices, such as cones, drums, lights, signs, barricades, or other articles directed by the Engineer, shall be provided and maintained under Section MPT "Maintenance and Protection of Traffic". These devices shall not be removed until the end assembly, including required transition pieces, is fully operational. If the end assembly is to be installed in lighted areas, or in areas to be lighted, the mentioned traffic protection articles shall also be maintained until the lighting system is operational.

MEASUREMENT AND PAYMENT

The quantity of guide rail measured for payment under this item shall be the actual number of "LINEAR FEET" of guide rail constructed in accordance with the plans, specifications and directions of the Engineer. The guide rail shall be measured along the center line of the rail including the center line of each end section.

The unit price bid shall include the cost of furnishing all labor, materials and equipment necessary to remove existing guide rail and install the new guiderail including all parts, anchors, attachments, transition beams and any incidentals required for a complete system as shown on the plans, specified herein, and as directed by the Engineer.

BITUMINOUS TOP COURSE

WORK

Under this item the Contractor shall furnish all labor, materials and equipment necessary to place an asphaltic concrete top course on top of a shim course, base course and/or existing pavement in accordance with the plans and specifications. The thickness of this top course will be as specified in the Plans or as directed in the field by the Engineer.

Also included under this item shall be saw cutting concrete and asphalt for keyways at all roadway, driveway and abutting pavements intersecting the new work.

The Contractor shall perform all roadway preparation work required to condition existing pavements.

MATERIALS

The top course material used shall be Top Course Type 402.098104 of the State of New York Department of Transportation most recent specifications and all subsequent addenda. Tack coat - New York State Item 407.0103. Product data, mix design and shop drawings shall be provided for the asphalt and, if required, tack coat.

CONDITIONS

The laying of this course shall not be allowed if the temperature is below forty (40) degrees Fahrenheit in the shade, or if there is any indication of possible rain, or if the bottom course is wet, except by permission of the Engineer.

The shim course, base course and/or existing pavement shall be dry, protected from water that might run onto it, and properly installed. It shall be cleaned by hand and mechanical brushing and, if necessary, by flushing with a strong jet of clean water, and permitted to dry thoroughly before the top course is laid.

Manhole covers, catch basin frames, valve boxes and other structures shall be adjusted to finished grade, if necessary, prior to placing of this paving course.

When conditions, equipment, plant and force is, in the opinion of the Engineer, proper for the work, the operation may proceed.

METHOD

Curbs and other structures shall be protected at all times from asphaltic materials and caution shall

be taken to prevent damage to curbs and other structures by rollers and other equipment.

The materials shall be hauled to the site in steel bodies trucks and covered with tarpaulins to prevent cooling. Any top course that is poorly mixed, separated, dirtied or cooled to a point of beginning to stiffen shall be rejected and removed from the site.

Unless otherwise permitted by the Engineer, the top course shall be placed by means of a mechanical spreader so operated that the mixture as spread, is free from lumps, of uniform density, and to the desired cross section.

The shim course, base course and/or existing pavement shall be primed with approximately one-tenth (0.1) gallon per square yard of asphalt emulsion tack coat.

The tack coat shall only be sprayed on the surface to be paved with a distributor pipe or a hose nozzle to control the rate of flow. Hand application shall not be permitted except by permission of the Engineer.

To prevent equipment from picking up the tack coat it may be applied sparingly to just the areas requiring priming. Special consideration is to be given to the vertical surfaces of castings, curbs and gutters.

After spreading, the mixture shall be thoroughly and uniformly compressed by a power-driven two wheel tandem roller weighing not less than ten (10) tons, as soon after being spread as it will bear the roller without undue displacement. Delays in rolling freshly spread mixture will not be tolerated. Rolling shall be longitudinal, starting at the sides and proceeding toward the center of the pavement, overlapping on successive trips. At intersections and other widened areas, the pavement shall be subject to diagonal rolling in two directions.

The speed of the roller shall not exceed three (3) miles per hour and shall at all times be slow enough to avoid displacement of the mixture. Any displacements occurring as a result of reversing the direction of the roller, or from any other cause, shall at once be corrected by the use of rakes and of fresh mixture where required. Rolling shall proceed continuously until all roller marks are eliminated and until the finished course shall have a density of not less than ninety-five (95%) percent of the laboratory compacted density. If the surface course is being placed at a rate in excess of three hundred (300) square yards per hour, the Contractor shall use an extra roller. To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened, but excess of either water or oil will not be permitted.

Air voids in the asphalt shall be between 3% and 7%. The air void level shall be consistent across the pavement both longitudinally and transversely.

Heated smoothing irons shall be used to finish the pavement along curbs, around manhole heads, and elsewhere where necessary.

Traffic shall be kept off the surface until it is completely cooled and until it has set so that it will not be marked by traffic.

A sixteen (16') foot straight edge and four foot carpenters level shall be made available by the Contractor for testing. The Engineer shall be assured that the profile is true to one-quarter (1/4") inch, or the pavement shall be removed and re-laid. No surface patches are to be allowed.

MEASUREMENT AND PAYMENT

The quantity to be paid for under this item shall be the number of "TONS" of top course pavement placed as documented by batch tickets from asphalt plant. This quantity shall be subject to verification by field calculation.

The unit price bid for this item shall be full payment for furnishing all labor, equipment and materials, including the preparation, the mixing, transportation, placing and rolling, necessary to complete this course as shown on the drawings and specified herein. Also included for payment shall be any work required for saw cutting keyways, removing and disposing of keyway pavement material and for preparing all roadways as specified in specification "Conditioning Existing Pavement".

CATCH BASINS

WORK

Under this item the Contractor shall provide all labor, materials and equipment necessary to repair and rebuild all catch basins as indicated on the plans and as specified. The Contractor shall reuse existing frames and grates and also provide all pipe connections as required for a complete installation.

The work shall include but not be limited to saw cutting concrete and asphalt, removal and disposal of concrete asphalt material, excavation and backfilling, maintenance of excavation area, dewatering and sheeting, supply and install subbase material, tamping and any incidentals necessary for a complete catch basin installation including cast iron castings and concrete frames.

DESCRIPTION

Catch basins shall conform in shape, size, dimensions, materials, and other respects to the details indicated on the drawings and as specified.

Catch basin walls shall be precast concrete masonry units. The top of the structure (not to exceed 6") shall be built of brickwork to permit adjustment of the frame to meet the finished surface.

Catch basin sumps shall be one-piece precast concrete or concrete masonry units on cast-in-place or precast concrete bases with a minimum sump depth of eighteen (18") inches unless otherwise specified.

Unless otherwise specified or indicated, all concrete shall be 3,000 psi.

The cast iron frames and grates shall be standard as indicated on the drawings and as specified.

PRECAST CONCRETE MASONRY UNITS

Precast concrete masonry units shall be machine made solid segments, conforming to ASTM C139 "Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes", with the following exceptions and additional requirements:

- Type II cement shall be used except as otherwise permitted.
- The width of the units shall be as indicated on the drawings.
- The inside and outside surfaces of the units shall be curved to the necessary radius and so designed that the interior surfaces of the structures shall be cylindrical, except the top batter courses shall be designed to reduce uniformly the inside section of the structure to the required size and shape at the top.
- Units shall be designed such that only full-length units are required to lay any one course.

- Acceptance of the units will be on the basis of material tests and inspection of the completed product.

PRECAST CONCRETE SUMPS

Precast concrete sumps shall conform to the ASTM C478 "Standard Specifications for Precast Reinforced Concrete Manhole Sections", with the following exceptions and additional requirements:

- The wall section shall be not less than six (6") inches thick.
- Type II cement shall be used except as otherwise permitted.
- Sumps shall be cured by subjecting them to thoroughly saturated steam at a temperature between 100- and 130-degrees Fahrenheit for a period of not less than twelve (12) hours or, when necessary, for such additional time as may be needed to enable the sections to meet the strength requirements.
- No more than two lift holes may be cast or drilled in each sump.
- Acceptance of the sumps will be on the basis of material tests and inspection of the completed product.

All holes in sumps used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose or with mortar. The mortar shall be 1 part cement to 1-1/2 parts sand, mixed slightly damp to the touch (just short of "balling"), hammered into the holes until it is dense and an excess of paste appears on the surface, and then finished smooth and flush with the adjoining surfaces.

BRICK

The brick shall be sound, hard, and uniformly burned brick, regular and uniform in shape and size, or compact texture, and satisfactory to the Engineer. Brick shall comply with the ASTM C32 "Standard Specification for Sewer and Manhole Brick (made from Clay or Shale)", for Grade SS, hard brick, except that the mean of five (5) tests for absorption shall not exceed eight (8%) percent by weight.

Rejected brick shall be immediately removed from the work.

MORTAR FOR BRICKWORK

The mortar shall be composed of Portland cement, hydrated lime, and sand, in which the volume of sand shall not exceed three times the sum of the volume of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense, hard-burned brick to 1:3/4 for softer brick. In general, mortar for grade SS Brick shall be mixed in the proportions of 1:1/2:4-1/2.

Cement shall be Type II Portland cement as specified for concrete masonry.

Hydrated lime shall be Type S conforming to the ASTM C207 "Standard Specification for Hydrated Lime for Masonry Purposes".

MORTAR FOR MASONRY UNITS

The mortar shall be composed of one (1) part Portland cement and two (2) parts of sand by volume with sufficient water to form a workable mixture. Cement and sand shall be as specified for mortar for brickwork.

LAYING BRICKWORK AND MASONRY UNITS

Only clean units shall be used. Bricks shall be moistened by suitable means, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid. Concrete masonry units shall be dry when laid.

Each brick shall be laid in a full bed and joint of mortar without requiring subsequent grouting, flushing, or filling, and shall be thoroughly bonded.

Each concrete masonry unit shall be laid in a full bed and joint of mortar and shall be thoroughly bonded. Vertical keyways shall be completely filled with mortar.

PLASTERING AND CURING BRICK MASONRY

Outside faces of brick masonry shall be plastered with mortar from 1/4 inch to 3/8 inch thick. If required, the brick masonry shall be properly moistened prior to application of the mortar. The plaster shall be carefully spread and troweled. After hardening, the plaster shall be carefully checked by tapping for bond and soundness. Unbonded or unsound plaster shall be removed and replaced.

Brick masonry and plaster shall be protected from too rapid drying by the use of burlaps kept moist, or by other acceptable means, and shall be protected from the weather and frost, all as required.

CATCH BASIN FRAMES AND GRATES

The Contractor shall furnish and install all cast iron catch basin frames and grates conforming to the details indicated on the drawings and as specified.

The castings shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects, of every nature which would render them unfit for

the service for which they are intended. Contact surfaces of grates and frame seats shall be machined to prevent rocking of grates.

All castings shall be thoroughly cleaned and subject to a careful hammer inspection.

Castings shall be at least Class 25 conforming to the ASTM A48 "Standard Specifications for Gray Iron Castings".

Before being shipped from the foundry, castings shall be given one coat of coal-tar pitch varnish, applied in a satisfactory manner so as to make a smooth coating, tough, tenacious, and not brittle nor with any tendency to scale off.

Unless otherwise specified or indicated on the drawings, castings in paved areas shall be capable of withstanding H-20 loading and shall meet the requirements of the municipality in which they are installed.

SETTING CURB INLETS, GRATES AND FRAMES

Curb inlets and frames shall be set with the tops conforming accurately to the grade of the pavement or finished ground surface, or as indicated on the drawings or as directed.

Circular frames shall be set concentric with the top of the masonry. All frames shall be set in a full bed of mortar such that the space between the top of the masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed around the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

Grates shall be left in place in the frames on completion of all other work at the catch basins.

CATCH BASIN ADJUSTED TO GRADE

Unless specified under a separate section, existing catch basin tops shall be adjusted to line and grade as indicated on the drawings or as directed by the Engineer.

All catch basins adjusted to grade shall be provided with brick as required for new catch basins.

REBUILDING OF EXISTING CATCH BASIN

Unless specified under a separate section, the Contractor shall cut suitable openings into existing structures to make connections to drains as indicated on the drawings and as specified or directed. In so doing, the Contractor shall confine the cutting to the smallest amount possible consistent with the work to be done.

After drains are installed, the Contractor shall carefully fit around, close up, and repair the structures, all as acceptable to the Engineer.

Prior to starting the work, the Contractor shall have assembled all tools, materials, and construction equipment required to complete the work in the shortest possible time.

ABANDONMENT OF EXISTING CATCH BASIN

Unless specified under a separate section, the Contractor shall remove the entire top of the structure, including all tapered or domed portions of the walls. All pipes or conduits in the remaining portions of the structure shall be securely plugged with Class B concrete, after which the space within the walls shall be filled with acceptable material thoroughly compacted by tamping.

The Contractor shall carefully salvage and clean all cast iron frames, gratings, and traps removed from abandoned catch basins. The salvaged castings shall remain the property of the Owner and shall be delivered to a location designated by the Owner.

MEASUREMENT AND PAYMENT

The quantity of catch basins to be paid for under this item shall be the number of "EACH" catch basin constructed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per catch basin in place with grates and frames and for rebuilding all catch basins as indicated on the plans and as specified. The Contractor shall reuse existing frames and grates and also provide all pipe connections as required for a complete installation.

The work shall include but not be limited to saw cutting concrete and asphalt, removal and disposal of concrete asphalt material, excavation and backfilling, maintenance of excavation area, dewatering and sheeting, supply and install subbase material, tamping and any incidentals necessary for a complete catch basin installation including cast iron castings and concrete frames.

COBBLE BLOCK CURB

WORK

Under this item the Contractor shall furnish all labor, materials and equipment necessary to completely install cobble block curbs, concrete footings and incidentals required as shown on the plans and as specified hereinafter. The joints shall be mortared cement grout, as shown on the plans, with joints not to exceed one-half (1/2") of an inch.

The Contractor shall perform all necessary saw cutting of asphalt and concrete, removal and disposal of asphalt and concrete, excavation and removal of all material of every nature and kind, preparing of site, providing crushed stone subbase, pouring concrete cradle and any incidentals required to complete the work in all respects. All concrete and surplus excavated material shall be hauled from the site of the work and legally disposed of as directed by the Engineer.

MATERIAL

Blocks shall be new and shall be cut from fine to medium grained sound and durable granite. The granite shall be reasonably uniform in quality and texture throughout and shall be free from an excess of mica and feldspar and from seams, scales or evidence of disintegration. If used blocks are approved for use by the Engineer, they shall be clean, free of mortar, asphalt, etc.

The blocks shall be cut so that opposite faces will be approximately parallel and adjoining faces approximately at right angles to each other. Blocks shall be so dressed that they may be laid with one-half (1/2") inch joints. All blocks shall have a reasonably smooth, split head.

The Contractor shall furnish two (2) samples of blocks to the Engineer for approval before placing order. Blocks used on the work shall conform to the approved samples.

Concrete for curb cradles shall conform to specification “Concrete Curbs” and shall be poured to conform to the shape and size shown on the plans. The curb shall be rectangular in shape with nominal top and side curb width dimension of four (4") inches by five (5") inches and curb height of fourteen (14") inches as shown on the plans. Top surfaces shall be sawed or hammered to approximately true planes with no projection or depression greater than one-eighth (1/8") inch. Saw marks normal to the sawing process will be permitted if within the one-eighth (1/8") inch tolerance.

METHOD

The Contractor shall excavate the curb trench to the proposed line and grade. The subgrade shall be compacted by a vibrating mechanical tamper or other approved method. Excavation shall be made to dimensions sufficient to permit the placement of crushed stone subbase, construction of cradle and setting of curbstones. It shall be made to a depth of six (6") inches below the specified depth of curb and to a width of not less than twelve (12") inches. The trench shall be open to its full width and depth for a distance of not less than twenty (20') feet in advance of the setting of the curb.

If the subgrade is of unsuitable materials, all such materials shall be removed and replaced with select materials, as called for by the Engineer, tamped, and brought up to the proper grade. The removal of the unsuitable material and the replacement of select materials shall be included under this item for the first foot of excavation and removal. Any additional excavation will be paid for under "Miscellaneous Earth Excavation" and the replacement with select materials will be paid for under "Furnish and Place Crushed Stone or Gravel".

The cradle shall be composed of stiff concrete, thoroughly tamped in place. The cradle shall be twelve (12") inches wide and extend six (6") inches below the specified depth of curb. The concrete shall be brought up on front and back of the curb approximately six (6") inches. The concrete shall be laid not more than twenty (20') feet in advance of setting the curb. The portions of the concrete cradle in front and at back of curb shall be placed and thoroughly compacted as soon as the curb is brought to line and grade and before the concrete under the curb has set.

Curbstones shall be set centrally on the concrete cradle, with top of curb six (6") inches above adjacent pavement or sidewalk. Front faces shall be set in a true smooth surface having a batter of one in eight, unless otherwise specified, with joints not less than one-half (1/2") inch and not more than three-quarter (3/4") inch for five (5") inches below grade.

Backfilling shall be of clean earth or other approved material, satisfactorily compacted.

MEASUREMENT AND PAYMENT

The quantity of cobble curbs to be paid for under this item shall be the actual number of "LINEAR FEET" of curb constructed in accordance with the plans, specifications and directions of the Engineer.

The unit price bid shall include the cost of furnishing all labor, materials and equipment necessary to complete the work including saw cutting asphalt and concrete, removal and disposal of asphalt and concrete and surplus excavated materials, excavations, backfilling and tamping for providing and preparing cobble curbs, concrete cradles, crushed stone subbase, mortar joints and all incidentals necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

CLEARING, GRUBBING AND REMOVALS

WORK

Under this item the Contractor shall furnish all labor, materials and equipment necessary to perform clearing, grubbing and removals within the proposed construction area as required to complete the proposed improvements. This shall include such work as removing shrubbery, sapling trees less than 8" in caliper, roots, stumps, stones, vines, topsoil, organic matter, masonry, large boulders, concrete rubble, rubbish and other objectionable materials. The Engineer, at his discretion, may require additional work under this section if he deems this work necessary to comply with the intent of this project. Any work not included under this specification but required for the successful completion of project work, as deemed by the Engineer, shall be performed by the Contractor as directed by the Engineer and paid for under other bid items of work.

The Contractor shall carefully protect all trees and shrubs and other growth to remain. The Engineer shall have the final authority on the removal of all trees and existing features to remain. Any trees removed contrary to the orders of the Engineer shall be replaced by the Contractor at his expense in accordance with Specification "RESTORATION" and the General Conditions. The Contractor shall be responsible for any and all damages to property caused by clearing and grubbing operations. All damaged trees and plants shall be replaced or restored to their original condition to the satisfaction of the Engineer.

All materials removed under this item which are not to be reset or allowed in the backfill shall be promptly and legally disposed of by the Contractor. Burning material shall not be allowed.

METHOD

Unless otherwise directed, the Contractor shall thoroughly clear, grub and remove all objectionable surface material flush with existing grades. Trees, stumps, roots and shrubs will be removed to a depth of two feet below subgrade or as required to provide a suitable subgrade upon which the proposed facilities shall be constructed.

Note that existing topsoil shall be stored on site and protected during the course of construction.

All debris, refuse, solid waste, tires, wooden planks, junk of any nature, etc. shall also be removed from the site and disposed of legally in a manner that meets all applicable Federal, State and local codes and ordinances.

CLEARING

From areas to be cleared, the Contractor shall cut or otherwise remove all sapling trees, brush, and other vegetable matter such as snags, bark, and refuse. Areas to be used as a dump site for brush, etc., shall be excavated to virgin soil and the stored material shall be legally disposed.

Except where clearing is done by uprooting with machinery, trees, stumps, and stubs to be cleared shall be cut as close to the ground surface as practicable, but no more than six (6") inches above the ground surface for small trees and twelve (12") inches for larger trees.

GRUBBING

From areas to be grubbed, the Contractor shall remove completely all stumps. He shall remove to a depth of twelve (12") inches all roots larger than three (3") inches in diameter, and remove to a depth of six (6") inches all roots larger than one-half (1/2") inch in diameter. Such depths shall be measured from the existing ground surface or the proposed finished grade, whichever is lower.

STRIPPING

All stumps, roots, foreign matter, topsoil, loam and unsuitable earth shall be stripped from the ground surface. The topsoil and loam shall be utilized insofar as possible, for finished surfacing. Loam shall not be taken from the site.

DISPOSAL

All material resulting from clearing and grubbing and not scheduled for reuse or stockpiling shall become the property of the Contractor and shall be suitably disposed of off site in accordance with all applicable laws, ordinances, rules and regulations, unless otherwise directed by the Engineer.

Such disposal shall be performed as promptly as possible after removal of the material and shall not be left until the final period of cleaning up.

MEASUREMENT AND PAYMENT

The unit of measurement for payment shall be a "LUMP SUM" amount for providing all labor, materials and equipment required to clear, grub and remove all objectionable material within the limits shown on the plans as directed by the Engineer.

The work shall include but not be limited to clearing surface material and grubbing areas to

subsurface depths described for the removal and disposal of shrubbery, sapling trees less than 4" in caliper, root stumps, stones, vines, topsoil, organic matter, masonry, large boulders, concrete rubble, rubbish, litter and other objectionable materials as determined and directed by the Engineer.

FURNISH & INSTALL CORRUGATED METAL CULVERT

WORK

Under this item the Contractor shall furnish all labor, materials and equipment necessary to furnish and install a complete corrugated metal culvert, headwalls, wingwalls, and associated appurtenances in accordance with the plans and specifications. The Contractor shall saw cut pavements, remove and dispose of pavement materials and the existing culvert materials. The Contractor shall excavate and maintain the trench properly to install and connect the culvert to drainage channels, and backfill as hereinafter specified.

The work shall include the installation of a crushed stone subbase, sheet and brace the trench if required, dewater and maintain the excavation, stream bypass, properly backfill and compact the trench and any other work required to complete this item.

The excess excavated material shall be removed and disposed of off-site by the Contractor at his own expense.

MATERIALS

The aluminum box culvert shall be made by Contech Construction Products Inc. (ALSP- IV- 4 SPEC SASD) or approved equal.

Aluminum box culverts shall meet all the latest requirements of Section 603, “Culverts and Storm Drains” of the New York State Department of Transportation standard specifications. The size, material, connections, and method of installation shall be as recommended by the manufacturer and accepted by the Engineer.

The aluminum box culvert shall include plates, ribs, and all other items specified on the plans and shall conform to the requirements of ASTM B 864. Plate thickness, rib spacing, end treatment and type of invert and foundation shall be as indicated on the plans.

Bolts and nuts shall conform to the requirements of ASTM A307 or ASTM A449.

CUTTING PAVEMENT

Before making any excavation, the Contractor shall cut the edge of the trench. Ripping of pavement by means of excavating equipment will not be permitted.

In the case of asphalt pavement, cutting of the edge shall be done by means of pneumatic drill with

spade-shaped bit, or saw at the Contractor's option.

EXCAVATION OF TRENCH

The Contractor shall excavate a trench to the depth shown on the profiles and to a width one (1) foot outside the culvert. The Contractor shall not use equipment which will excavate a trench wider than that specified. Hand excavation shall be employed wherever in the opinion of the Engineer it is necessary for the protection of existing utilities, trees, pavements or other structures.

All excavation shall be open cut method unless tunneling is authorized by the Engineer.

Excavation of the trench under this item shall include the necessary removals of existing drainage pipes or culverts that will be replaced, curbs, gutters, walks and driveways and the cutting and removing of asphalt pavement. See "RESTORATION" for replacement of existing site features upon completion of the work.

The Contractor shall keep the trenches free from water.

Trench rock shall be excavated to a depth of six (6") inches below the culvert.

At least twenty (20') feet of trench shall be excavated in front of the previously laid section of culvert. No more than fifty (50') feet of trench shall remain open over night without the express approval of the Engineer.

Additional depth of trench shall be excavated as required to clear obstructions not shown on plans. Measurement for this extra depth shall be from a point one foot below the design invert of the culvert to the bottom of the excavation. There shall be no payment for the first foot of extra depth under the “MISCELLANEOUS EARTH EXCAVATION” item. Payment for this first foot shall be included under this item.

SHEETING AND BRACING

Trenches shall be properly sheeted, shored and braced as necessary to prevent shifting of materials, to prevent damage to structures, pavement and pipes, and to provide safe working conditions. The Contractor shall be responsible for providing, installation and for the adequacy of all sheeting and bracing used and for all damage resulting from its failure or from placing, maintaining and removing it. No payment will be made for sheeting and bracing if it is removed, or if it is left in place for the Contractor's convenience. If the sheeting and bracing is ordered to be left in place by the Engineer after having been constructed, the Contractor shall be entitled to the cost of materials so left in place.

If there is a space between the sheeting and the side of the trench, the space shall be backfilled with suitable material thoroughly compacted in place. Where adjacent structures, pavement, or pipes may

be damaged by the removal of sheeting, the Contractor shall not remove the sheeting. All sheeting left in place shall be cut off at least two (2') feet below the surface of the ground. Where sheeting or shoring is to be removed, the removal shall be in such a manner as to prevent loss of ground.

Attention is drawn to the New York State Department of Labor be damaged or overstressed. Properly designed lifting apparatus shall be used in loading, unloading and lowering pipe into place for laying. Any type of mishandling or damage to the pipe during any phase of the work will be cause for rejection by the Engineer.

CULVERT INSTALLATION

Each culvert unit shall be inspected before being installed. Any culvert discovered to be defective either before or after installation shall be removed and replaced with a sound culvert.

If accepted by the Engineer, the culvert shall be laid in the trench to conform accurately to the line and grade as called for on the plans. The culvert shall be laid on undisturbed ground supported throughout and shall have a uniform bearing end to end.

Where excavation has been made below the required grade, such areas shall be backfilled with suitable materials and compacted at the expense of the Contractor. All lose or unsuitable materials shall be removed from the trench bottom.

BACKFILLING

A. Backfill Material: Backfill shall be select granular well-draining material. It shall be free from rocks and hard lumps or clods larger than two (2") inches in diameter, sod, cinders, organic material and frozen fill. A small amount of silt or clay is permissible. Unsuitable materials, as determined by the Engineer, shall be removed from the job site. Excess material and unsuitable material, excavated from the trench, shall be removed from the site by the Contractor as part of this item.

B. Backfill Around Culvert and Structures: After the culvert has been properly laid and inspected as required, the space between the culvert and the sides of the trench shall be filled to the top of the culvert in six (6") inch layers. Fill material under haunches and around the culvert must be placed alternately in six (6") inch layers on both sides of the culvert to permit thorough tamping. The fill is placed alternately to keep it at the same elevation on both sides of the culvert at all times. Tamping can be done with hand or mechanical equipment, tamping rollers or vibrating compactors, depending upon field conditions. It shall be done carefully to insure a thoroughly tamped backfill.

   At this point the Engineer shall be notified and he shall inspect the culverts. Culverts, which in the opinion of the Engineer have deformed or joints which have opened, shall be

excavated and satisfactorily repaired or replaced at no additional cost to the Owner. After the Engineers approval the backfill, operation shall continue, as described above to an elevation one (1') foot above the top of the culvert. The earth above this point shall be backfilled and compacted in nine (9") inch layers and addition of water may be required by the Inspector to achieve the required compaction. No stones larger than two (2) cubic feet shall be allowed in trench backfill within three (3') feet of the culvert.

C. Tamping Equipment:

Hand Equipment - For tamping under the haunches of a culvert or structure, a pole or 2 X 4 is generally needed to work in the small areas. Hand tampers for compacting horizontal layers should weigh not less than twenty (20) pounds and have a tamping face not larger than 6 X 6 inches. Ordinary "sidewalk" tampers are generally too light.

Mechanical Tampers - Most types of power tampers are satisfactory and can be used in all except the most confined areas. However, they must be used carefully and completely over the entire area of each layer to obtain the desired compaction. Avoid striking the structure or culvert with power tamping tools.

It shall be the responsibility of the Contractor to prevent water, earth, stone, sand or debris of any nature from entering the drain lines. Should any material accidentally enter the line, it shall be flushed or dragged until satisfactorily cleaned, and provision shall be made to catch all such matter before it can enter any drain.

INTERFERING STRUCTURES

The Contractor shall, under this Contract, and as called for in the General Conditions, sustain and protect from direct or indirect injury all pipes, poles, conduits, walls, buildings, roadways and other structures, utilities and property in the vicinity of his work. Such sustaining and supporting shall be carefully done by the Contractor and as required by the Company or party owning the structure. The Contractor shall take all risks attending their presence and he shall be responsible for all damage and assume all expense for direct or indirect injury caused by his work, to any of them or to any person or property by reason of injury to them whether such structures are or are not shown on the drawings.

Should the position of any culvert, conduit, pole or other structure, except structures and pipe specifically shown to be removed, be such as in the opinion of the Engineer to require its removal, realignment or change, such work will be done by the Owner of the obstruction, without cost to the Contractor, but the Contractor shall uncover and support the structures, at his own expense, before and after such removal, realignment or change, as part of this contract; and the Contractor shall not be entitled to any claim for damage or extra compensation resulting from any delay in the removal or rearrangement of the same. Wherever so directed, the Contractor shall excavate test pits to locate subsurface obstructions or culverts.

INSPECTION, TESTS AND ACCEPTANCE

Culverts, which in the opinion of the Engineer have deformed or joints which have opened shall be excavated and satisfactorily repaired or replaced at no additional cost to the Owner.

CLEANING PIPES

The Contractor shall prevent earth, stone, sand, or debris of any nature from entering the lines. Should any material enter the line, the line shall be flushed, or dragged until satisfactorily cleaned, and provision shall be made to catch all such matter before it can enter any drain lines.

MEASUREMENT AND PAYMENT

The payment for this item shall be the "LUMP SUM" of the aluminum box culvert, headwalls, wingwalls, and associated appurtenances installed and shall include all labor, materials and equipment for saw cutting asphalt, pavement removal and disposal, demolition and removal of existing culvert and associated material, excavation and backfill, maintain and sheeting the trench if required, dewatering the excavation, furnishing and installing crushed stone foundation, backfill material, gaskets, and furnishing and laying the culvert as specified and as shown on the plans. The excess excavated material shall be removed and disposed of off site by the Contractor which expense should be included in the price to do this work. Grading outside the limit shown on the detail shall be included under Unclassified Filling and Grading (UFG).

CORRUGATED POLYETHYLENE PIPE

WORK

Under this item the Contractor shall furnish all labor, materials and equipment necessary to furnish and install either corrugated polyethylene (PE) pipe or corrugated perforated PE pipe in accordance with the plans. The Contractor shall remove the existing pipe, dispose of surplus excavated materials, excavate and maintain the trench, properly install the pipe, gravel, polyethylene coupling bands, covers, fittings and properly backfill and tamp the trench as hereinafter specified.

Perforated pipe shall include work necessary to complete underdrains as shown in the plans. This work includes but is not limited to remove and dispose of surplus excavated material, excavate and maintain the trench, properly install the pipe, remove existing pipe, polyethylene coupling bands, fittings, installation of filter fabric, gravel, swale, underdrain filter material and properly backfill and tamp the trench as shown in plans and hereinafter specified.

MATERIALS

Type S - This pipe shall have a full circular cross-section with an outer corrugated pipe wall and a smooth inner liner. Corrugations shall be helical.

Type SP - This pipe shall be Type S with perforations as specified.

The pipe shall be either Type S or Type SP, as specified on the bid sheets high density corrugated polyethylene pipe with N-12 Dual Wall smooth flow interior as manufactured by Advanced Drainage Systems, Inc. of Ludlow, MA or approved equal. The PE pipe shall be provided with exterior corrugations of dimensions recommended by the manufacturer for the sizes of pipe indicated on the plans. It shall conform in all respects to the requirements of ASTM standards and all subsequent addenda for N-12 Corrugated Polyethylene Pipe.

Extruded Pipe and Blow Molded Fittings: Pipe and fittings shall be made of virgin PE compounds which conform with the requirements of Type III, Category “4” or “5”, Grade P33, Class C; or Grade P34, Class C, as defined and described in ASTM D1248.

Rotational Molded Pipe and Fittings: Pipe and fittings shall be made of virgin PE compounds which conform with the requirements of Type III, Category “3”, Grade P33, Class C; or Grade P34, Class C, as defined and described in ASTM D1248.

Reworked Material: Clean reworked material generated form the manufacturer’s own production may be used by the manufacturer provided that the pipe or fittings produced meet all requirements of this specification.

Gravel: See Specification Section CSG, “FURNISH AND PLACE CRUSHED STONE OR GRAVEL”.

APPLICABLE STANDARDS

ASTM Standards:

D 618	Conditioning Plastics and Electrical Insulating Materials for Testing.
D 883	Terms Relating to Plastics.
D 1248	Polyethylene Plastics Molding and Extrusion Materials.
D 1693	Environmental Stress Cracking of Ethylene Plastics.
D 2122	Determining Dimensions of Thermoplastic Pipe and Fittings.
D 2412	External Loading Properties of Plastic Pipe by Parallel-Plate Loading.
D 2444	Test for Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight).
F 412	Terms Relating to Plastic Piping Systems.

PIPE REQUIREMENTS

Workmanship: The pipe and fittings shall be free of foreign inclusions and visible defects as defined herein. The ends of the pipe shall be cut squarely and cleanly so as not to adversely affect joining or connecting.

Visible Defects: Cracks, creases, unpigmented or non-uniformly pigmented pipe are not permissible in the pipe as furnished.

Nominal Size: The nominal size for the pipe and fittings is based on the nominal inside diameter of the pipe. Nominal diameters shall be as shown on the plans and/or as directed by the Engineer.

Inside Diameter Tolerances: +3% and -1.5%.

Length: Corrugated PE pipe is an extruded product and may be sold in any length agreeable to the user. Lengths shall not be less than 99 percent of the stated quantity.

Perforations: When perforated pipe is specified, the perforations shall be cleanly cut so as not to restrict the inflow of water and uniformly spaced along the length and circumference of the pipe. Circular perforations shall not exceed 5/16 inch in diameter. The width of slots shall not exceed 1/8 inch. The length of slots shall not exceed 2.5 inches for 12 inch and 15 inch pipe and 3.0 inch for 18 inch and 24 inch pipe. Perforations shall be placed in the valleys of the corrugations. The water inlet area shall be a minimum of 1.0 square inch per linear foot of pipe.

Pipe Stiffness: The pipe shall have minimum pipe stiffness at five percent deflection as follows:

Diameter *(inches)*	Pipe Stiffness *(psi)*
12	45
15	42
18	40

Diameter *(inches)*	Pipe Stiffness *(psi)*
21	38
24	34
30	28

Pipe Flattening: There shall be no evidence of wall buckling, cracking, splitting, or delamination, when the pipe is tested.

Environmental Stress Cracking: There shall be no cracking of the pipe when tested.

Brittleness: Pipe specimens shall not crack or split when tested. Five (5) non-failures out of six (6) impacts will be acceptable.

FITTING REQUIREMENTS

The fittings shall not reduce or impair the overall integrity or function of the pipe line.

Common corrugated fittings include in-line joint fittings, such as couplings and reducers, and branch or complimentary assembly fittings such as tees, wyes, and end caps. These fittings are installed by various methods, such as snap-on, screw-on, and wrap around.

Only fittings supplied or recommended by the pipe manufacturer should be used.

All fittings shall be within an overall length dimensional tolerance ±0.5 inch of the manufacturer's specified dimensions.

Fittings shall not reduce the inside diameter of the pipe being joined by more than 0.5 inch. Reducer fittings shall not reduce the cross-sectional area of the small size.

Couplings shall be corrugated to match the pipe corrugations and shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Couplings shall be bell and spigot, split collar, or screw-on collar. Split collar couplings shall engage at least one full corrugation on each pipe section and screw on collars shall be in width at least one-half the nominal diameter of the pipe.

Pipe connections shall not separate to create a gap exceeding 3/16 inch when measured in a radial direction between pipe and coupling, or between tongue and groove portions of pipe. Fittings shall not crack or delaminate.

The design of the fittings shall be such that when connected with the pipe, the axis of the assembly will be level and true.

JOINTS

The joining of the pipes shall be done using coupling bands. The size, material, and method of installation shall be as recommended by the manufacturer and accepted by the Engineer.

INSPECTION AND RETEST

Inspection: Inspection of the material shall be made as agreed upon by the purchaser and the seller as part of the purchase contract.

Retest and Rejection: If any failure to conform to these specifications occurs, the pipe or fittings may be retested to establish conformity in accordance with agreement between purchaser and seller. Individual results, not averages, constitute failure.

MARKING

All pipe shall be clearly marked at intervals of no more than ten (10') feet as follows:

- Manufacturer's name or trademark.
- Nominal Size.
- Manufacturer's specification designation, "M-294".
- The plant designation code.
- The date of manufacture or an appropriate code.

Fittings shall be marked with the designation number of the manufacturer's specification, "AASHTO M 294", and with the manufacturer's identification symbol.

QUALITY ASSURANCE

A manufacturer's certificate that the product was manufactured, tested, and supplied in accordance with this specification, together with a report of the test results, and the date each test was completed, shall be furnished upon request. Each certification so furnished shall be signed by a person authorized by the manufacturer.

CUTTING PAVEMENT

Before making any excavation, the Contractor shall cut the edges of the trench. Ripping of pavement by means of excavating equipment will not be permitted.

In the case of asphalt pavement, cutting of the edge shall be done by means of pneumatic drill with spade-shaped bit, or saw cut at the Contractor's option. Concrete pavements shall be saw cut by the Contractor.

EXCAVATION OF TRENCH

The Contractor shall excavate a trench to the depth shown on the plans and to a width one (1) foot outside the pipe. The Contractor shall not use equipment which will excavate a trench wider than that specified. Hand excavation shall be employed wherever in the opinion of the Engineer it is necessary for the protection of existing utilities, trees, pavements or other structures.

All excavation shall be open cut method unless tunneling is authorized by the Engineer.

Excavation of the trench under this item shall include the necessary removals of existing drainage pipes or culverts that will be replaced, curbs, gutters, walks and driveways and the cutting, removal and disposal of asphalt and concrete pavement. See Section R, "Restoration" for replacement of existing site features upon completion of the work.

The Contractor shall keep the trenches free from water.

Trench rock shall be excavated to a depth of six (6") inches below the pipe.

At least twenty (20') feet of trench shall be excavated in front of the laying of the pipe. No more than fifty (50') feet of trench shall remain open over night without the express approval of the Engineer.

Additional depth of trench shall be excavated as required to clear obstructions not shown on plans. Measurement for this extra depth shall be from a point one foot below the design invert of the pipe to the bottom of the excavation. There shall be no payment for the first foot of extra depth under the Section MEE, "Miscellaneous Earth Excavation". Payment for this first foot shall be included under this item.

SHEETING AND BRACING

Trenches shall be properly sheeted, shored and braced as necessary to prevent shifting of materials, to prevent damage to structures, pavement and pipes, and to provide safe working conditions. The Contractor shall be responsible for providing, installation and for the adequacy of all sheeting and bracing used and for all damage resulting from its failure or from placing, maintaining and removing it. No payment will be made for sheeting and bracing if it is removed, or if it is left in place for the Contractor's convenience. If the sheeting and bracing is ordered to be left in place by the Engineer after having been constructed, the Contractor shall be entitled to the cost of materials so left in place.

If there is a space between the sheeting and the side of the trench, the space shall be backfilled with suitable material thoroughly compacted in place. Where adjacent structures, pavement, or pipes may be damaged by the removal of sheeting, the Contractor shall not remove the sheeting. All sheeting left in place shall be cut off at least two (2') feet below the surface of the ground. Where sheeting or shoring is to be removed, the removal shall be in such a manner as to prevent loss of ground.

Attention is drawn to the New York State Department of Labor Industrial Code Rule #23, and O.S.H.A. regulations. Prefabricated sheeting boxes may be used only with the approval of the Engineer as to the box itself and the method of use.

PIPE FOUNDATION

The pipe shall rest on suitable material and a stable bottom. Soft, spongy or other unstable soil encountered at the invert established shall be excavated and removed. Excavation shall be for a width of one (1') foot outside the pipe and to a depth as called for by the Engineer. The pipe shall then receive a foundation of crushed stone, if required by the Engineer. The cost of this crushed stone shall be paid for under Section CSG, "Furnish and Place Crushed Stone or Gravel" except where in rock.

Excavation of the unstable bottom below the designed invert shall be under the Section MEE, "Miscellaneous Earth Excavation".

Measurement for this extra excavation shall be from a point one (1') foot below the invert of the pipe to the bottom of the excavation. There shall be no payment for the first foot of extra depth under the "Miscellaneous Earth Excavation" item. Payment for this first foot shall be included as part of this item.

HANDLING OF PIPE

The pipe shall be handled in a manner such that it will not be damaged or overstressed. Properly designed lifting apparatus shall be used in loading, unloading and lowering pipe into place for laying. Any type of mishandling or damage to the pipe during any phase of the work will be cause for rejection by the Engineer.

LAYING PIPE

The pipe shall be laid in the trench to conform accurately to the line and grade as called for on the plans. The pipe shall be laid on undisturbed ground supported throughout and shall have a uniform bearing from end to end. The use of blocks shall be strictly forbidden, except upon the express approval of the Engineer.

Pipes shall be deflected where indicated on the plans/or directed by the Engineer. Deflection shall be performed by the use of additional joints and/or elbows, as approved by the Engineer.

Where excavation has been made below the required grade, such areas shall be backfilled with suitable materials and compacted at the expense of the Contractor. All loose or unsuitable materials shall be removed from the trench bottom.

Where a line goes from one condition of bearing to another, as from rock cut to earth, or to gravel bed, special care is to be exercised to see that the less firm bearing ground is tamped and secure.

BACKFILLING

Backfill Material: Backfill shall be select granular well-draining material. It shall be free from rocks and hard lumps or clods larger than two (2") inches in diameter, sod, cinders, organic material and frozen fill. A small amount of silt or clay, less than 20 percent, is permissible. Unsuitable materials, as determined by the Engineer, shall be removed from the job site. Excess material and unsuitable material, excavated from the trench, shall be removed from the site by the Contractor as part of this item.

Backfill Around Pipe and Structures: After the pipe has been properly laid and inspected as required, the space between the pipe and the sides of the trench shall be filled to the top of the pipe in six (6") inch layers. Fill material under haunches and around the pipe must be placed alternately in six (6") inch layers on both sides of the pipe to permit thorough tamping. The fill is placed alternately to keep it at the same elevation on both sides of the pipe at all times. Tamping can be done with hand or mechanical equipment, tamping rollers or vibrating compactors, depending upon field conditions. It shall be done carefully to insure a thoroughly tamped backfill.

At this point the Engineer shall be notified and he shall inspect the pipes. Pipes, which in the opinion of the Engineer have deformed or joints which have opened, shall be excavated and satisfactorily repaired or replaced at no additional cost to the Town. After the Engineers approval the backfill operation shall continue, as described above to an elevation one (1') foot above the top of the pipe. The earth above this point shall be backfilled and compacted in nine (9") inch layers and addition of water may be required by the Inspector to achieve the required compaction.

Tamping Equipment:

Hand Equipment - For tamping under the haunches of a pipe or structure, a pole or 2 x 4 is generally needed to work in the small areas. Hand tampers for compacting horizontal layers should weigh not less than twenty (20) pounds and have a tamping face not larger than 6 x 6 inches. Ordinary "sidewalk" tampers are generally too light.

Mechanical Tampers - Most types of power tampers are satisfactory and can be used in all except the most confined areas. However, they must be used carefully and completely over the entire area of each layer to obtain the desired compaction. Avoid striking the structure or pipe with power tamping tools.

It shall be the responsibility of the Contractor to prevent water, earth, stone, sand or debris of any nature from entering the drain lines. Should any material accidentally enter the line, it shall be flushed or dragged until satisfactorily cleaned, and provision shall be made to catch all such matter before it can enter any drain.

INTERFERING STRUCTURES

The Contractor shall, under this Contract, and as called for in the General Conditions, sustain and protect from direct or indirect injury all pipes, poles, conduits, walls, buildings, roadways and other structures, utilities and property in the vicinity of his work. Such sustaining and supporting shall be carefully done by the Contractor and as required by the Company or party owning the structure. The Contractor shall take all risks attending their presence and he shall be responsible for all damage and assume all expense for direct or indirect injury caused by his work, to any of them or to any person or property by reason of injury to them whether such structures are or are not shown on the drawings.

Should the position of any pipe, conduit, pole or other structure, except structures and pipe specifically shown to be removed, be such as in the opinion of the Engineer to require its removal, realignment or change, such work will be done by the Owner of the obstruction without cost to the Contractor, but the Contractor shall uncover and support the structures, at his own expense, before and after such removal, realignment or change, as part of this contract; and the Contractor shall not be entitled to any claim for damage or extra compensation resulting from any delay in the removal or rearrangement of the same. Wherever so directed, the Contractor shall excavate test pits to locate subsurface obstructions or pipes.

INSPECTION

Pipes, which in the opinion of the Engineer have deformed or joints which have opened shall be excavated and satisfactorily repaired or replaced at no additional payments by the Town.

CLEANING PIPES

The Contractor shall prevent earth, stone, sand, or debris of any nature from entering the lines. Should any material enter the line, the line shall be flushed or dragged by approved methods until satisfactorily cleaned, and provision shall be made to catch all such matter before it can enter any drain lines.

MEASUREMENT

The quantity of pipe to be paid for under this item shall be the actual number of “LINEAR FEET” of pipe line, of the various sizes laid by the Contractor, as measured along the center line of the pipe from inside face to inside face of structures or to end sections without regard to the lengths of the individual pieces of pipe or cuts, or joints required.

The quantity will be “EACH” for the individual end section.

PAYMENT

The payment for this item shall be on a "LINEAR FOOT" of pipe and shall be "EACH" per end section. All work under this item shall include all labor, materials and equipment and other miscellaneous expenses including trench excavation and backfill, remove existing pipe, maintaining and sheeting the trench if required, furnishing and installing of polyethylene coupling bands, and for furnishing and laying the pipe as specified and shown on the plans.

Perforated Pipe shall include work necessary to complete Underdrains as shown in the plans. This work includes but is not limited to remove and dispose of surplus excavated materials, excavate and maintain the trench, properly install the pipe, polyethylene coupling bands, fittings, installation of filter fabric, crushed stone filter material, grading of swale and properly backfilled and tamp the trench as shown in plans and hereinafter specified.

CRUSHED STONE OR GRAVEL

WORK

Under this item the Contractor shall supply all labor, material and equipment required to furnish and place crushed stone or gravel as directed by the Engineer. This item will in general cover the use of the material placed to correct unsuitable subgrade conditions in earth or placed as a subbase for asphalt pavement or for use as a foundation for concrete structures and pipe but is not necessarily limited to these purposes.

Recycled or processed material shall not be acceptable for this item.

MATERIAL

All materials shall conform to the New York State Department of Transportation Standard Specifications dated May 1, 2008 and subsequent addenda, except that no limestone or crushed slag shall be permitted. Stone sizes referred to are as specified in Table 703-4 of the New York State Department of Transportation (NYSDOT) Specifications (703-0203, No. 1). The stone size to be supplied shall be as specified on the plan or as approved in the field by the Engineer. Item 304.12 (Item 4) shall meet NYSDOT Specification Table 304-1, Type 2.

METHOD

When unsuitable, unstable, mucky foundations for pipes, structures, or roadways are encountered, the Contractor shall notify the Engineer, who shall, if he so deems necessary, order the excavation of the muck to defined lines and grade. The Contractor shall then supply the material ordered by the Engineer and carefully place it within the area excavated. The material shall be placed in six (6”) inch layers and be compacted, in trenches by hand or mechanical tampers and in roadways by roller.

TESTING MATERIAL

The Engineer may, if he deems it necessary, take samples of the material supplied and have it analyzed to ascertain whether or not it fulfills the requirements of the specifications set forth.

If the material does not meet these specifications and has already been utilized in the construction, payment shall be reduced to fifty (50%) percent of the bid price and the Contractor shall pay for the cost of testing.

MEASUREMENT

Measurement shall be by the "CUBIC YARD" of the designated material actually placed within the payment limit lines ordered by the Engineer.

For stabilization of excavated areas, the measurement shall be within the following payment limit lines:

Length: The length measurement shall be the actual length of excavation ordered to be stabilized by the Engineer.

Width: The width measurement shall be one foot, on each side, outside the structure being installed irrespective of actual width of excavation or stabilized area.

Depth: The depth measurement for material placed shall be the depth of the excavation below the normal bottom pay limit for the bottom of a structure as ordered by the Engineer. In no case shall payment be made to depths excavated below those ordered by the Engineer. No payment shall be made for using stone or gravel to fill undercuts below the required grade when not ordered by the Engineer.

PAYMENT

The payment shall be at the unit price bid for the material shown on the plans or as designated by the Engineer which shall include all labor, materials and equipment necessary for furnishing the materials and for placing and preparing them in the excavated area as specified or directed.

No payment will be made under this item for gravel or crushed stone used to replace excavated rock. Such gravel or crushed stone shall be included in the unit price for rock excavation.

No payment will be made under this item for gravel or crushed stone used in connection with any item where this material is specified on the plans or in the specifications to be included as part of that item.

DEMOLITION AND REMOVAL

WORK

Under this item the Contractor shall furnish all labor, materials and equipment necessary to demolish and remove existing equipment and site features at the project site as required for the construction of the new work as shown on the Plans and specified herein. Any materials demolished for removal and not to be salvaged shall become the property of the Contractor and must be disposed of legally. The Contractor shall submit to the Engineer written permission from the owner of the proposed dump site prior to disposal. The items to be removed included under this section include, but not necessarily limited to, debris within the slope. Items under Demolition and Removal must be approved by the Engineer prior to removal.

The Contractor shall at the direction of the Engineer, salvage equipment and materials existing on the site. Any equipment to be salvaged shall be made known to the Contractor in the field prior to demolition operations. These items shall be delivered by the Contractor to a location within the municipality.

Blasting and the use of explosives will not be permitted for any demolition work.

This item shall not be used for other line items such as Corrugated Polyethylene Pipe (CPP), Drainage Structures (DS), Cobble Block Curb (CBC), or work to be paid under other line items.

CONDITION OF STRUCTURES

The Owner and the Engineer assume no responsibility for the actual condition of structures to be demolished and removed.

Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner insofar as practicable.

RULES AND REGULATIONS

The Building Code of the State of New York, shall control the demolition of structures.

DISPOSAL OF MATERIAL

All removed and demolished material and unwanted items of equipment and pipelines shall become the Contractor’s property and must be removed from the site. Any existing equipment to be salvaged shall be made known to the Contractor prior to demolition operations. The Contractor shall be responsible for the careful and proper removal of items to be salvaged and shall not cause damage due to excessive force in disconnecting and removing equipment. The Contractor shall

provide safe transportation of salvaged items to the Water Department or Highway Department or a location designated by the Engineer.

The dumping, burial, burning, storage, or sale of removed and demolished items on the site will not be allowed. All materials to be removed shall be disposed of in accordance with all applicable regulations.

SUBMITTALS

Submit to the Engineer for approval, a plan of the proposed methods and operations of demolition of the structures in accordance with the General Conditions prior to the start of demolition work.

TRAFFIC AND ACCESS

Conduct demolition operations, and the removal of equipment and debris to ensure minimum interference with abutting street and local traffic.

Special attention is directed towards maintaining safe and convenient access to the proposed facilities by the Owners' personnel and associated vehicles.

Do not close or obstruct streets, walks or other occupied or used facilities without permission from the Engineer. Provide alternate routes around closed or obstructed traffic in access ways.

PROTECTION

Conduct operations to minimize damage by falling debris or other causes to structures, roadways, and other facilities, including persons.

Exercise precautions for fire prevention. Acceptable fire extinguishers shall be available at all times in areas where demolition work by burning torches is being performed. Burning of demolition debris shall not be permitted on or near the site.

DAMAGE

Promptly repair damage caused to existing site features by demolition operations as directed by the Engineer and at no cost to the Owner. Repairs shall be made to a condition at least equal to that which existed prior to construction operations.

UTILITIES

Maintain existing utilities as directed by the Engineer to remain in service and protect against

damage during demolition operations.

Do not interrupt existing utilities except when authorized by the Engineer. Provide temporary services during interruptions to existing utilities as acceptable to the Engineer.

The Contractor shall be solely responsible for making all necessary arrangements and for performing any necessary work involved in connection with the discontinuance or interruption of all public and private utilities or services under the jurisdiction of the utility companies.

All utilities being abandoned shall be disconnected and terminated at the service mains in conformance with the requirement of the utility companies or the municipality owning or controlling them.

DUST AND NOISE CONTROL

The Contractor shall take all measures necessary to minimize the amount of dust and noise resulting from demolition activity.

MATERIALS

All materials or items of equipment required for the performance of the work of this Section shall be suitable for the intended purpose and shall be equal, where applicable, to similar items and materials specified in other sections of the technical specifications.

DEMOLITION

Demolition shall be performed to the limits shown on the Drawings or if no limits are shown, to a depth at least two (2') feet below final grade or two (2') feet below any new foundation or pipe.

Wet down work during demolition operations to prevent dust from arising. Provide maximum practical protection from inclement weather for materials, equipment and personnel.

Remove all existing work as indicated on the drawings and prepare adjoining areas for installation of new work. All demolition debris shall become the property of the Contractor and shall be removed from the site and properly disposed of by the Contractor. Demolition debris shall not be used for fill or backfill.

Blasting or the use of explosives will not be allowed for demolition work.

MEASUREMENT AND PAYMENT

The unit of measurement for payment shall be per "TON" amount for furnishing all labor,

materials and equipment and for performing all items of work complete as specified and shown on the plans. The cost shall be included with all other items within the specifications and shown on the plans. The Engineer shall verify material prior to export.

DRAINAGE STRUCTURES

WORK

Under this item the Contractor shall provide all labor, materials and equipment necessary to construct, rebuild, install, abandon, or remove all drainage structures, including catch basins, drain inlets, and control structures, as indicated on the plans and as specified. The Contractor shall supply all covers, grates, and frames, and also provide all pipe connections as required for a complete installation. The Contractor shall include connecting all existing pipe to the new drainage structures, which shall include all incidental work and material such as pipe, couplers, gaskets, etc.

The work shall include but not be limited to excavation, installation, and backfilling, maintenance of excavation area, dewatering and sheeting, supply and install subbase material, tamping and any incidentals necessary for a complete installation including cast iron castings and concrete lids.

Shop drawings with proposed elevations shall be submitted to the Engineer for approval prior to ordering materials.

Drainage Structure DMH #12 shall be cleared off and inspected by the Engineer. It shall be re-used if possible and connections to it shall be paid under Connection to Existing Drainage Structures (CEDS). Structure to be exposed prior to shop drawing submittals.

DESCRIPTION

Drainage structures shall conform in shape, size, dimensions, materials, and other respects to the details indicated on the drawings and as specified.

Drainage structures walls shall be precast concrete masonry units. The top of the structure (not to exceed 6 inches) shall be built of brickwork to permit adjustment of the frame to meet the finished surface.

Drainage structures sumps shall be one-piece precast concrete or concrete masonry units on cast in place or precast concrete bases with a minimum sump depth of eighteen (18”) inches, unless otherwise specified.

Unless otherwise specified or indicated, all concrete shall be 3,000 psi.

The cast iron frames and grates shall be standard as indicated on the drawings and as specified.

PRECAST CONCRETE MASONRY UNITS

Precast concrete masonry units shall be machine made solid segments, conforming to ASTM C139 “Standard Specification for Concrete Masonry Units for Construction of Catch Basins and

Manholes", with the following exceptions and additional requirements:

- Type II cement shall be used except as otherwise permitted.
- The width of the units shall be as indicated on the drawings.
- The inside and outside surfaces of the units shall be curved to the necessary radius and so designed that the interior surfaces of the structures shall be cylindrical, except the top batter courses shall be designed to reduce uniformly the inside section of the structure to the required size and shape at the top.
- Units shall be designed such that only full-length units are required to lay any one course.
- Acceptance of the units will be on the basis of material tests and inspection of the completed product.

PRECAST CONCRETE SUMPS

Precast concrete sumps shall conform to the ASTM C478 "Standard Specifications for Precast Reinforced Concrete Manhole Sections", with the following exceptions and additional requirements:

- The wall section shall be not less than six (6") inches thick.
- Type II cement shall be used except as otherwise permitted.
- Sumps shall be cured by subjecting them to thoroughly saturated steam at a temperature between 100- and 130-degrees Fahrenheit for a period of not less than twelve (12) hours or, when necessary, for such additional time as may be needed to enable the sections to meet the strength requirements.
- No more than two lift holes may be cast or drilled in each sump.
- Acceptance of the sumps will be on the basis of material tests and inspection of the completed product.

All holes in sumps used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose or with mortar. The mortar shall be one (1) part cement to 1-1/2 parts sand, mixed slightly damp to the touch (just short of "balling"), hammered into the holes until it is dense and an excess of paste appears on the surface, and then finished smooth and flush with the adjoining surfaces.

BRICK

The brick shall be sound, hard, and uniformly burned brick, regular and uniform in shape and size, or compact texture, and satisfactory to the Engineer. Brick shall comply with the ASTM C32 "Standard Specification for Sewer and Manhole Brick (made from Clay or Shale)", for Grade SS, hard brick, except that the mean of five (5) tests for absorption shall not exceed eight (8%) percent by weight.

Rejected brick shall be immediately removed from the work.

MORTAR FOR BRICKWORK

The mortar shall be composed of Portland cement, hydrated lime, and sand, in which the volume of sand shall not exceed three times the sum of the volume of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense, hard-burned brick to 1:3/4 for softer brick. In general, mortar for grade SS Brick shall be mixed in the proportions of 1:1/2:4-1/2.

Cement shall be Type II Portland cement as specified for concrete masonry.

Hydrated lime shall be Type S conforming to the ASTM C207 "Standard Specification for Hydrated Lime for Masonry Purposes".

MORTAR FOR MASONRY UNITS

The mortar shall be composed of one (1) part Portland cement and two (2) parts of sand by volume with sufficient water to form a workable mixture. Cement and sand shall be as specified for mortar for brickwork.

LAYING BRICKWORK AND MASONRY UNITS

Only clean units shall be used. Bricks shall be moistened by suitable means, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid. Concrete masonry units shall be dry when laid.

Each brick shall be laid in a full bed and joint of mortar without requiring subsequent grouting, flushing, or filling, and shall be thoroughly bonded.

Each concrete masonry unit shall be laid in a full bed and joint of mortar and shall be thoroughly bonded. Vertical keyways shall be completely filled with mortar.

PLASTERING AND CURING BRICK MASONRY

Outside faces of brick masonry shall be plastered with mortar from 1/4 inch to 3/8 inch thick. If required, the brick masonry shall be properly moistened prior to application of the mortar. The plaster shall be carefully spread and troweled. After hardening, the plaster shall be carefully checked by tapping for bond and soundness. Unbonded or unsound plaster shall be removed and replaced.

Brick masonry and plaster shall be protected from too rapid drying by the use of burlaps kept moist, or by other acceptable means, and shall be protected from the weather and frost, all as required.

DRAINAGE STRUCTURES FRAMES AND GRATES

The Contractor shall furnish and install all cast iron drainage structures frames and grates conforming to the details indicated on the drawings and as specified.

The castings shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sand holes, and defects, of every nature which would render them unfit for the service for which they are intended. Contact surfaces of grates and frame seats shall be machined to prevent rocking of grates.

All castings shall be thoroughly cleaned and subject to a careful hammer inspection.

Castings shall be at least Class 25 conforming to the ASTM A48 “Standard Specifications for Gray Iron Castings”.

Before being shipped from the foundry, castings shall be given one coat of coal-tar pitch varnish, applied in a satisfactory manner so as to make a smooth coating, tough, tenacious, and not brittle nor with any tendency to scale off.

Unless otherwise specified or indicated on the drawings, castings in paved areas shall be capable of withstanding H-20 loading and shall meet the requirements of the municipality in which they are installed.

SETTING COVERS, GRATES, AND FRAMES

Cover and grates shall be set with the tops conforming accurately to the grade of the pavement or finished ground surface, or as indicated on the drawings or as directed.

Circular frames shall be set concentric with the top of the masonry. All frames shall be set in a full bed of mortar such that the space between the top of the masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed around the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

Grates or covers shall be left in place in the frames on completion of all other work at the structure.

DRAINAGE STRUCTURES ADJUSTED TO GRADE

Existing drainage structures tops shall be adjusted to line and grade as indicated on the drawings or as directed by the Engineer. All drainage structures adjusted to grade shall be provided with brick as required for new catch basins.

MEASUREMENT AND PAYMENT

The quantity of drainage structures to be paid for under this item shall be the number of "EACH" drainage structures constructed, in accordance with the plans and specifications and directions of the Engineer. The price bid shall be a unit price per drainage structures in place with grates and frames and for providing all pipe connections required for a complete installation and shall include furnishing all labor, materials and equipment to complete all work.

EROSION CONTROL DEVICES

WORK

Under this item the Contractor shall furnish all labor, materials and equipment required to furnish and install erosion control devices in accordance with the plans and specifications and any supplementary measures deemed necessary by the Engineer to minimize erosion and prevent sediment laden runoff from leaving the construction site. The Contractor shall maintain all devices during construction and shall remove and dispose of all erosion control devices upon stabilization of soils and/or completion of construction as directed by the Engineer.

This section includes the temporary construction entrance, silt fence, and erosion control mats or temporary stabilization.

METHOD

The Contractor shall install erosion control devices in conformance with the standards in the latest edition of the "New York State Standards and Specifications for Erosion and Sediment Control".

Control measures shall be in place as shown on the plans prior to the start of construction. Finished grades shall be established as quickly as possible and slopes stabilized with topsoil, erosion control matting, straw, mulch and seed or with sod as described in related specifications. This work will be paid for separately under its own bid item.

MATERIALS

The Contractor shall provide temporary erosion control devices as required and as shown on the plans to filter sediment laden runoff from areas disturbed by construction.

Inlet protection devices shall be installed at all catch basins in order to filter sediment laden runoff entering the drainage system.

MAINTENANCE

Erosion control measures shall be inspected after each rainfall and shall be cleaned, repaired or replaced as required or as directed by the Engineer. Sediment shall be removed from downgrade if it is transported beyond the construction site.

MEASUREMENT AND PAYMENT

The measurement and payment for this item shall be the number of "EACH" inlet protections

installed in accordance with the plans and specifications and directions of the Engineer. The price bid shall be a unit price per inlet protection and shall include installation, maintenance, and replacement as required for the protection of stormwater structure inlets.

The measurement and payment for any additional erosion and control devices shall be included in the "LUMP SUM" amount bid for furnishing all labor, materials and equipment necessary for the proper and complete installation of the improvements and appurtenances including all incidentals as specified and shown on the plans.

A payment of up to fifty (50%) percent may be paid upon installation of the erosion controls. The remaining fifty (50%) may be paid only upon the completion of the project, final site stabilization, and approval of the Engineer.

MISCELLANEOUS EARTH EXCAVATION

WORK

Under this item the Contractor shall do all excavation not specifically included in other items and necessary for the completion of the work including test pits, extra width of trench, extra depth of trench, or other miscellaneous excavation, where such excavation is done at the direction of the Engineer.

METHOD

Such excavation shall be made and be subject to the same conditions and requirements as specified under the trench excavation paragraph of the appropriate item of construction in these specifications.

When test pits are directed to be excavated within the trench lines and ordered to be backfilled before the pipe is laid, such excavation will be included for payment under this item. If the test pit is dug and is used in the normal procedure of the work for installation of pipes or structure before final backfilling there shall be no payment under this item. Test pits may be dug by the Contractor, without being directed to do so along the lines of the trenches, in advance of the regular excavation, for the purpose of satisfying himself as to the location of underground obstructions or conditions, at the Contractor's own expense.

MEASUREMENT AND PAYMENT

Payment will only be made under this item when additional excavation is made at the specific direction of the Engineer.

The quantity of earth to be paid for under this item shall be the cubic yards of earth excavated in accordance with orders, within the payment limit lines set forth below.

Measurement of test pits shall be the size and depth directed by the Engineer. Test pits required by the Contractor to determine utility location, are at the expense of the Contractor and shall be included in the cost of other items of work in this Contract.

When, during the progress of the work, the trench lines are relocated at the direction of the Engineer, without abandoning any trench, already excavated, the revised trench lines will constitute the trench payment lines referred to herein, and no additional payment will be made under this item. If, however, the relocation of the trench lines results in the abandoning of trench already excavated, such excavation within the abandoned trench payment lines, and outside of the relocated trench payment lines will be included for payment under this item.

The unit price bid for this item shall include the cost of furnishing all labor, materials and equipment necessary to complete all miscellaneous earth excavation as directed by the Engineer.

MAINTENANCE AND PROTECTION OF TRAFFIC

WORK

Under this item the Contractor shall furnish all labor, materials and equipment required to protect and maintain pedestrian and vehicular traffic. The work shall include providing flaggers, lighted barricades, excavation bridges and proper temporary traffic signage during construction as specified hereinafter and as directed by the Engineer.

METHOD

The Contractor shall maintain and protect traffic by so conducting his construction operations that the traveling public is subjected to a minimum of delay and hazard.

Residents along the existing roads and those having business along them shall have safe means of ingress and egress at all times. Traffic shall be maintained at the intersections of all roads or streets crossing the road construction. Where directed by the Engineer, the Contractor shall provide such adequate and proper bridges over excavations as may be necessary or directed for the purpose of accommodating pedestrians or vehicles.

In the event any portion of a public road must be closed to traffic, permission shall be secured by the Contractor from the Engineer and Highway Department and written notice must be given by the Contractor to the Police and Fire Departments, and adequate detour signs posted. Any other public services effected by the road closing must also be notified by the Contractor in writing.

Approved traffic control devices in accordance with the New York State Manual of Uniform Traffic Control Devices shall be provided along all highways while work is in progress. Where traffic direction is required, flaggers shall be designated by the Contractor to direct traffic past the construction equipment, machinery or construction operations. Construction equipment shall be removed entirely from the traveled roadway when work is shut down for the day and two lanes of traffic shall be maintained at night.

Barricades shall be placed wherever the safety of the traveling public requires, where a road is officially closed, where an excavation is being made, or where heavy construction equipment is operating. In addition, barricades shall be placed where they are deemed necessary, in the opinion of the Engineer, Highway Superintendent or the Chief of Police, to direct traffic or to prevent entrance to streets or areas where construction is in progress.

MEASUREMENT AND PAYMENT

There will be no separate payment made under this item. All costs related to this work shall be included in the cost of other items of work in this contract. The Contractor shall provide adequate flaggers, barricades, bridging, signage, etc., for the safe operation of construction activities.

POLYVINYLCHLORIDE SEWER AND DRAINAGE PIPE AND FITTINGS

WORK

Under this item the Contractor shall furnish all labor, materials, equipment and incidentals required to install and test PVC piping and fittings of the sizes shown on the Plans and as specified herein.

MATERIALS

The polyvinylchloride pipe and fittings, including those required for stubs, shall conform to ASTM Standard Specification for Type PSM Poly Vinyl Chloride (PVC) Pipe and Fittings, Designation D3034-71C. The pipe shall have pipe diameter to wall thickness ratio (SDR) of a maximum of 35.

Straight pipe shall be furnished in lengths of not more than thirteen (13') feet, and Y-branches shall be furnished in lengths of not more than three (3') feet. Saddle Y-branches will not be allowed.

Specials, if required, shall conform to the specifications for straight pipe insofar as applicable and to the details indicated on the drawings or bound into the back of the specifications.

Fittings, specials, unions, and flanges shall be of the same schedule number and manufactured of the same materials as the pipe.

Incidental work includes the cast iron pipe from 5 feet (5') outside the building to the concrete septic tank and the pipe between tanks. The Contractor shall also include the force main from the pump chamber to the distribution box with this item.

DESCRIPTION OF SYSTEM

Piping shall be installed in those locations as shown on the Drawings and specified below.

The equipment and materials specified herein are intended to be standard types of plastic sewer pipe and fittings for use in transporting wastewater.

QUALIFICATIONS

All plastic pipe and fittings shall be furnished by a single manufacturer who is experienced in the manufacture of the items to be furnished. The pipe and fittings shall be designed, constructed, and installed in accordance with the best practices and methods and shall be suitable for the intended service.

JOINTS

Joints for the polyvinylchloride pipe shall be push-on joints using factory-installed elastomeric ring gaskets. The gaskets shall be securely fixed into place by the manufacturer so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial wastes, including oils and groundwater, and which will endure permanently under the conditions of the proposed use. The joints shall conform to ASTM Standard Specifications for Joints for Drain and Sewer Plastic Pipes using Flexible Elastomeric Seals, Designation D3212-76.

INSPECTION, TESTS, AND ACCEPTANCE

All pipe delivered to the job site shall be accompanied by test reports certifying that the pipe and fittings conform to the above-mentioned ASTM specifications. In addition, the pipe shall be subject to thorough inspection and tests, the right being reserved for the Engineer to apply such tests as he deems necessary.

All tests shall be made in accordance with the methods prescribed by the above-mentioned ASTM specifications, and the acceptance or rejection shall be based on the test results.

The Contractor shall furnish all labor necessary to assist the Engineer in inspecting the pipe. Pipe will be inspected upon delivery, and such as does not conform to the requirements of this contract shall be rejected and shall immediately be removed by the Contractor.

HANDLING PIPE

All pipe shall be stored at the site until installation in a manner acceptable to the Engineer which will keep the pipe at ambient outdoor temperatures. Temporary shading shall be provided as required to meet this requirement. Simply covering the pipe or structures which allows temperature buildup when exposed to direct sunlight will not be permitted.

Each pipe unit shall be handled into its position in the trench only in such manner, and by such means as acceptable to the Engineer. Care shall be taken to avoid damaging the pipe and fittings.

INSTALLATION

The installation of plastic pipe shall be strictly in accordance with the manufacturer's technical data and printed instructions. Each pipe unit shall be inspected before being installed. No defective pipe shall be laid or placed in the piping, and any piece discovered to be defective after having been laid or placed shall be removed and replaced by a sound and satisfactory piece. Each pipe shall be cleared of all debris, dirt, etc., before being laid and shall be kept clean until accepted in the completed work.

Pipe shall be laid accurately to the lines and grades indicated on the drawings or required. Care shall be taken to ensure a good alignment both horizontally and vertically.

In buried pipelines, each pipe shall have a firm bearing along its entire length.

The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16 inch per foot of length. If a piece of pipe fails to meet this requirement for straightness, it shall be rejected and removed from the site. Any pipe unit or fitting discovered to be defective either before or after installation shall be removed and replaced with a sound unit.

Except as otherwise indicated on the drawings, the pipe shall be supported by compacted crushed stone. No pipe or fitting shall be permanently supported on saddles, blocking, or stones. Crushed stone shall be provided as outlined in specification "FURNISH AND INSTALL CRUSHED STONE AND GRAVEL" and as shown on the plans or as directed by the Engineer.

Suitable bell holes shall be provided, so that after placement, only the barrel of the pipe receives bearing pressure from the supporting material.

Before any joint is made, the previously installed unit shall be checked to assure that a close joint with the adjoining unit has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to the required grade by striking it with a shovel handle, timber or other unyielding object.

All joint surfaces shall be cleaned. Immediately before joining the pipe, the bell or groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. Suitable devices shall be used to force the pipe units together so that they will fit with a minimum open recess inside and outside and have tightly sealed joints. Care shall be taken not to use such force as to wedge and split the bell or groove ends.

Joints shall not be "pulled" or "cramped" unless permitted by the Engineer.

Where any two pipe units do not fit each other closely enough to enable them to be properly jointed, they shall be removed and replaced with suitable units and new gaskets. Details of gasket installation and joint assembly shall follow the directions of the manufacturers of the joint material and of the pipe, all subject to review by the Engineer. The resulting joints shall be watertight and flexible.

All premolded gasket joint polyvinylchloride pipe of a particular manufacturer may be rejected if there are more than five unsatisfactory joint assembly operations or "bell breaks" in 100 consecutive joints, event though the pipe and joint conform to the appropriate ASTM Specifications as hereinbefore specified. If the pipe is unsatisfactory, as determine above, The Contractor shall, if

required, remove all pipe of that manufacturer of the same shipment from the work and shall furnish pipe from another manufacturer which will conform to all of the requirements of these specifications.

Open ends of pipe and branches shall be closed with polyvinylchloride stoppers secured in place in an acceptable manner.

After each pipe has been properly bedded, enough gravel shall be placed between the pipe and the sides of the trench, and thoroughly compacted, to hold the pipe in correct alignment. Bell holes, provided for jointing, shall be filled with screened gravel and compacted, and then screened gravel shall be placed and compacted to complete the pipe bedding, as indicated on the drawings.

The Contractor shall take all necessary precautions to prevent flotation of the pipe in the trench.

At all times pipe installation is not in progress, the open ends of the pipe shall be closed with temporary watertight plugs, or by other acceptable means. If water is in the trench when work is to be resumed, the plug shall not be removed until suitable provisions have been made to prevent water, earth, or other substances from entering the pipe.

Pipelines shall not be used as conductors for trench drainage during construction.

Installation of valves and fittings shall be strictly in accordance with manufacturer's instructions. Particular care shall be taken not to overstress threaded connections.

All piping shall have a sufficient number of unions to allow convenient removal of piping and shall be as approved by the Engineer.

Where plastic pipe passes through wall sleeves, the space between the pipe and sleeve shall be sealed with a mechanical sealing element.

All plastic pipe to metal pipe connections shall be made using flanged connections. Metal piping shall not be threaded into plastic fittings, valves, or couplings nor shall plastic piping be threaded into metal valves, fittings or couplings. Only socket to thread adaptors shall be used for threaded connections.

ALLOWABLE PIPE DEFLECTION

Pipe provided under this specification shall be so installed as to not exceed a maximum deflection of 3.5 percent. Such deflection shall be computed by multiplying the amount of deflection (nominal diameter less minimum diameter when measured) by 100 and dividing by the nominal diameter of the pipe.

Upon completion of a section of sewer, including placement and compaction of backfill, the

Contractor shall measure the amount of deflection by pulling a specially designed gauge assembly through the completed section. The gauge assembly shall be in accordance with the recommendations of the pipe manufacturer and be acceptable to the Engineer.

Should the installed pipe fail to meet this requirement, the Contractor shall do all work to correct the problem as the Engineer may require without additional compensation.

CLEANING

Care shall be taken to prevent earth, water, and other materials from entering the pipelines. As soon as possible after the pipe and manholes are completed, the Contractor shall clean out the pipeline and manholes, being careful to prevent soil, water, and debris from entering any existing sewer.

CUTTING PAVEMENT

Before making any excavation, the Contractor shall cut the edge of the trench. Ripping of pavement by means of excavating equipment will not be permitted.

In the case of asphalt pavement, cutting of the edge shall be done by means of pneumatic drill with spade-shaped bit.

Concrete pavement may initially be cut by pneumatic drill or by a concrete saw. Cuts in concrete pavement for final permanent pavement must be made by a concrete saw.

EXCAVATION OF TRENCH

The Contractor shall excavate a trench to the depth shown on the profiles and to a width one (1') foot outside the pipe. Enlargements shall be made at the joints to permit proper installation. The Contractor shall not use equipment which will excavate a trench wider than that specified. Hand excavation shall be employed wherever in the opinion of the Engineer, it is necessary for the protection of existing utilities, trees, pavements or other structures.

All excavation shall be by open cut method unless tunneling is authorized by the Engineer.

Excavation of the trench under this item shall include all necessary removal of curbs, gutters, walks and driveways and the cutting and removing of asphalt pavement.

The Contractor shall keep the trenches free from water. This shall be done as part of this item. If under draining is required by the plans or specifications or authorized by the Engineer, it shall be provided.

At least twenty (20') feet of trench shall be excavated in front of the previously laid pipe. Trenches shall not remain open overnight without the express approval of the Engineer. Additional depth of trench shall be excavated as required to clear obstructions not shown on the plans.

SHEETING AND BRACING

Trenches shall be properly sheeted, shored and braced as necessary to prevent shifting of materials, to prevent damage to structures, pavement and pipes, and to provide safe working conditions. The Contractor shall be responsible for providing and installing and for the adequacy of all sheeting and bracing used and for all damage resulting from its failure or from placing, maintaining and removing it. If the sheeting and bracing is ordered to be left in place by the Engineer after having been constructed, the Contractor shall be entitled to the cost of materials so left in place. If the sheeting and bracing is ordered to be left in place before being constructed, the Contractor shall be entitled to payment in accordance with GENERAL CONDITIONS, Section 112, Changes in the Work.

If there is a space between the sheeting and the side of the trench, the space shall be backfilled with suitable material thoroughly compacted in place. Where adjacent structures, pavement, or pipes may be damaged by the removal of sheeting, the Contractor shall not remove the sheeting. All sheeting left in place shall be cut off at least two (2') feet below the surface of the ground. Where sheeting or shoring is to be removed, the removal shall be in such a manner as to prevent loss of ground.

Attention is drawn to the New York State Department of Labor Industrial Code Rule #53, and O.S.H.A. regulations. Prefabricated sheeting boxes may be used only with the approval of the Engineer as to the box itself and the method of use.

PIPE FOUNDATIONS

The pipe shall rest on suitable material and a stable bottom. Soft, spongy or other unstable soil encountered at the invert established shall be excavated and removed. Excavation shall be for a width of two (2') feet plus the outside diameter of the pipe and to a depth as called for by the Engineer. The pipe shall then receive a foundation of crushed stone, washed gravel, concrete mattress, or such precaution as directed by the Engineer. Stabilization of the trench or other means of pipe support shall be under its own item. Additional depth of trench shall be excavated as required to remove any unsuitable material to provide a stable base.

The pipe shall be handled in a manner such that it will not be damaged or overstressed. Properly designed lifting apparatus shall be used in loading, unloading and lowering pipe into place for laying. Any type of mishandling or damage to the pipe during any phase of the work will be cause for rejection by the Engineer.

The pipe shall be laid in the trench to conform to the line and grade as called for on the plans, providing a minimum of four (4') feet of cover except as otherwise noted. Each pipe shall be laid on

undisturbed ground supported throughout with depressions dug to receive bells and the entire barrel or pipe shall have a uniform bearing from end to end. The use of blocks shall be strictly forbidden, except upon the express approval of the Engineer.

Where excavation has been made below the required grade, such areas shall be backfilled with suitable materials and compacted at the expense of the Contractor. All loose or unsuitable materials shall be removed from the trench bottom.

Where a line goes from one condition of bearing to another, as from rock cut to earth, or from concrete mattress to gravel bed, special care is to be exercised to see that the less firm bearing ground is tamped and secure. Short lengths of pipe may be required in areas where bearing changes.

Cutting of pipe for inserting valves, fittings, and closure pieces shall be done by the Contractor in a neat workmanlike manner. PVC pipe shall be cut only by means of saws, hack saws, wheel type cutters, or milling type cutters. Cuts shall be made carefully by approved methods to produce clean, square cuts, to prevent damage to pipe and to avoid waste. Pipe damaged by the Contractor by improper or careless methods of cutting shall be replaced at his expense.

Deflections of joints shall not exceed the maximum deflection recommended by the pipe manufacturer, unless ordered by the Engineer.

BACKFILLING

After the pipe has been properly laid and inspected as required, the space between the pipe and the sides of the trench shall be filled to the middle of the pipe with selected materials free from stones and carefully rammed under and around the pipe to give it a firm foundation. Then the trench shall be filled to a point at least one (1') foot above the pipe with earth free from stones, and carefully rammed so as not to disturb the pipe to a compaction at least equal to the surrounding earth. The earth above this point shall be backfilled and compacted in nine (9) inch layers and addition of water may be required by the Inspector to achieve the required compaction. No stones larger than two (2) cubic feet shall be allowed in trench backfill within three (3) feet of the pipe. Unsuitable materials excavated from the trench shall not be allowed as backfill and shall be replaced by suitable material, as approved by the Engineer, under this item.

Unsuitable material shall be as determined by the Engineer and shall include, but not be limited to such materials as, organic materials, roots, stumps, rocks, or bony backfill, clay silt, mud, wood, concrete slabs, or frozen soil.

Excess material and unsuitable material, excavated from the trench, shall be removed from the site as part of this item.

It shall be the responsibility of the Contractor to prevent water, earth, stone, sand or debris of any nature from entering the sewer lines. Should any material accidentally enter the line, it shall be

flushed until satisfactorily cleaned.

SUBMITTALS

Shop drawings including piping layouts and schedules shall be submitted to the Engineer in accordance with GENERAL CONDITIONS and shall include dimensioning, fittings, locations of valves and appurtenances, joint details, methods and locations of supports, and all other pertinent technical specifications for all piping to be furnished. The drawings shall be fully dimensioned and contain schedules of all pipe, fittings, valves, equipment, special castings, and other appurtenances. Shop drawing submittals for piping under this Section shall include all data and information required for the complete piping systems. All dimensions shall be based on the actual equipment to be furnished.

MEASUREMENT AND PAYMENT

The measurement for the quantity of pipe to be paid for under this item shall be the actual number of "LINEAR FEET" of pipe line, of the various sizes laid by the Contractor as measured along the center line of the pipe from joint to joint without regard to the lengths of the individual pieces of pipe or cuts, or joints required.

The payment for this item shall be on a linear foot basis and shall include all labor, materials, and equipment and any miscellaneous expenses for saw cutting concrete and asphalt, removal and disposal of excavated material and existing water mains, excavation and backfilling, tamping; for maintaining and sheeting the trench, for furnishing and laying of the pipe with all required jointing materials.

RESTORATION

WORK

Under this item the Contractor shall provide all the labor, material, and equipment necessary to restore the site to its original condition. All man-made and natural features in the construction site disturbed or removed for the proper completion of the work shall be reset or replaced. All man-made or natural features damaged or destroyed shall be repaired or restored to a condition equal to or better than that existing at the start of the work, with materials equal to or better than the original ones.

Physical features damaged outside the limits of the work, as determined by the Engineer, shall be repaired as described in the "GENERAL CONDITIONS".

Restoration of utility lines of private companies or municipalities is covered under the "GENERAL CONDITIONS" and is not included as part of this item.

SCOPE

After the new work in an area has been completed, tested and accepted, or when ordered by the Engineer, the restoration of all the man-made and natural features disturbed shall proceed.

These features are of the general types outlined below but not necessarily limited to these specific items, as this specification item covers all required restoration work within these general categories:

Trees, shrubbery and bushes.

Gardens (rock gardens, flowers, annual, perennials, etc.) with all soils and mulches.

Ground Covers (pachysandra, myrtle, phlox, ivy, etc.) with all soils and mulches.

Lawns (fescues, bluegrasses, perennial ryes, zoysia, etc.) with all topsoil or sod. See paragraph "GRASS AREAS" below.

Walls and Wall Footings (stone, masonry, brick, dry bound, etc.).

Fences (chain link, picket, board, barbed wire). This shall include such new work as footings, guys or braces as may be required to secure work.

Sidewalks, Pathways, Patios (concrete, flagstone, crushed stone, precast slab, brick, gravel, slate, terrazzo, tile). The Contractor shall provide all labor, materials and equipment required to restore all concrete walkways and sidewalks etc. intersecting the new work as specified on the plans and as directed by the Engineer. The work shall include furnishing crushed stone, concrete and any other replacement material required to restore the disturbed area to the satisfaction of the Engineer.

Curbs and curb footings (concrete, asphalt, granite, stone, brick, metal, etc.).

Driveways (Concrete, slab, gravel, crushed stone and asphalt). The Contractor shall supply all labor, material and equipment required to restore all driveways intersecting the new work as specified on the plans and as directed by the Engineer. The work shall include furnishing and installing crushed stone or gravel, bituminous top course, concrete and reinforcing material, etc. to repave the surface to existing grade.

Private Underground Utilities (footing drains, roof leader drains, dry wells, private electric cables, sprinkler system, swimming pool appurtenances, septic fields, etc.).

Front or Rear Yard Man-Made Features (mail boxes, sign posts, lamp posts, dog houses, bird baths, pigeon coops, storage sheds, fireplaces, barbecue pits, trash burning pits, playing courts, religious creches, awnings, gates, wells, etc.) can best be handled if they are carefully removed and replaced after the construction. Those disturbed, damaged, or destroyed shall be reset, repaired, or replaced.

EQUIVALENT ITEMS

All features damaged or destroyed shall be repaired or restored with features equal to or better than the original ones. The Contractor shall make all reasonable attempts to satisfy the Owner but the Engineer shall be the judge as to the reasonableness of equivalency of repaired and restored features.

In cases where it is impossible to replace an item with an equivalent item (large trees, exotic plants), the Contractor may substitute other similar items whose total value shall equal that of the destroyed one. This shall be done to the satisfaction of the Owner. In such cases the Contractor shall secure a written release from the home stating that he is accepting a substitute for the destroyed item and that he releases the Contractor and the Owner from further claims for said item. The Engineer shall be the judge of the value of the destroyed and the value of the restored items and the reasonableness of the substitution.

GRASS AREAS

Immediately after backfilling, grass areas shall be temporarily restored using fast germinating annual or perennial rye grass seed. The patched area shall be watered as necessary to insure proper germination.

All disturbed grass areas shall be permanently replaced during the planting seasons from April 7th to May 15th and from August 25th to October 1st as follows:

Harrow the ground. Remove weeds and other undesirable growth.

Furnish and place a minimum of four (4”) inches of screened topsoil obtained from a local nursery.

Rake and grade topsoil to match adjoining area; the Engineer is to approve the grading before fertilizing and seeding.

Furnish and place 15 lbs. of fertilizer containing ten (10) parts Nitrogen, six (6) parts of Phosphoric Acid and four (4) parts of Potash (10-6-4) to every 1,000 square feet of area.

Furnish and place 10 lbs. of grass seed mixture to every 1,000 square feet of area containing, by percentage of weight, the following seed (NYSDOT Standard Specifications):

For Roadside areas, use:

50-70%	Fine Fescue (*Festuca rubra*), 2 varieties min., including "creeping red"
15-40%	Perennial Ryegrass (*Lolium perenne*), 2 varieties min., "turf" type
5-15%	Annual Ryegrass (*Lolium multiflorum*)
5-10%	White Clover (*Trifolium repens*), other varieties may be acceptable

For Lawn areas, use:

30-50%	Fine Fescue (*Festuca rubra*), 2 varieties min., including "creeping red"
15-40%	Kentucky Bluegrass (*Poa pratensis*), 3 varieties min.
15-40%	Perennial Ryegrass (*Lolium perenne*), 2 varieties min., "turf" type
5-15%	Annual Ryegrass (*Lolium multiflorum*)

If the above mixtures are unavailable, the Contractor shall request permission to utilize a specific comparable mixture.

The Contractor shall water the new grass until the grass reaches a stand of four (4") inches.

The Contractor shall be responsible for all restored grass areas until final acceptance by the Owner. He shall regrade, reseed, refertilize, etc., any grass that has failed to maintain a dense stand of any area that has lost its grade due to settlement of the trench. The finished restored area shall be free of weeds and shall have the same density of grass as the adjoining areas.

In lawn areas that contain Zoysia grasses, the Contractor shall replace the area with the same.

In lieu of the above method placing topsoil and seeding, the Contractor may substitute sodding at his own option and at no extra cost to the Owner.

PROTECTION OF TREES

Tree trunks are to be protected with heavy wooden fences. All trees in the vicinity of construction activity are to be secured, in a manner acceptable to the Engineer, to prevent toppling. The Contractor shall avoid cutting more than one-third (1/3) of a tree root system, as measured by the perimeter of the canopy. The Contractor shall avoid cutting roots greater than one (1") inch in diameter. Under low canopy trees the Contractor shall modify the vertical extension of the

construction equipment boom to avoid injury to the low tree branches. Construction equipment movement in the vicinity of trees shall be kept to a minimum to avoid compaction of the soil around the trunks of trees. During backfill operations the Contractor shall avoid excessive tamping of earth around tree roots and trunks and shall apply an approved mulch to the roots during the operation.

MAINTENANCE

All work done as part of this item shall be maintained for a period of two (2) years after completion of the project by this contract and secured by the maintenance bond.

Trenches that have settled shall be refilled to the proper grade. If this refilling operation disturbs the previous restoration of lawns, etc., the lawns, etc., shall again be restored to their original condition under this item and at no additional cost to the Owner.

Items replaced, replanted or restored shall be protected to ensure their proper establishment. This protection may take any form required, such as guying, wrapping, covering, barricading, shoring, signage, etc.

REGRADING SURFACES TO FINISHED GRADE

In some instances, grading by machines will not be considered as properly or satisfactorily graded to the required finished grades. In these instances, hand grading such as raking, rolling, trimming, etc., will be ordered by the Engineer to complete the work satisfactorily.

DELETION OR ADDITION OF WORK

If the alignment of a pipe line is changed and it results in an increase or decrease of restoration work, adjustment of payment for this item shall be made. In general, the adjustment shall be based on the proportion that the change bears to the total of all the restoration work and the bid price for this item. For any increase in the work, the increase in payment shall in no case exceed the cost of labor, materials and equipment plus percentage allowances computed as outlined in "GENERAL SPECIFICATIONS" section "CHANGES IN THE WORK, COST-PLUS BASIS".

RELEASES

The Owner may require the Contractor to obtain a written release from any or all private property owners and/or public agencies as to satisfactory restoration of easement or permit areas, or written acceptance of other considerations or substitutions in lieu of such satisfactory restoration. Final payment may be withheld pending receipt of such releases.

MEASUREMENT AND PAYMENT

No measurement for payment under this item shall be made, as this item includes all work or materials that may be required to restore the site.

Deductions shall be made for work improperly or unsatisfactorily done. The Owner reserves the right to use such funds to hire other contractors to properly complete the work.

Payment for this item shall be included in the base bid for all other items in this Contract, whether called for on the plans or not, as required to restore the site to its original condition. The price bid shall include the cost of furnishing all labor, materials and equipment necessary to complete the work as specified herein, and to maintain it.

If any restoration work is covered by a separate item listed on the proposal sheet, it shall be paid for under such item and shall not be included under this item.

REINFORCED CONCRETE

WORK

Under this item the Contractor shall furnish all labor, materials and equipment necessary to completely install reinforced concrete structures in accordance with the plans and as specified herein.

The work shall include but not be limited to saw cutting concrete and asphalt, removal and legal disposal of concrete and asphalt, preparation, excavation, backfilling and tamping, placing of crushed stone, form work, steel reinforcement and concrete, surface treatment, removal of forms, concrete curing, coating and testing.

MATERIALS

The intent of these specifications is to produce a finished product satisfactory for the purpose for which it is to be used. The selection of materials, their proportioning, mixing, handling and curing is to be the responsibility of the Contractor but is subject to inspections and testing.

All structural concrete and reinforcing steel shall conform to Section 501 "PORTLAND CEMENT CONCRETE - GENERAL" and 709 "REINFORCING STEEL" of the Standard Specifications of the New York State Department of Transportation, latest edition.

All concrete shall be Class A concrete having a minimum compressive strength of 4000 psi at twenty-eight (28) days. Reinforcing steel shall conform to ASTM Designation A615, Grade 60.

All concrete delivered to job shall be accompanied with the automated batching plant ticket prior to allowing placement of concrete. Tickets to be given to Engineer.

(Forms for Exposed Finish Concrete) Unless otherwise shown or specified, construct form work for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection. Use plastic or wood cones for recess at snap ties.

CONCRETE PROPORTIONS AND STRENGTH

The Contractor shall be responsible for obtaining the proportions of cement, sand, coarse aggregate and water that will result in the specified strength, together with the workability suitable for the purpose intended.

Concrete shall be proportioned as specified in Section 501-3 of the New York State Department of Transportation Standard Specification. It shall be obtained from a batching plant meeting these specifications and the Contractor shall give the Inspector the time dated delivery ticket for each batch.

TESTING OF STRENGTH OF CONCRETE

The Contractor will furnish the Engineer for testing a minimum of two (2) standard test cylinders for every ten (10) cubic yards of concrete poured, or for pours of less than ten (10) cubic yards, a minimum of two (2) test cylinders for the days work. All test cylinders will be prepared by the Contractor under the inspection of the Engineer, and will be cured under conditions equal to that of the finished product. Should the Engineer so require, the Contractor will furnish core samples of the finished work, at his own expense, to demonstrate that the concrete meets the minimum strength called for in these specifications or required by the agency having jurisdiction.

If the tests show a substandard product, the work and all other similarly constructed, will be rejected regardless of previous inspection and/or preliminary acceptance, and will be removed and replaced at the expense of the Contractor.

EXCAVATION

The Contractor shall cut and remove any asphalt paving, curbs, drives, or other surface material required to make the excavations. He shall make all excavations in such a manner and to such widths as will provide ample room for properly installing the reinforced concrete structure and to permit the thorough compacting of the backfill material. The Contractor shall remove and dispose of any excess of unsuitable materials.

The Contractor shall provide adequate sheeting, bracing, and pumping of the excavation, whenever necessary to provide working conditions, prevent damage to pavements, structures, pipes and utilities, or shifting of materials and shall be completely responsible for its adequacy and all damages resulting from its installation, removal, failure or omission. Such sheeting, shoring or bracing shall be included as part of this item.

BACKFILL

After the work has been properly constructed and inspected, the space between the concrete and the sides of the excavated area shall be backfilled and compacted in nine (9") inch layers. No stones larger than that which can be handled by one (1) man shall be allowed in the backfill within three (3') feet from the sides of the structure. Excess material shall be removed from the site, unsuitable backfill material shall be removed from the site and replaced with suitable backfill as determined by

the Engineer.

FORMS

Forms for concrete shall be sound, true and tight and sufficiently rigid to prevent displacement and sagging between supports. All forms shall be removed in a manner to prevent injury to the concrete. If the surface of the concrete is bulged, uneven, or shows honeycombing, which in the opinion of the Engineer cannot be repaired satisfactorily, the entire section shall be removed and replaced.

Removal of Forms

Formwork not supporting weight of concrete, such as sides of walls and similar parts of the work, be removed after cumulatively curing at not less than 50 degrees Fahrenheit for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

MEASUREMENT AND PAYMENT

The measurement for payment of in-place reinforced concrete shall be a "LUMP SUM" amount for providing all cost for labor, materials, and equipment necessary to excavate, construct the concrete structure as specified herein and shown on the plans except that any rock excavation will be paid for as specified under its separate item. The cost of all reinforcing steel as shown on the plans shall be included in this unit price.

RIPRAP

WORK

Under this item the Contractor shall furnish all labor, materials, and equipment required to install hand placed stone riprap, gravel bedding and filter fabric material as specified herein and indicated on the plans and directed by the Engineer. Grouted riprap shall be installed where shown on the plans.

Riprap shall consist of a protective covering of stones laid on slopes to ensure the protection of embankment slopes. Backing layers shall be used as indicated on the plans.

MATERIALS

Facing stone:
Stone shall conform to the size and gradation specified on the plans and shall be uniformly graded. The stone shall correspond to the following quality requirements:

Parameter	ASTM Test Method	Requirement
Specific Gravity	C127-73	2.50 min.
Absorption	C127-73	2% max.
Soundness of Aggregate	C88-73	5% max. loss

Stone shall be of such shape as to form a stable protective structure for the required sections. Stone size shall 6”-8” in diameter and of such shape as to form a stable protective structure for the required sections. In general, riprap stone shall be angular in shape; rounded cobbles or boulders may be used on areas flatter than 1:2 (V:H) with the approval of the Engineer. Flat or needle shapes will not be accepted unless the thickness of the individual pieces is greater than one-third the length.

Backing Layer:
Backing layer shall be ¾” broken stone, free of shale or other soft, poor durability particles. Contractor shall provide a sample of material to the Engineer for approval prior to placement.

Crushed Stone Subbase:
Stone shall conform in every respect to the requirements contained in these specifications and those set forth for “Bases and Subbase”, Section 300 of the New York State Department of Transportation Standard Specifications item 304.05. The depth of the subbase shall be as shown on the plans.

Bedding Materials:
Bedding materials shall conform to the requirements of New York State Department of Transportation Standard Specifications, Section 620. Filter fabric shall be nonwoven Mirafi 140N or Engineer approved equal.

Grout Materials:
Grout materials shall conform to the requirements of New York State Department of Transportation Standard Specifications. The grout shall consist of one part cement conforming to the requirements for Portland Cement Type 2, §701-01 and three parts fine aggregate, conforming to the requirements for Concrete Sand in §703-07.

METHOD

The areas to be riprapped shall be trimmed and dressed to conform to the lines and grades indicated on the plans prior to placing backing and the riprap.

Gravel backing shall be placed and spread on the prepared areas where indicated on the drawings. The backing material shall be compacted to a dense stable condition.

Voids in existing rock rubble fill shall be choked with gravel and sand placed by machine until all interstices are filled.

Rocks shall be placed so as to provide a minimum of voids. The larger rocks shall be placed in the foundation course and on the outside surface of the slope protection. The rock shall be placed by machine and spreading into position by hand. Large stone placement by dumping will not be allowed unless written approval is obtained by the Contractor from the Engineer.

Slope protection shall be dressed up by final rearranging of the outer facing course so that the outward face of stone presents a smooth surface and the local surface irregularities do not vary by more than 0.5 feet measured at right angles to the slope.

Voids in the outer facing course shall be chinked with smaller stone and all loose stone shall be removed from the finished face.

The procedure of placing the stones shall be the same as described above, except that the space between stones shall be filled with cement grout rather than spalls. Material upon which the grouted rip-rap is laid shall not be allowed to occupy the space between the stones.

When the stones are in place, the spaces between them shall be completely filled with grout and the surface of the stones cleaned to remove accumulation of grout. Rip-rap shall not be grouted in freezing weather. The grouted rip-rap shall be kept moist for seven days after grouting. A suitable curing compound may be employed, if approved by the Engineer.

The Engineer may direct that occasional spaces be left ungrouted for relief of hydrostatic pressure. The ungrouted spaces shall be chinked with spalls of suitable size.

At the completion of slope protection work, the footing trench shall be filled with excavated material and compaction will not be required.

MEASUREMENT AND PAYMENT

The quantity to be paid for under this item shall be the number of "SQUARE YARDS" of in place riprap, or grouted riprap. Riprap shall be measured by the exposed surface areas completed and approved by the Engineer.

The unit price bid per square yard for rip rap shall be full payment for furnishing all labor, equipment and materials, including but not limited to surface preparation, placement of filter fabric and bedding material, installation of stone riprap and any incidentals required to complete the work as shown on the place and to the satisfaction of the Engineer.

SAW CUTTING PAVEMENT

WORK

Under this item, the Contractor shall furnish all required labor, material and equipment necessary to saw cut existing concrete and asphalt pavement, roadways, driveways, curbs and other pavements shown on the plans and as directed by the Engineer.

METHOD

The Contractor shall use an approved saw, which will result in a neat clean, straight cut. Lines shall be drawn on the existing pavement at the Engineer's direction, and the concrete shall be cut to a depth which will ensure the required edge. Care shall be taken so as not to damage existing pavement or curbs adjacent to the section being removed. The use of fire hydrants to supply the water for the operation of the saw shall not be permitted.

Workers shall wear necessary safety clothing and eye protection while operating saw cutting equipment and shall be thoroughly familiar in the safe operation of the equipment. The Contractor shall be responsible for all safety practices.

MEASUREMENT AND PAYMENT

There will be no separate payment made under this item. All costs related to this work shall be included in the cost of other items of work in this Contract. Saw cuts will be required at all driveways and roadways intersecting the proposed work.

TREE REMOVAL

WORK

Under this item the Contractor shall cut and remove within the contract limits, all trees as shown on the plans or as directed in the field by the Engineer. The Contractor shall request the permission and direction of the Engineer as to specific trees to be removed prior to beginning any construction work. The trees shall then be located in the field and flagged by the Contractor with the approval of the Engineer.

Trees with a DBH of 8 inches or greater shall be included in this line item. Less than 8" DBH shall be included in Clearing and Grubbing (CGR). Below are the quantity and diameter trees to be removed.

Base Bid:	Cut and remove four (4) trees; diameters 8, 9, 11, and 12 inch. Remove from stream five (5) trees; diameters 12 (2), 14, 21, and 24 inch.
Alternate:	Cut and remove ten (10) trees; diameters 9, 12 (3), 14, 18, and 24 inch, and twin trees 8/5", 7/4", and 12/6".

METHOD

The Contractor shall carefully protect against damage all existing trees, plants, and other features to remain. He shall be liable for any damage to such trees, plants and other property caused by tree removal operations and all damaged trees, plants and other property shall be replaced or restored to their original condition to the satisfaction of the Engineer and at Contractor's expense.

The Contractor shall cut and remove all trees designated for removal within the limits of the contract or as directed by the Engineer. The stumps and roots shall be removed completely and carted from the site. In areas of fill greater than six (6") inches, such trees shall be cut flush with the existing ground surface.

In areas of major construction, or where new plants are to be planted, the stumps and roots of all trees designated for removal shall be grubbed and excavated to a depth of three (3') feet below the proposed grade except in areas of fill greater than three (3') feet, where such trees may be cut flush with the ground surface.

Cutting of trees shall be done by competent workmen only and in workmanlike manner. All trees shall be "topped" and "limbed" previous to felling unless otherwise directed by the Engineer. All branches, limbs, trunks, roots and other debris shall be removed from the site or otherwise disposed of to the satisfaction of the Engineer.

Tree branches, limbs, and trucks may be chipped and used as erosion and sediment controls only if first approved by the Engineer. No weeds, invasive species, or other noxious materials shall be permitted in the wood chips.

No trees are to be removed except as ordered by the Engineer. All trees shall be calipered before removal at the height of two (2') feet from the surrounding ground.

MEASUREMENT AND PAYMENT

The unit of measurement for payment shall be a "LUMP SUM" amount for providing cutting and removal of trees as directed and approved by the Engineer.

The work shall include the cost of all labor, materials, and equipment necessary for removing and disposing trees, and all other incidentals necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer. Only trees approved by the Engineer to be removed shall be paid for under this contract.

FURNISH AND PLACE TOPSOIL AND SEED

WORK

Under this item, the Contractor shall furnish all labor, material, and equipment place topsoil and grass seed in all areas as indicated on the plans or as directed by the Engineer. The work shall include but not be limited to: preparing the areas for topsoil and seed, placement of a minimum of four (4") inches of topsoil, removal of objectional material from harrowed ground, placing seed and fertilizer, and maintenance of seeded areas.

MATERIAL

Topsoil shall be the surface layer of soil and shall be free from refuse, any material toxic to plant growth, subsoil, woody vegetation, stumps, roots, brush, stones, clay lumps, or similar objects larger than two (2") inches in greatest dimension. Sod and herbaceous growth, such as grass, need not be removed but shall be thoroughly broken up and mixed with the soil during handling operations. Invasive species and noxious weeds shall be removed and disposed. Topsoil shall not be delivered or used in a frozen or muddy condition.

Topsoil shall meet the following requirements:

1. The pH of the material shall be 7.0.

2. The organic content shall be between six (6%) and twenty (20%) percent.

3. Gradation:

Sieve Size	Percent Passing by Weight
2 inch	100
1 inch	85-100
1/4 inch	65-90
No. 200 mesh	20-80

   Topsoil in which more than sixty percent (60%) of the material passing the USS No. 200 mesh sieve consists of clay as determined by hydrometer, or by the decantation method shall not be used. All percentages are to be based on dry weight samples.

The Contractor may amend natural topsoil with approved materials and by approved methods to meet the above specifications. Topsoil containing foreign material may be rejected on the basis of a visual examination prior to testing.

Acceptance of topsoil will be based on the test results unless otherwise specified. Tested topsoil must be approved in writing by the Engineer before any material is used.

Grass seed shall be high-quality commercial grade grass seed. Prior to purchasing materials and placement, the Contractor shall submit his proposed seed to the Engineer for review.

Lawn Area Seed:

30-50% Fine Fescue (Festuca rubra), 2 varieties min., including “creeping red”
15-40% Kentucky Bluegrass (Poa pratensis), 3 varieties min.
15-40% Perennial Ryegrass (Lolium perenne), 2 varieties min., “turf” type
5-15% Annual Ryegrass (Lolium multiflorum)

Roadside (Right-of-Way) Area Seed:

50-70% Fine Fescue (Festuca rubra), 2 varieties min., including “creeping red”
15-40% Perennial Ryegrass (Lolium perenne), 2 varieties min., “turf” type
5-15% Annual Ryegrass (Lolium multiflorum)
5-10% White Clover (Trifolium repens), other varieties may be acceptable

Acceptable material in a seed mixture other than pure live seed consists of nonviable seed, chaff, hulls, live seed of crop plants and inert matter. The percentage of weed seed shall not exceed 0.1 percent by weight. All seed will be rejected if the label or test analysis indicates any of the following contaminates: Timothy, Orchard Grass, Sheep Fescue, Meadow Fescue, Canada Blue Grass, Alta Fescue, Kentucky 31 Fescue, and Bent Grass.

METHOD

Grass areas shall be permanently established during the periods of April 7 to May 15 or August 25 to October 1 or as directed by the Engineer.

The Contractor shall harrow the ground and remove all weeds and other undesirable growth. He shall furnish and place a minimum of four (4”) inches of topsoil which shall be raked and graded to match existing ground as specified on the Plans. The Engineer shall approve the grading of all areas prior to fertilizing and seeding.

The Contractor shall furnish and place an approved fertilizer containing 10 parts of nitrogen, 6 parts of phosphate and 4 parts of potash (10-6-4) at a rate of 15 pounds of fertilizer per 1,000 square feet of area#or per manufacturer’s recommended rate.

The Contractor shall then furnish and place the approved grass seed evenly over the entire area at a rate of at least 10 pounds per 1,000 square feet. Grass seed shall be sown in such manner that a uniform stand will result. The Contractor will be required to present all empty seed bags to the Engineer to verify that the required amount of seed has been placed.

Mulch shall be applied within one day after seeding, cover the seeded areas with a uniform blanket of straw mulch at the rate of 100 pounds per 1,000 square feet of seeded area.#Mulch shall be stalks of oats, wheat, rye or other approved crops which are free of weeds and weed seed. Weight

shall be based on a 15 percent moisture content.

The Contractor shall water the newly planted grass until the grass reaches a stand of four (4") inches and shall cut the new grass to a height of two (2") inches a minimum of three times or as directed by the Engineer.

The Contractor shall be responsible for all grass areas until final acceptance by the Owner. He shall regrade, reseed, refertilize, etc., any grass that has failed to maintain a dense stand. The finished area shall be free of weeds.

In lieu of the above method of placing topsoil and seeding, the Contractor may substitute sodding, at his own option and at no extra cost to the Owner. Sod shall constitute a mixture of grasses equivalent to the seed mixture specified herein.#Sod shall be viable and of uniform density, color, height, and texture that is strongly rooted and capable of vigorous growth and development when planted. Sod shall be free of deleterious material, noxious weeds, and anything that may inhibit the establishment of the sod.

The Contractor shall also have the option of hydroseeding the lawn areas at no increased cost to the Owner and subject to the approval of the Engineer. If the Contractor selects this option, he shall submit to the Engineer for approval a complete specification of the hydroseeding operation he intends to follow. Hydroseeding with a cellulose fiber mulch is acceptable.

MEASUREMENT AND PAYMENT

The quantity of topsoil and seed to be paid for under this item shall be the number of “SQUARE FEET” installed, in accordance with the plans and specifications and directions of the Engineer.

The price bid shall be a unit price per “SQUARE FOOT” of topsoil and seed in place, and shall include the cost of furnishing all labor, materials (including peat moss and organic fertilizer) and, equipment necessary to prepare areas for topsoil and seed, removal of objectionable material, raking, fertilizing, installation of topsoil and seed, straw mulch, and maintenance all in accordance with the plans and specifications and to the satisfaction of the Engineer.

UNCLASSIFIED EXCAVATION, FILLING, AND GRADING

WORK

Under this item the Contractor shall supply all labor, material and equipment necessary to export material if required, site grading, cutting, filling, earthwork, required to bring the site to the proposed lines and grades. The Contractor shall also perform any excavating work, which is not included under other bid items of work as required for the proper completion of all site work. Large boulders or stones shall be included under this item.

The Contractor shall perform the required cuts and fills, place and compact the cut material in fill areas, rough grade the site and legally dispose of unsuitable excavated materials offsite, all in accordance with the plans, specifications and directions of the Engineer.

This bid item shall include the excavation and filling work required to bring the site to the proper lines and grades for the complete construction of the proposed improvements. Stumps, large rocks and unsuitable material not removed under Clearing and Grubbing, shall be removed and properly and legally disposed of as part of the site grading work. If applicable, paved areas of the site shall be thoroughly compacted to 95% maximum density by the use of a 10-ton vibratory roller (75% density in lawn and planting areas).

Only if it is determined by the Engineer that the onsite cut material to be used as fill is unsuitable shall the Contractor be allowed to export the unsuitable material and import acceptable fill material.

DESCRIPTION

Excavation shall be taken to mean the removal of earth, unsuitable subbase materials, miscellaneous surface materials, boulders, and other materials of any nature that may be encountered.

CLEAN FILL

If necessary to bring the site to the required grades, clean fill from sources outside the site is to be brought in to augment existing materials. The fill shall be clean, soil materials of uniform quality, free from boulders, hard clods, stiff clay, hard pan, sod, slags, toxins, ashes, construction debris, cement, brick, concrete, petroleum products, glass and other deleterious substances.

Textural analysis of the soil shall be as follows:

Sieve Size	Percent Passing by Weight
2 inch	100
1 inch	50 to100

Sieve Size	Percent Passing by Weight
No. 40 mesh	15 to 50
No. 200 mesh	0 to 15

The pH of the soil shall be between 5.5 and 7.4 inclusive.

The maximum density of borrow fill shall be as determined in the laboratory when tested in accordance with the most recent ASTM D1557 standard.

Prior to importing fill, the Contractor shall supply all testing reports and data including source location for fill material. Contractor shall certify that fill material delivered to the site is from said source location and all fill shall be free of chemicals and other containments and be approved for use by the Engineer prior to importing fill. Contractor shall supply onsite samples of material delivered to the site for testing.

BOULDERS

The Contractor shall remove all boulders, stone or pieces of concrete, or other objectionable material located at the surface and in excavations required to grade the area. Any stones larger than two (2 CF) cubic feet shall not be allowed within 12" of the rough grade.

EXCAVATION NEAR EXISTING STRUCTURES

Attention is directed to the fact that there are pipes, drains, and other utilities in certain locations. Some of these have been indicated on the drawings, and the completeness or accuracy of the information is not guaranteed.

As the excavation approaches pipes, conduits, or other underground structures, digging by machinery shall be discontinued and the excavation shall be performed by means of hand tools. Such manual excavation when incidental to normal excavation shall be included in the work to be done under items involving normal excavation.

Where determination of the exact location of pipe or other underground structure is necessary for doing the work properly, the Contractor may be required to excavate test pits to determine such locations. When such test pits may be properly considered as incidental to other excavation, the Contractor shall receive no additional compensation, the work being understood to be included as part of the excavation. When the Engineer orders test pits beyond the limits of excavation he considers a part of the work, such test pits shall be paid for as an extra pursuant to the General Conditions.

PROTECTION OF EXISTING STRUCTURES

All existing pipes, poles, wires, fences, curbing, property line markers, and other structures, which

the Engineer decides must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from damage by the Contractor. Should such items be damaged, they shall be restored by the Contractor, without compensation therefore, to at least as good condition as that in which they were found immediately before the work has begun. When fences interfere with the Contractor's operations, he shall remove and (unless otherwise specified) later restore them to at least as good condition as that in which they were found immediately before the work was begun, all without additional compensation. The restoration of fences shall be done as promptly as possible and not left until the end of the construction period.

CARE AND RESTORATION OF PROPERTY

On paved surfaces the Contractor shall not use or operate tractors, bulldozers, or other power-operated equipment the treads or wheels or which are so shaped as to cut or otherwise injure such surfaces.

All surfaces, which have been injured by the Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately before work was begun. Suitable materials and methods shall be used for such restoration.

The restoration of existing property or structures shall be done as promptly as practicable and shall not be left until the end of the construction period.

UNAUTHORIZED EXCAVATION

If the bottom of any excavation is taken out beyond the limits indicated or prescribed, the resulting void shall be backfilled at the Contractor's expense with thoroughly compacted, screened gravel.

DISPOSAL OF SURPLUS EXCAVATED MATERIALS

Unwanted surplus excavated materials shall be removed from the site of the work and disposed of in a legal manner, after approval by the Engineer.

Surplus excavated materials suitable for back fill shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill and shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions without additional compensation.

DUST CONTROL

During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, so as to minimize the creation and dispersion of dust. If the Engineer decides that it is necessary to use calcium chloride

for more effective dust control, the Contractor shall furnish and spread the material, as directed at no additional cost to the Owner.

BRIDGING EXCAVATIONS

The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings where required for the accommodation of travel, and to provide access to private property during construction, and shall remove said structures thereafter.

PLACING AND COMPACTING FILL MATERIAL

Establish all line and grades. Verifying the location and elevation of solid rock subgrade will be the responsibility of the Contractor. Any areas which rock is encountered shall require eighteen inches (18") of a combination of fill, topsoil and seed to meet proposed finished grade.

Fill shall be constructed in successive horizontal layers not over eight (8") inches in depth, extending across the entire fill.

Fill shall be spread by acceptable methods, and shall be thoroughly compacted by a vibratory roller, to the satisfaction of the Engineer. At least six (6) perpendicular passes will be required. In places where the character of the material makes the use of the roller impracticable or where drains or other construction may be damaged, a lighter one may be substituted, or the area shall be compacted by the tamping, all with the approval, and to the satisfaction of the Engineer.

The compaction effort should achieve a density of fill soil that is at least ninety-five (95%) percent of the maximum density beneath paved areas, and at least seventy-five (75%) percent in lawn areas.

All hollows and depressions which develop during the process of rolling and compacting shall be filled with acceptable material, and the subgrade shall again be compacted. This process of filling and compacting shall be filled with acceptable material, and the subgrade shall be filled again and compacted. This process of filling and compacting shall be repeated until no depressions develop.

For large expanse areas, such as fields and parking lots, laser grading equipment shall be used to ensure designed slopes are obtained.

MEASUREMENT AND PAYMENT

The Contractor shall provide a "LUMP SUM" bid amount for the unclassified excavation, filling, and grading work, including all removal and disposal of objectionable material from the cuts, providing fill material as required, and compacting of cut and fill areas as shown on the plans, specified herein and as directed by the Engineer.

The lump sum price bid for unclassified excavation, filling and grading work shall include the cost of furnishing all labor, materials and equipment necessary or required including but not limited to hauling and dump fees for debris and excess material, surveying costs, testing of material all in accordance with the plans and specifications and to the satisfaction of the Engineer.

The Contractor shall provide a "CUBIC YARD" bid amount for the importation of clean fill material or exporting onsite fill material. This work shall include all labor, materials equipment and testing required for importing clean fill material as required to the satisfaction of the Engineer.