

**TOWN OF YORKTOWN
SERVICES AND PUBLIC WORKS CONTRACTS BID**
















GRANITE KNOLLS SPORTS & RECREATION COMPLEX












ADDENDUM # 3

June 7, 2017

ADDENDUM # 3 REFERS TO FOLLOWING SECTIONS OF THE SPECIFICATIONS AND DRAWINGS:

ALL CHANGES TO THE SPECIFICATIONS AND CONTRACT DRAWINGS ARE INDICATED BY THE SYMBOL: 

-  0201 Earthwork Granite Knolls_Rev1
-  0401 Cast In Place Concrete Granite Knolls_Rev1
-  0501 Water Main Granite Knolls _Rev 1
-  0502 Force Main Granite Knolls_Rev 1
-  0802 Building Services General Plumbing & Electrical_Rev1
-  0901 Synthetic Turf Preparation_Rev1
-  0906 Site Restoration Granite Knolls_Rev1
-  Granite Knolls Bid Sheet TC rev. 6-7-17 Addendum #3
-  Granite Knolls Contractors List for PreConstruction Meetings
-  Granite Knolls Front End - MM-TC 6-17-17 Addendum #3
-  INVITATION TO BID - 6-7-17 Addendum #3
-  Notice to Bidders 6-7-17 Addendum #3
-  Soil and Test Pit Information
-  WARINANCO 2 Old Castle Plumbing
-  WARINANCO 3 Old Castle Electrical

-  C-101 SITE PLAN
-  C-103 E&SC PLAN
-  C-105 DETAIL PLAN ACCESS ROAD AND DRIVEWAY PLAN
-  C-106 DETAIL PLAN ACCESS ROAD AND DRIVEWAY UTILITIES
-  C-111 DETAIL PLAN MULTIPURPOSE FIELDS
-  C-113 DETAIL PLAN MULTIPURPOSE FIELDS UTILITIES
-  C-303 UTILITY PROFILES 3
-  C-502 STORMWATER DETAILS
-  C-503 UTILITY DETAILS
-  C-504 SITE DETAILS
-  C-506 TURF FIELD & HANDBALL RESTORATION DETAILS

INVITATION TO BID
GRANITE KNOLLS SPORTS AND RECREATION
COMPLEX PROJECT
TOWN OF YORKTOWN, NEW YORK
Addendum #3

△ NOTICE IS HERE GIVEN that sealed bids will be received by the Town Clerk, Town of Yorktown, Yorktown, NY until 11:00 A.M. on Monday, June 26th, 2017 at Town Hall, 363 Underhill Avenue, Yorktown Heights, N.Y. 10598 for Town of Yorktown Parks and Recreation Granite Knolls Sports & Recreation Complex Project. Copies of the Bid Documents will be available in the office of the Town of Yorktown Town Clerk located at 363 Underhill Avenue, Yorktown Heights, NY 10598. A completed Bid Proposal Form must be returned to the Town Clerk, 363 Underhill Avenue, Yorktown Heights, NY 10598, marked: **“Bid: Granite Knolls Sports & Recreation Complex Project.”**

△ All prospective bidders shall be required to attend one mandatory. A Pre-Bid meeting will be held on Thursday, June 8, 2017 @ 10:00 AM at the site for prospective bidders that were unable to attend previous meetings, and for previous attendees who are interested in a further explanation of Addendum # 3.

Plans, Specifications and standard proposals for the work proposed may be obtained at the office of the Town Clerk at said Town Hall upon cash or certified check in the amount of **FIFTY DOLLARS (\$50.00)**. Said fee will **not** be refunded and will be used to defray costs of printing plans and specifications.

All bids must be accompanied by a Certified check payable to the Town of Yorktown in an amount not less than ten percent (10%) of the total bid, or an executed Consent of Surety.

The bidder assumes the risk of any delay in the mail or in the handling of mail by the employees of the Town of Yorktown. Whether sent by mail or means of personal delivery, the bidder assumes the responsibility for having bids in on the time and the place specified above.

The Town of Yorktown reserves the right to waive any informalities in the bids, to reject any or all bids and reserves the right to accept that bid which it deems most favorable to the interests of the Town of Yorktown. No bidder may withdraw his bid within sixty (60) days after the actual date of the opening thereof.

If mailed, sealed proposals must be addressed in care of the Town Clerk at the above address.

Bid documents may also be obtained on the Town of Yorktown’s website at www.yorktownny.org

DIANA L. QUAST
Town Clerk
Town of Yorktown

Dated: June 2017

NOTICE TO BIDDERS
TOWN OF YORKTOWN
NEW YORK
Addendum #3

Sealed proposals will be received by the **Town Clerk** of the Town of Yorktown, Westchester County, New York, at the Town Hall, 363 Underhill Avenue, Yorktown Heights, New York, until **11:00 A.M.**, on **Monday, June 26, 2017**, for the **Town of Yorktown Parks & Recreation, Granite Knolls Sports & Recreation Complex Project, Project No. 01-17**

Plans, Specifications and standard proposals for the work proposed may be obtained at the office of the Town Clerk at said Town Hall upon cash or certified check in the amount of **FIFTY DOLLARS (\$50.00)**. Said fee will **not** be refunded and will be used to defray costs of printing plans and specifications.

All bids must be accompanied by a Certified check payable to the Town of Yorktown in an amount not less than ten percent (10%) of the total bid, or an executed Consent of Surety.

The bidder assumes the risk of any delay in the mail or in the handling of mail by the employees of the Town of Yorktown. Whether sent by mail or means of personal delivery, the bidder assumes the responsibility for having bids in on the time and the place specified above.

The Town of Yorktown reserves the right to waive any informalities in the bids, to reject any or all bids and reserves the right to accept that bid which it deems most favorable to the interests of the Town of Yorktown. No bidder may withdraw his bid within thirty (30) days after the actual date of the opening thereof.

If mailed, sealed proposals must be addressed in care of the Town Clerk at the above address.

If the bid is awarded by Town, the Town Clerk will notify the successful bidder in writing. The Town Board's resolution awarding the bid and all of the documents herein (which shall be deemed incorporated) shall constitute a contract between the successful bidder and the Town of Yorktown. Within 5 business days of Contractor's receipt of award notification (presumed to be received five days after postmark), Contractor shall submit insurance certificates to the Town's contact person on this bid.

Such insurance certificates must meet the requirements of the bid. Contractor shall also submit completed W-9 form. Upon the Town's receipt and acceptance of the insurance certificates, the Town shall notify the Contractor that work may commence. Such notification shall be made in writing by email. If the Contractor fails to timely submit satisfactory insurance certificates, this failure shall constitute grounds for rescission by the Town of the Contract, and shall authorize the Town to award the bid to the next lowest responsible bidder.

DIANA L. QUAST
Town Clerk
Town of Yorktown

Granite Knolls Sign-In Sheet – Friday, May 19 at 10:00 am

Rick	Northbrook Contracting 7 Corporate Drive Peekskill, NY 10566	RickR@northbrookcontracting.com	914-737-4403 x 245
Al Prado	Lawrence Construction Co. 18 Captain Lawrence Drive South Salem, NY 10590	ap@lccsitework.com	845-978-8976 914-763-9013
Steve Vieira	Landscape Unlimited P. O. Box 38 Somers, NY 10589	mzlui3@gmail.com	914-232-5623 o 914-672-4905 c
Heather	Nicky Diggs Excavation 5 Dogwood Lane Katonah, NY 10536	heather@nickydiggs.com	914-232-1878
Angelo	Sport Tech 410 Route 22 Brewster, NY 10509	angelo@sporttechconstruction.com	914-232-1640 914-447-4817
Scott	Legacy Supply LLC 14 Railroad Ave Valhalla, NY 10595	lisa@legacysupplyllc.com scott@legacysupplyllc.com	914-262-2048

Granite Knolls Sign-In Sheet – Tuesday, May 23 at 2:00 pm

Donna Capone	All Bright Electric 100 Snake Hill Road West Nyack, NY 10994	dcapone@allbrightelectric.com	845-358-1200
Chris Hines	The Landtek Group 235 County Line Road Amityville, NY 11701	chines@landtekgroup.com	631-691-2381
David Kulis	Musco Lighting 50 Saw Mill Road Danbury, CT 06810	david.kulis@musco.com	845-745-4423
Mark Pugni	Bradhurst Site Construction 140 Bradhurst Avenue Valhalla, NY 10595	mpbradhurst@optonline.net	914-592-8060
Lee Defreitas	Shaw Sports Turf	lee.defreitas@shawinc.com	609-977-3961
Phil Pirro Sr.	Applied Landscape Tech 145 River Road Montville, NJ 07045	phil@appliedlt.com	973-402-6544 x 207

Michael Casatelli	FGI Corporation 1901 Amethyst Street Bronx, NY 10462	mike@fgicorporation.com	718-824-0264
Larry Dysinger	McNamee Construction 154 Route 202 Lincolndale, NY	larry@mcnameeconstruction.net	845-590-2595
Nick Peterson	Montesano Bros. Inc. 76 Plain Avenue New Rochelle, NY 10801	nickp@montesanobros.com	914-235-4800
Tony Silva	ELQ Industries Avenue. 567 Fifth Avenue New Rochelle, NY 10801	tsilva@elqindustries.com	914-654-1040
Ermin Suljic	Tony Casale Inc. 1195 Saw Mill River Road Yonkers, NY 10710	ermins@tonycasaleinc.com	914-375-2177

**Town of Yorktown Parks & Recreation
 Granite Knolls Sports & Recreation Complex Project
 Town of Yorktown Project No. 01-17
 Itemized Proposal & Project Bid - Sheet 1 of 8**

Addendum #3

Contractor:		Prepared by:	
Address:		Date:	

Item #	Unit	Quantity	Description	Line Total
0101	LS	1	Site Preparations and Removals	\$ _____ per LS
0102	LS	1	Survey and Stakeout	\$ _____ per LS
0103	LS	1	Erosion and Sediment Control	\$ _____ per LS
0201	Earthwork ^Δ			
0201.1 ^A	LS	78,700 CY Estimated	Earthwork - General	\$ _____ per LS
0201.2 ^A	CY	500	Earthwork - Rock Excavation	\$ _____ per CY
0202	CY	500	Unclassified Excavation	\$ _____ per CY
0203	Select Fill Material			
0203.1	CY	500	Borrow Material	\$ _____ per CY
0203.2	CY	500	Select Granular Fill	\$ _____ per CY

△ Addendum #3

**Town of Yorktown Parks & Recreation
Granite Knolls Sports & Recreation Complex Project
Town of Yorktown Project No. 01-17
Itemized Proposal & Project Bid - Sheet 2 of 8
Addendum #3**

Contractor:	
Address:	

Prepared by:	
Date:	

Item #	Unit	Quantity	Description	Line Total
203.3	CY	500	Granular Fill	\$ _____ per CY
0204	CY	500	Crushed Stone Fill	\$ _____ per CY
0205	LF	1,820	Nature Trail	\$ _____ per LF
0206 ^A	SF	50,200	Gravel Parking Area	\$ _____ per SF
0301	Asphalt Pavement			
0301.1	SF	29,065	Asphalt Driveway & Parking Pavement	\$ _____ per SF
0301.2	SF	30,460	Asphalt Pavement - 2" Thick	\$ _____ per SF
0301.3	SF	1,885	Asphalt Pavement - Pickleball Court Expansion	\$ _____ per SF
0301.4	SF	28,370	Asphalt Overlay - 2" Thick	\$ _____ per SF

△ Addendum #3

**Town of Yorktown Parks & Recreation
 Granite Knolls Sports & Recreation Complex Project
 Town of Yorktown Project No. 01-17
 Itemized Proposal & Project Bid - Sheet 3 of 8**

Addendum #3

Contractor:		Prepared by:	
Address:		Date:	

Item #	Unit	Quantity	Description	Line Total
0301.5	SF	9,175	Asphalt Replacement Basketball Court	\$
0401 ^Δ	CY	100 ^Δ	Cast-In-Place Concrete	\$
0402	LF	2,745	Cast-In-Place Concrete Curbs	\$
0501	Water Main ^Δ			
0501.1	LF	1,410	Water Main	\$
0501.2 ^Δ	CY	100	CLMS/Flowable Fill (K-Crete)	\$
0502 ^Δ	LF	2,410	Force Main	\$
0503	LF	245	Copper Service	\$
0601	Drainage Conveyance System			
0601.1	LF	80	24" Dia. HDPE Drainage Pipe	\$

△ Addendum #3

**Town of Yorktown Parks & Recreation
Granite Knolls Sports & Recreation Complex Project
Town of Yorktown Project No. 01-17
Itemized Proposal & Project Bid - Sheet 4 of 8
Addendum #3**

Contractor:	
Address:	

Prepared by:	
Date:	

Item #	Unit	Quantity	Description	Line Total
0601.2	LF	4,810	18" Dia. HDPE Drainage Pipe	\$ _____ per LF
0601.3	LF	1,455	Shoulder Drain - 6" Diameter (Perforated)	\$ _____ per LF
0601.4	LF	265	Swale - Grass/Rip-Rap	\$ _____ per LF
0602	LF	530	Furnish and Install Sanitary Sewers	\$ _____ per LF
0701	EA	37	Precast Concrete Catch Basins	\$ _____ per EA
0702	EA	2	Precast Concrete Manholes	\$ _____ per EA
0703	EA	2	Sewage Pumping Station	\$ _____ per EA
0704	LS	1	Stormwater Management System Basins (Pocket Wetlands)	\$ _____ per LS

△ Addendum #3

**Town of Yorktown Parks & Recreation
 Granite Knolls Sports & Recreation Complex Project
 Town of Yorktown Project No. 01-17
 Itemized Proposal & Project Bid - Sheet 5 of 8**

Addendum #3

Contractor:		Prepared by:	
Address:		Date:	

Item #	Unit	Quantity	Description	Line Total
0801	EA	21	Site Lighting	\$
0802 ^Δ	LS	1	Building Services - General Plumbing & Electrical Work	\$
0803	LS	1	Athletic Field Lighting	\$
0901 ^Δ	SF	272,080	Synthetic Turf Preparation	\$
0902	LS	1	Outdoor Equipment	\$
0903	LS	1	Dugouts	\$
0904	Metal Fence & Gates			
0904.1	LS	1	Backstop Fence	\$
0904.2	LF	2,400	4' High Fence	\$

Δ Addendum #3

**Town of Yorktown Parks & Recreation
 Granite Knolls Sports & Recreation Complex Project
 Town of Yorktown Project No. 01-17
 Itemized Proposal & Project Bid - Sheet 6 of 8**

Addendum #3

Contractor:	
Address:	

Prepared by:	
Date:	

Item #	Unit	Quantity	Description	Line Total
0904.3	LF	930	6' High Fence	\$
			per LF	
0905	LS	1	Pavement Markings	\$
			per LS	
0906			Site Restoration ^Δ	
0906.1	LS	1	Reconstruction of Basketball Courts	\$
			per LS	
0906.2	LS	1	Rehabilitation of Handball Courts	\$
			per LS	
0906.3	LS	1	Topsoil & Seeding	\$
			per LS	
0906.4 ^Δ	LS	1	Landscape Plantings	\$
			per LS	
0906.5	LS	1	Tree Planting	\$
			per LS	
0906.6	SF	1,680	Stone Retaining Wall	\$
			per SF	

Δ Addendum #3

**Town of Yorktown Parks & Recreation
 Granite Knolls Sports & Recreation Complex Project
 Town of Yorktown Project No. 01-17
 Itemized Proposal & Project Bid - Sheet 7 of 8**

Addendum #3

Contractor:	Prepared by:
Address:	Date:

Item #	Unit	Quantity	Description	Line Total
0906.7	SF	45	Brick Pavers _____ per SF	\$ _____
0906.8	SF	11,745	Grass Pavers _____ per SF	\$ _____
0906.9	SF	100	Gravel Path _____ per SF	\$ _____
0906.10	LS	1	Pickleball Courts - Playing Surface _____ per LS	\$ _____
0906.11 ^A	LS	1	Putting Green & Picnic Area - Surface _____ per LS	\$ _____
0907	LS	1	Traffic Signs _____ per LS	\$ _____
0908	LF	230	Timber Guard Rail _____ per LF	\$ _____
BID				\$ _____
SUBTOTAL	(In Words)			(In Numbers)
1001	LS	1	Site Mobilization & Demobilization _____ per LS (4% Maximum of Bid Subtotal)	\$ _____

△ Addendum #3

**Town of Yorktown Parks & Recreation
Granite Knolls Sports & Recreation Complex Project
Town of Yorktown Project No. 01-17
Itemized Proposal & Project Bid - Sheet 8 of 8**

Addendum #3

Contractor:	
Address:	

Prepared by:	
Date:	

1002	Stipend	1	Additional Miscellaneous Work	per LS	\$50,000
BID TOTAL = Bid Subtotal + Item 1001 + Item 1002					
BID TOTAL				\$	(In Numbers)

SPECIAL NOTE: The Town Reserves the right to award the bid based on Best Value, as set forth in the General Municipal Law.

The undersigned bidder hereby offers, in the amount stated below, to furnish all labor, materials, tools, equipment, apparatus, facilities, transportation and permits for the construction at the **Granite Knolls Sports & Recreation Complex**, Yorktown, NY if this offer is accepted by the Town Clerk.

Note: All bids are to be submitted in words and numbers. In the event of a discrepancy, the bid in words shall govern.

Company Name	
Signature of Partner or Corporate Officer	Date
Special Note to Bidders: Prevailing Wage Rates Apply to this Project	

Corporate Seal

NOTICE TO BIDDERS: A Bid Bond of 10% or Consent of Surety must be executed and submitted with Bid.

**TOWN OF YORKTOWN
SERVICES AND PUBLIC WORKS CONTRACTS BID
INSTRUCTIONS TO BIDDERS**

Addendum #3

△ **NOTICE IS HERE GIVEN** that sealed bids will be received by the Town Clerk, Town of Yorktown, Yorktown, NY until **11:00 A.M. on Monday, June 26th, 2017** at Town Hall, 363 Underhill Avenue, Yorktown Heights, N.Y. 10598 for Town of Yorktown Parks and Recreation Granite Knolls Sports & Recreation Complex Project. Copies of the Bid Documents will be available in the office of the Town of Yorktown, Town Clerk located at 363 Underhill Avenue, Yorktown Heights, NY 10598. A completed Bid Proposal Form must be returned to the Town Clerk, 363 Underhill Avenue, Yorktown Heights, NY 10598, marked: **“Bid: Granite Knolls Sports & Recreation Complex Project.”**

△ **Special Note**” All prospective bidders shall be required to attend one mandatory Pre-Bid Meeting at the Granite Knolls Park. The Town will conduct two pre-bid meetings on Friday, May 19, 2017 at 10:00 AM and Monday, May 22, 2017 at 2:00 PM at the site. An additional Pre-Bid meeting will be held on **Thursday, June 8, 2017 @ 10:00 AM** at the site.

The Bid Documents consists of the following documents:

1. **Instructions to Bidders**
2. **Part One** Bid Proposal Form
Non-Collusive Bidding Certificate
Bid Bond
Certificate of Surety
Itemized Proposal & Project Bid Sheet (Sheets 1-8 of 8)
3. **Part Two** General Terms and Conditions of Bid
4. **Part Three** Technical Specifications
5. **Part Four** Addenda, if any
6. **Non-Collusive Bidding Certificate**

Wherever in the Bid Documents any section or paragraph is stamped "VOID", only the section(s) or paragraph(s) so stamped are void. All other sections(s) and paragraph(s) remain in full force and effect.

A submitted bid will consist of

1. One original completed **Bid Proposal Form**, signed on behalf of Bidder with information for all blanks supplied, and a detailed listing of any exceptions taken by Bidder; and
2. A signed and notarized Non-Collusive Bidding Certificate.
3. Bid Bond
4. Certificate of Surety
5. Itemized Proposal & Project Bid Form (Sheet IP1- 8)

Diana L. Quast
Town Clerk

**TOWN OF YORKTOWN
SERVICES AND PUBLIC WORKS CONTRACTS BID**

PART ONE

BID PROPOSAL FORM

The Town of Yorktown seeks bids from qualified parties:

Granite Knolls Sports & Recreation Complex Project

BIDDER'S OFFICIAL CORPORATE NAME (required, if bidder is a corporation):

BIDDER'S D/B/A NAME (if any) _____

See Attached Proposal & Project Bid Sheets 1 through 8

The price(s) set forth above shall remain valid for one (1) year from the date of bid award.

Prices in the bid must cover all of bidder's costs. There shall be no additional charges to the Town for delivery, training, set-up, etc.

Name and Title of person authorized to submit bid for bidder: _____

Signed: _____

[Signature of authorized person, if not a corporate officer attach corporate resolution authorizing submission of bid.]

BIDDER'S CORPORATE NAME:

BIDDER CONTACT INFORMATION:

PRINT NAME: _____

TITLE: _____

Address: _____ State: _____ Zip: _____

Phone: _____

Fax: _____

Email: _____ @ _____

NON-COLLUSIVE BIDDING CERTIFICATION

This Non-Collusive Bidding Certificate is made pursuant to Section 103-d of the General Municipal Law of the State of New York.

By submission of this bid, Bidder and each person signing on behalf of Bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his or her knowledge and belief:

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;

Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by Bidder and will not knowingly be disclosed by Bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and

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.

A bid shall not be considered for award nor shall any award be made where (1) (2) and (3) above, have not been complied with; provided, however, that if in any case Bidder cannot make the foregoing certification, Bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where (1) (2) and (3) above have not been complied with, the bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the political subdivision, public department, agency or official thereof to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

Dated: _____ Bidder: _____

(Legal name of person, firm or corporation)

By: _____

(Signature)

(Please Print Name)

(Title)

State of New York)
County of Westchester)ss.:

On the ____ day of _____ in the year 2017 before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

(Notary Public)

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____

(Insert Name, or Legal Title, of Bidder)

of _____

(Insert Address of Bidder)

as Principal, hereinafter called the Principal, and _____

(Insert Name, or Legal Title, of Surety)

of _____

(Insert Address of Surety)

a corporation duly organized under the laws of the State of _____

as Surety, hereinafter called the Surety, are firmly bound unto the Town of Yorktown, as Obligee, hereinafter called the Obligee, in the penal sum of

_____ Dollars.

(Surety to Insert Amount)

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 _____

(Insert Name of Work Bid Upon)

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 provide such insurances as may be specified in the Bidding or Contract Documents, and give such Bond or Bonds as may be specified in the Bidding or Contract Documents with good and sufficient surety acceptable to the Obligee, or in the event of the failure of the Principal to enter such Contract and provide such insurances and give such Bond or Bonds, if the Principal shall pay to the Obligee the penal amount of this Bond, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety shall not be impaired or affected in any way by any extension of the time within which the Obligee may accept the Bid of the Principal and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, on this day of _____, 20____.

By: _____

(Individual Principal Signature)

(Printed or Typed Name of Individual)

Doing business as _____

By: _____

(Partnership Principal)

(Printed or Typed Name of Partner)

By: _____

(Firm's Name)

By: _____

(Partner's Signature)

(Printed or Typed Name of Partner)

(Corporate Principal)

By: _____

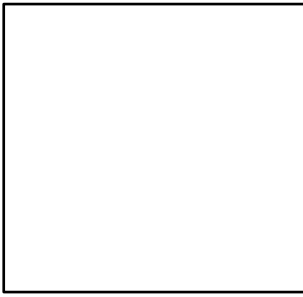
(Corporation's Name)

(State of Incorporation)

By: _____

(Signature of Officer Authorized to Sign)

(Printed or Typed Name and Title of Officer Authorized to Sign)



(Corporate Seal)

Attest _____

(Secretary)

By: _____

(Joint Venture Principal)

By: _____

(Signature)

(Printed or Typed Name)

By: _____

(Signature)

(Printed or Typed Name)

(Each joint venture must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

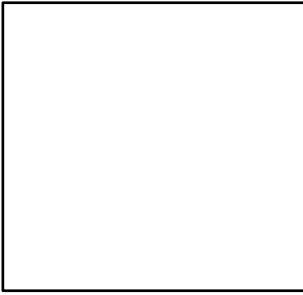
(Corporate Surety)

(Corporation's Name)

By: _____

(Signature or Officer or Attorney-in-Fact*)

(Printed or Typed Name and Title of Officer, or Name of Attorney-in-Fact*)



(Corporate Seal)

Attest _____

(Secretary)

* Attach certified and effective dated copy of power of attorney showing authority of attorney-in-fact to execute on behalf of corporation.

CERTIFICATE OF SURETY

(To be submitted if a bank check is submitted as Bid security)

The undersigned hereby certifies that he/she is the duly authorized agent of

(Name of Surety)

duly authorized to do business in the State of New York, and agree to furnish to

(Name of Bidder)

the bond or bonds required by the Bid Documents for this contract if awarded to the bidder. The maximum amount that Surety will be surety for on each bond is:

(Name of Surety)

By: _____
(signature)

(name – printed)

(title)

(address)

**TOWN OF YORKTOWN
SERVICES AND PUBLIC WORKS CONTRACTS BID**

PART TWO

General Terms and Conditions of Bid

<u>Section Numbers</u>	<u>Heading</u>
Section 1.	Itemized Proposal & Project Bid Form
Section 2.	Pre-Bid Site Inspection
Section 3.	Quality and Samples
Section 4.	Request for information and/or clarification of the Bid Documents
Section 5.	Non-Collusion
Section 6.	Late Bids
Section 7.	Bid Opening
Section 8.	Acceptance and Rejection
Section 9.	Appeal of Determination of Non-Responsiveness and Non-Responsibility
Section 10.	Award
Section 11.	Notice of Award
Section 12.	Performance and Payment Bond
Section 13.	Assignment Prohibited
Section 14.	Special Requirements
Section 15.	Purchase of Additional Quantities of Bid Items
Section 16.	Contractor's Subcontracts and Material Lists
Section 17.	Representative Always Present
Section 18.	Performance
Section 19.	Insurance Requirements
Section 20.	Indemnification

<u>Section Numbers</u>	<u>Heading</u>
Section 21.	Delivery Point
Section 22.	Date of Delivery
Section 23.	Damages
Section 24.	Warranty/Guarantee
Section 25.	Breach of Contract/Termination
Section 26.	Prevailing Wage Rates and Supplements
Section 27.	Estimates and Payments
Section 28.	Payments to Subcontractors and Materialmen by Contractor
Section 29.	Change in Contract Price
Section 30.	Proper Method of Work and Materials
Section 31.	Utilities and Service Lines
Section 32.	Protection, Existing Structures
Section 33.	Acceleration of the Work
Section 34.	Stopping Work
Section 35.	Date of Completion
Section 36.	Change in the Contract Time
Section 37.	Disputed Work – Notice of Claims For Damages
Section 38.	Liquidated Damages
Section 39.	Prevailing Wage Schedule
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**TOWN OF YORKTOWN
SERVICES AND PUBLIC WORKS CONTRACTS BID**

PART THREE

Technical Specifications

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Section 1002 Additional Miscellaneous Work

Section 1. Bid Proposal Form

- 1.1** The bidder shall complete the Bid Proposal Form by filling in the unit price and the total price in the appropriate designated spaces. Unit price and total price of each item bid shall be written legibly in ink, or typed. All bids shall be signed in ink. Any erasures or alterations shall be initialed in ink by the signer. The completed Bid Proposal Form shall be submitted, along with any documentation in support of the bid proposal if required by the Bid Documents, in a sealed envelope addressed as required in the Invitation to Bidders on or before the time and at the place so designated. Any Bid Proposal Form which has been materially altered in any way may render the bid nonresponsive and the bid rejected.
- 1.2** In the event of a discrepancy between the unit price and the total price of the Bid Proposal Form, the unit price will prevail. In the event of a discrepancy between the written bid amount and the numerical bid amount, the written amount will take precedence and be controlling as to the amount of the Bid. All items not bid shall be indicated as “not bid” in the total price space. When bids are requested on a lump sum basis, bidder must bid on each item in the lump sum group. Any bidder desiring to bid “no charge” on an item in a group must so indicate.
- 1.3** Failure to comply with the provisions of this section may be grounds for rejection of the bid proposal.
- 1.4** Correction or withdrawal of a bid because of an inadvertent, non-judgmental mistake in the Bid Proposal Form requires careful consideration to protect the integrity of the competitive bidding process, and to ensure fairness. If the mistake is attributable to an error in judgment, the Bid Proposal Form may not be corrected. Bid correction or withdrawal by reason of the non-judgmental mistake is permissible at the sole discretion of the Town Clerk, but only to the extent that it is not contrary to the interests of the Town or the fair treatment of other bidders.
- 1.5** By signing the Bid Proposal Form, the bidder certifies that:
 - i.** the person whose signature appears below is legally empowered to bind the bidder;
 - ii.** the bidder has read the complete Bid Documents and understands and agrees to all terms and conditions set forth in the Bid Documents;
 - iii.** if accepted by the Town, the bid is guaranteed as written and will be implemented as stated;
 - iv.** By submission of the 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 its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the New York State Finance Law.¹

¹ List found at <http://ogs.ny.gov/about/regs/docs/ListofEntities.pdf>.

- v. The bidder understands and agrees that quantities shown on the Bid
 - vi. Proposal Form opposite items of the work for which unit prices have been requested are York State Finance Law.²
- 1.6** The approximate estimated quantities, and that during the progress of the work the Town may find it advisable and shall have the right to omit portions of the work, and to increase or decrease the shown approximate estimated quantities, or the scope of the whole work; and that the Town reserves the right to add to or take from the total amount of the work up to a limit of thirty (30%) percent of the total amount of the contract based upon the executed contract price for all the specified work.
- 1.7** The bidder shall make no claim for anticipated profits or loss of profits, because of any difference between the quantities of the various classes of work actually done, or of the materials actually furnished, and the original specified scope of work and the shown approximate estimated quantities.
- 1.8** All prices bid include a sum sufficient for the preparation and submission of approved final “As-builts”, record drawings, guarantees, warranties, and operations and maintenance manuals.
- 1.9** All plans and other like records compiled by the contractor in completing the work under this contract shall become the property of the Town. The Contractor may retain copies of each such plan or record for its own use.
- 1.10** The contractor shall secure and pay for all necessary permits for the proper executing and completion of work.
- 1.11** The Town is exempt from all federal, state and local taxes.

Section 2. Pre-Bid Site Inspection

- 5.1** The bidder shall satisfy itself by personal examination of the location of the proposed work and surroundings thereof, and by such other means as it may prefer, as to the scope of the work and the accuracy of the approximate estimated quantities; and shall not at any time after submission of the bid dispute such approximate estimated quantities or assert that there was any misrepresentation by the Town or any misunderstanding by the bidder in regard to the quantity or kind of materials to be furnished, or work to be done. Failure to do so will not relieve a successful bidder contractor (“contractor”) of the obligation to furnish all material and labor necessary to carry out the provisions of the contract documents and to complete the contemplated work for the consideration set forth in its bid.

² List found at <http://ogs.ny.gov/about/regs/docs/ListofEntities.pdf>.

- 5.2 Unless otherwise stated, the bidder is free and encouraged to examine the work site during normal work hours preceding the submission of the bid. For those bidders requesting further clarification of the conditions, an appointment with the Town's representative, can be requested, by contacting the, Town Clerk.
- 5.3 At the time of the opening of bids each bidder will be presumed to have inspected the sites and to have read and to be thoroughly familiar with the Bid Documents.

Section 3. Quality and Samples

- 3.1 All equipment, material and supplies bid upon must conform to the description and specifications set forth in the in the Bid Documents, or their reasonable equivalent.
- 3.2 References in the Bid Documents to type, style, brand or trade name, and catalog are intended to be descriptive only and not restrictive.

Section 4. Request for information or interpretation and/or clarification of the Bid Documents

- 4.1 The bidder shall have seven (7) business days prior to the bid opening date to notify the Town Clerk in writing of any errors or defects in the Bid Documents which would prevent the bidder from providing a responsive bid.
- 4.2 No interpretation of the Bid Documents will be made to any bidder orally by any representative of the Town.
- 4.3 Any request for information or interpretation and/or clarification of the Bid Documents must be addressed in writing to Diana Quast, Yorktown Town Clerk, 363 Underhill Avenue, Yorktown Height, NY 10598, and be submitted not later than five (5) business days prior to the date fixed for the opening of bids.
- 4.4 Any written response to a request for information or interpretation and/or clarification of the Bid Documents shall be issued by Town Clerk and will be incorporated into and made part of the Bid Documents and will be made available in the same manner and method as the Bid Documents. The Town Clerk's decision shall be final and binding on all parties. The failure of any bidder to receive such Addenda will not relieve the contractor of any obligation to comply with the terms and conditions of the Addenda.
- 4.5 The Bid Documents, including the drawings, Bid Documents, have been prepared with care and are intended to show as clearly as is practicable the work required to be done. The bidder must realize however, that construction details cannot always be accurately anticipated and that in executing the work, field conditions may require reasonable modifications in the details of the plans and quantities of work involved. Work under all items in the contract must be carried out to meet these field conditions to the satisfaction of the Town and in accordance with the Bid Documents. The bidder shall not take advantage of any apparent errors or omission in the Bid Documents. In the event the contractor discovers an error or omission in the Bid Documents, it shall immediately notify the Town. The Town will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the Bid Documents.

- 4.6 A bidder's failure to request a clarification, interpretation, etc. of any portion of the Bid Documents or to point out any inconsistency therein will preclude such bidder from thereafter claiming any ambiguity, inconsistency, or error which should have been discovered by a reasonably prudent bidder and from asserting any claim for damages arising directly or indirectly therefrom.

Section 5. Non-Collusion

- 5.1 The bidder shall certify that it has complied with all of the requirements stated in the non-collusive bidding certificate by signing the form included in the Bid Documents. Failure by the bidder to complete and sign the non-collusive bidding certificate will constitute grounds for rejection of the bid.

Section 6. Late Bids

- 6.1 All bids received after the deadline date and time stated in the Instructions to Bidders will not be considered and will be returned to the bidder unopened. The bidder assumes the risk of any delay in the mail and the handling of the mail by the employees of the Town. Whether sent by mail or by means of personal delivery, the bidder assumes all responsibility for having the bid delivered on time and to the place specified above.

Section 7. Bid Opening

- 7.1 Sealed bids will be publicly opened on the date and time specified in the Instructions to Bidders. Bids may be read aloud to those persons present when practicable. Any bidder may request to review any submitted Bid Proposal Forms by arranging a mutually convenient time with the Town Clerk.
- 7.2 The prices stated in the Bid Proposal Form are irrevocable until the Notice of Award is issued, unless the bid is withdrawn only after the expiration of sixty (60) days from the bid opening and only in writing received by the Town Clerk and in advance of the issuance of the Notice of Award.

Section 8. Acceptance or Rejection

- 8.1 A responsive bid is one that complies with all material terms and conditions of the Bid Documents.
- 8.2 If the lowest price bid or proposal is found non-responsive, a determination setting in detail and with specificity the reasons for such finding shall be issued by the Town Clerk. A copy of such determination shall be mailed to the non-responsive bidder no later than two (2) business days after the determination is made.
- 8.3 The Town reserves the sole right to waive any informality that is a matter of form rather than substance without prejudice to other bidders and what is in the best interests of the Town. The Town's decision shall be final and binding.
- 8.4 Any corporation not incorporated under the Laws of New York State, must furnish a copy of its certificate of authority, from the New York State Secretary of State, to do business in the State of New York, in accordance with Article 13 of the New York State Business Corporation Law.

8.5 The Town will consider the qualifications of all bidders and may conduct such investigation as it deems necessary to assist in the evaluation of any bid. The Town reserves the right to reject any bid if the evidence submitted by, or the investigation of such bidder fails to satisfy the Town, in the Town's sole discretion, that it is properly qualified to carry out the obligations of the contract and to complete the contemplated work. In evaluating a bidder's responsibility the Town may consider the following factors:

- i.** financial resources;
- ii.** technical qualifications;
- iii.** experience;
- iv.** organization, material, equipment, facilities, and personnel resources and expertise (or the ability to obtain them) necessary to carry out the work and to comply with required delivery or performance schedules, taking into consideration other business commitments;
- v.** a satisfactory record of performance;
- vi.** a satisfactory record of business integrity;
- vii.** where the contract includes provisions for reimbursement of contractor costs, the existence of accounting and auditing procedures adequate to control property funds, or other assets, accurately delineate costs, and attribute them to their causes; and
- viii.** compliance with requirements for the utilization of small, minority-owned, and women-owned businesses as subcontractors.

8.6 The Town reserves the right to require additional information as it deems appropriate concerning the history of any bidder's performance of prior contracts. The final determination of whether the bidder possesses the requisite experience rests in the sole discretion of the Town. Failure of a bidder to provide relevant information specifically requested by the Town may be grounds for a determination of non-responsive and/or non-responsible.

Section 9. Appeal of Determination of Non-Responsiveness or Non-Responsible

9.1 Any determination that a bid is non-responsive or a bidder is non-responsible may be appealed as set forth herein.

9.2 Time Limit; A bidder shall have five (5) business days from receipt of the determination of non-responsiveness or non-responsible to file an appeal with the Town Clerk. Receipt of notice by the bidder shall be deemed to be no later than five (5) business days from the date of mailing or upon delivery, if delivered. Filing of the appeal shall be accomplished by actual delivery of the appeal document to the Town Clerk. The bidder shall also send a copy of its appeal, for informational purposes, to the Town Attorney.

9.3 Form and Content: The appeal shall be in writing and shall briefly state all the facts or other basis upon which the bidder contests the finding of non-responsiveness or non-responsible. Supporting documentation, if any, shall be included.

9.4 Stay of Award of Contract Pending. Award of the contract shall be stayed pending the determination of the Town Clerk unless the Town Clerk makes a determination that proceeding with the award without delay is necessary to protect substantial Town's interests. Where such a determination is made, the bidder shall be advised of this action in the determination of non-responsiveness or, if the stay is removed at any time after the bidder has been notified of determination of non-responsiveness or non-responsible, notification shall be provided to the bidder no later than two (2) business days after such determination is made. The Town Clerk shall consider the appeal, and may, in his or her sole discretion, meet with the bidder to discuss the merits of the appeal. The Town Clerk shall make a prompt determination with respect to the merits of the appeal, a copy of which shall be sent to the bidder. The Town Clerk's determination shall be final.

Section 10. Award

- 10.1** Town reserves the right to make an award within sixty (60) days after the date of the bid opening, during which period bids may not be withdrawn.
- 10.2** The Award will be made to the responsible and responsive bidder submitting the lowest bid that fully complies with all the specifications stated in the Bid documents.
- 10.3** Town reserves the right to reject all bids and to purchase any or all items on contracts awarded by agencies or departments of the State of New York or of the Town, if such items can be obtained on substantially the same terms, conditions, specifications, and at a lower price.

Section 11. Notice of Award

- 11.1** If the bid is awarded by Town, a written Notice of Award will be issued by the Town Clerk to the contractor. Such Notice of Award will constitute a binding enforceable contract between the contractor and the Town of Yorktown. These General Terms and Conditions shall be incorporated into the contract as material terms.
- 11.2** The Town may issue a Notice of Award based on either Lowest Responsible Bid or Best Value, in accordance with the 2012 amendments to General Municipal Law § 103, as implemented by Yorktown Town Code Chapter 78 entitled *Procurement for Goods and Services*.
- 11.3** Upon receipt of the Notice of Award the contractor will be required to submit to the Town Clerk a completed W-9 form in addition to any other information or documents required by the Town. Failure to supply a completed W-9 form or such other information or documents required by the Town will invalidate the bid.

Section 12. Performance And Payment Bond

- 12.1** If a Performance and Payment bond is required in accordance with the Instruction to Bidders, the "Bid Bond and Consent of Surety" Form must be executed by the contractor's Surety Company and submitted to the Town.

Section 13. Assignment Prohibited

13.1 The contractor shall not assign, transfer, convey or otherwise dispose of the contract or any part of it or any monies due and payable under the contract, without prior written approval of the Town. If such approvals are granted by the Town, they shall in no way relieve the contractor or from any obligations under the terms of the contract.

Section 14. Special Requirements

14.1 Special requirements for any bid may supersede and/or be added to any provision contained in these General Terms and Conditions.

Section 15. Purchase of Additional Quantities of Bid Items

15.1 The Town may purchase additional quantities of the bid items at any time during the contract period, for the same price and under the same terms and conditions as set in the Bid Proposal Form.

Section 16. Contractor's Subcontracts And Material Lists

16.1 Within fifteen (15) days after execution of the Contract, the contractor shall submit to the Town for approval a list of the subcontractors, materialmen and materials that the contractor plans to use in the performance of the work and statements of the work they are to perform. The format and content of the list shall be in accordance with directives from the Town. No part of the work may be sublet until after the contractor has received the Town's approval. The contractor shall be fully responsible for all acts and omissions of its subcontractors and persons directly or indirectly employed by them, and the Town's approval to sublet parts of the work will in no way relieve the contractor of any of its obligations under the Contract. All dealings of the Town with the subcontractors shall be through the contractor.

16.2 The contractor shall insert appropriate clauses in all subcontracts to bind the subcontractors to the contractor by all applicable provisions of the contract documents executed between the contractor and the Town, but this shall not be construed as creating any contractual relationships between subcontractors and the Town. Prior to approval of the subcontractors, the Town has the right to review and recommend changes in the subcontracts. The Town reserves the right to reject any subcontractor proposed by the contractor if in the reasonable opinion of the Town such subcontractor lacks the experience or capability to perform its subcontract work or is otherwise non-responsible.

16.3 The contractor shall insert appropriate clauses in each subcontract that require that if the contractor is terminated by the Town either for default or convenience that at the sole option of the Town the subcontract shall automatically attorney to the Town and the subcontractor shall continue without delay or interruption to fully perform all of the obligations required by its subcontract.

Section 17. Representative Always Present

17.1 The contractor in case of its absence from the work shall have a competent representative or foreman present, who shall obey without delay, all instructions of the Town in the prosecution and completion of the work in conformity with the contract, and shall have full authority to supply labor and material immediately.

17.2 The contractor, or its superintendent, shall attend job meetings with the Town for the purpose of discussing expedition, execution and coordination of the work. Job meetings will be scheduled periodically (the first to be prior to commencement of construction) at a time and place designated by the Town.

17.3 The contractor shall not commence any work prior to the first (pre-construction) meeting between the contractor, Town, and other concerned governmental and utility company representatives.

Section 18. Performance

18.1 All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions and materials requirements, including tolerances, shown in the Bid Documents.

18.2 Plan dimensions and contract specification values are to be considered as the target value to be strived for and complied with as the design value from which any deviations are allowed. It is the intent of the specifications that the materials and workmanship shall be uniform in character and shall conform as nearly as realistically possible to the prescribed target value or to the middle portion of the tolerance range. The purpose of the tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons. When a maximum or minimum value is specified, the production and processing of the material and the performance of the work shall be so controlled that material or work shall not be preponderantly of borderline quality or dimension.

18.3 Figured dimensions on the plans shall be given preference over scaled dimensions, but shall be checked by the contractor before starting construction. Information and data on the contract documents shall take precedence in the following order (1) Drawing; Details, Sections, Plans, Notes, General Notes, (2) Technical Specifications, (3) General Specifications. Any errors, omissions or discrepancies shall be brought to the attention of the Town whose decision thereon shall be final.

18.4 In the event that the Town determines that the materials or the finished product in which the materials used are not within reasonably close conformity with the Bid Documents but that reasonably acceptable work had been produced, the Town shall then make a determination if the work shall be accepted and remain in place. In this event, the Town will document the basis of acceptance by contract modification, subject to the approval of the Town Board, which will provide for an appropriate adjustment in the contract price for such work or materials as deems necessary.

18.5 In the event that the Town determines that the materials or the finished product in which the materials used are not within reasonably close conformity with the Bid Documents and have resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected by and at the expense of the contractor.

18.6 All traffic control devices (signs, signals, markings, and devices placed by the authority of a public body or official having jurisdiction for the purpose of regulating, warning or guiding traffic) shall be in conformity with the latest edition of the New York State Manual of Uniform Traffic Control Devices or other such standard as directed by the Town.

18.7 Time being of the essence, the contractor shall take notice that the timely completion of the work called for under the contract is of the greatest importance. The contractor shall commence its work within ten (10) days after "Notice of Award" has been given it by the Town (unless a definite starting date is otherwise stated). Prior to commencing its work, the contractor shall notify the Town, at least forty-eight (48) hours prior to the planned date of its "start".

Section 19. Insurance Requirements

19.1 The contractor, upon award of the contract, shall provide at its own cost and expense the following insurance to the Town from insurance companies licensed in the State of New York, carrying a Best's financial rating of "A" or better, which insurance shall be evidenced by certificates and/or policies as determined by the Town.

19.2 Each certificate or policy shall require that, thirty (30) days prior to cancellation or material change in the policies, notice thereof shall be given to the Town Clerk by registered mail, return receipt requested, for all of the following stated insurance policies. All such notices shall name the contractor and identify the contract number or description.

19.3 All policies and certificates of insurance shall be approved by the Town prior to the inception of any work.

- i.** Workmen's Compensation: The contractor shall evidence compliance with Workers' Compensation Law, or as otherwise directed by the Town.
- ii.** Commercial General Liability Insurance with minimum limits of liability per occurrence of \$1,000,000 with the Town named as an additional insured.
- iii.** Automobile Liability Insurance with minimum limits of liability per occurrence of \$1,000,000 with the Town named as an additional insured.
- iv.** Additional insurance may be required on an individual basis for extra hazardous contracts and specific service agreements. If such additional insurance is required for a specific contract, that requirement will be described in the Special Requirements of the contract specifications.
- v.** If any of the insurance requirements are not complied with at their renewal dates, payments to the contractor will be withheld until those requirements have been met, or at the option of the Town, the Town may pay the Renewal Premium and withhold such payments from any monies due the contractor.
- vi.** If at any time any of the foregoing policies shall be or become unsatisfactory to the Town, as to form or substance, or if a company issuing any such policy shall be or become unsatisfactory to the Town, the contractor shall upon notice to that effect from the Town, promptly obtain a new policy, submit the same to the Town for approval and submit a certificate thereof as herein above provided. Upon failure of the contractor to furnish, deliver and maintain such insurance as above provided, the contract, at the election of the Town, may be forthwith declared suspended, discontinued or terminated. Failure of the contractor to secure and/or maintain or the taking out and/or maintenance of any required insurance, shall not relieve the contractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with or otherwise limit the obligations of the contractor concerning indemnification.

- vii. In the event that claims in excess of the insured amounts provided herein, are filed by reason of any operations under the contract, the amount of excess of such claims or any portion thereof, may be withheld from payment due or to become due the contractor until such time as the contractor shall furnish such additional security covering such claims as may be determined by the Town.

Section 20. Indemnification

- 20.1 The contractor hereby agrees to indemnify and save harmless the Town, its officers, employees, elected officials, and agents from and against all liability, loss or damage the Town may suffer, arising directly or indirectly out of the contract between the contractor and the Town. The Contractor further agrees to provide defense for and defend any claims or causes of action of any kind or character directly or indirectly arising out of this Agreement at its sole expense and agrees to bear all other costs and expenses relating thereto. The foregoing provisions shall not be construed to cause the contractor to indemnify the Town, its officers, elected officials, agents or employees from its or their sole negligence.
- 20.2 Neither the acceptance of the completed work nor payment therefore shall release the Contractor from its obligation under this section.

Section 21. Delivery Point

- 21.1 Shipping of any products shall be FOB Destination. Delivery shall be at the location set forth in the Specifications except on national, state or local holidays when Town buildings are closed. Bidder shall be responsible to verify that the appropriate Town building for delivery is open prior to delivering items. All bid items shall be unloaded and placed within the particular Town building, at points of delivery, and in quantities, as directed by the Town. Any costs incurred by the Town or bidder due to the failure of bidder to comply with this requirement will be the responsibility of bidder. Bidder should be prepared to furnish proof of delivery, if requested by Town. Deliveries shall be made in accordance with the specifications, and shall be made Monday through Friday from 8 a.m. to 2 p.m. unless otherwise stated in the Specific Specifications.
- 21.2 If bidder is shipping bid items to Town using a third-party carrier (US Postal Service, UPS, FedEx), there shall be no additional shipping charge to the Town.
- 21.3 Delivery will not be complete until the good are inspected and accepted by the Town.

Section 22. Date of Delivery

- 22.1 Delivery of all materials included under this bid shall be made not later than the date specified in the Bid Documents or Project Schedule. If contractor cannot meet the delivery date specified in Bid Documents or Project Schedule, contractor shall state on the bid form the proposed date of delivery and such date will considered when determining responsiveness in awarding the bid.

Section 23. Damages

23.1 The contractor shall be fully responsible for shipping and delivery of materials specified in the Bid Documents or Project Schedule in an undamaged condition. Town will not consider the carrier responsible for damaged or delayed deliveries. Any bid item damaged or broken when delivered to Town shall be replaced immediately by contractor at no cost to the Town.

Section 24. Warranty/Guarantee

24.1 It is the intent of the Bid Documents to require first-class work and materials and any work not fully covered herein Bid Documents shall be interpreted to require first-class work and materials, and such interpretations shall be binding upon the Contractor. The contractor shall be fully responsible for performance of work in a satisfactory manner with satisfactory results in the discretion of the Town quality materials.

24.2 Contractor is deemed to warrant and guarantee all work performed under this agreement.

24.3 Unless otherwise stated in other parts of the specifications, all work performed or goods supplied under the contract shall be guaranteed by the contractor against all defects resulting from the use of inferior materials, equipment or workmanship, for a period of one (1) year from the date of final completion and acceptance of the work, which shall be defined as the date of the Town's approval of the final Certificate for Payment or from the date the Town takes possession and makes full use of the constructed facility.

24.4 Any goods furnished must be standard, new, latest model of the regular stock product, as required by the specifications, with parts regularly used for the type of equipment offered.

24.5 No attachment or part will be substituted or applied contrary to manufacturer's recommended and standard practice. All regularly manufactured stock electrical items must bear the label of the Underwriters Laboratories, Inc. Any equipment, part or constructed item which is or becomes defective during the guarantee period shall be replaced or redone by the contractor, including all labor at no additional charge to the Town. All replacements shall carry the same guarantee as the original equipment. The contractor shall make any such replacement promptly upon receiving written notice from Town.

Section 25. Breach of Contract/Termination

25.1 If contractor fails to deliver as ordered, or within the time specified, or within reasonable time as interpreted by Town, or fails to make replacement of rejected or defective goods, whether so requested immediately or as directed by Town, that shall constitute a breach of the contract, and Town may arrange to have the work performed from other sources to take the place of the work product found defective or not delivered. Without limiting the foregoing, Town reserves the right to terminate the contract upon breach upon within ten (10) days written notice provided to the contractor.

Section 26. Prevailing Wage Rates And Supplements

26.1 Wages to be Paid and Supplements to be provided:

- i. The contractor shall, at its own cost and expense, comply with all provisions of the Labor Law (i.e. prevailing rate of wages and supplements), Lien Law, Workmen's Compensation Law and all other laws and ordinances affecting the contract or order, either Federal, State or local.

26.2 Records to be kept on Site

The contractor, subcontractors at any tier shall certify their payrolls and keep them on site and available, in addition to the following informative records:

- i. Record of hours worked by each workman, laborer and mechanic on each day;
- ii. Record of days worked each week by each workman, laborer and mechanic;
- iii. Schedule of occupation or occupations at which each workman, laborer and mechanic on the project is employed during each work day and week;
- iv. Schedule of hourly wage rates paid to each workman, laborer and mechanic for each occupation.
- v. A statement or declaration signed by each workman, laborer and mechanic attesting that they have been provided with a written notice, informing them of the prevailing wage rates and supplements requirement for the contract.

Section 27. Estimates and Payments

27.1 As the work progresses but not more often than once a month and then on such days as the Town shall direct, the contractor will submit a requisition in writing of the amount and value of the work performed and the materials and equipment provided to the date of the requisition, less any amount previously paid to the contractor.

27.2 From each requisition, the Town will retain five percent (5%) plus one hundred fifty percent (150%) of the amount necessary to satisfy any claims, liens or judgments against the contractor that have not been suitably discharged. The Town will thereupon cause the balance of the requisition therein to be paid to the contractor.

27.3 As a condition to the making of any progress payment as set forth in this paragraph, the Town, in its sole discretion may require the contractor to submit such document as may be reasonably required to establish that the contractor and its subcontractors have timely and properly paid their respective subcontractors and materialmen at any tier.

27.4 When the work or major portion thereof, as contemplated by the terms of the contract are substantially completed in the judgment of the Town, the contractor shall submit a requisition for the remainder of the contract balance. An amount equal to two (2) times the value of the remaining items to be completed plus one hundred fifty percent (150%) of the amount that the Town deems necessary to satisfy any claims, liens or judgments against the contractor which have not been suitably discharged shall be deducted from the requisition. As the remaining items of work are satisfactorily completed or corrected, the Town will, upon receipt of a requisition, pay for these items less one hundred fifty percent (150%) of the amount necessary to satisfy any claims, liens or judgments.

- 27.5** All estimates will be made for actual quantities for work performed and materials and equipment incorporated in the work as determined by the measurements of the Town, and this determination shall be accepted as final, conclusive and binding upon the contractor. All estimates will be subject to correction in any succeeding estimate.
- 27.6** Payment will be made only upon the written request of the contractor. Payment requests shall be processed by the Town no more than one (1) time per month. Payment will be made for materials pertinent to the project which have been delivered to the site or off-site by the contractor suitably stored and secured in first-class condition as required by the Town. The contractor must submit certified copies of the manufacturer's or vendor's invoices or statements establishing the true purchase value of the material or equipment; freight bills, release of liens and certificate of insurance covering all equipment and materials.
- 27.7** The Contractor shall be responsible for safeguarding stored equipment and materials against loss or damage of any nature whatsoever, shall retain title until incorporated into the work and acceptance by the Town and in case of loss or damage, the contractor shall replace such lost or damaged equipment and materials at no cost to the Town. After receipt of payment, the contractor shall not remove from the site equipment and materials for which such payment was made without written authorization from the Town.
- 27.8** Within thirty (30) days after receiving written notice from the Contractor of substantial completion of the work under this Agreement, the Town will cause an inspection to be made of the work done under the contract. If, upon such inspection, the Town determines that the work is substantially complete, a Substantial Completion Payment to the contractor for the work done under the contract, less any and all deductions authorized to be made by the Town under the contract or by law, will be issued.
- 27.9** As a condition precedent to receiving payment therefore, the Contractor must have received Town approval of all Shop Drawing submittals, the Operation and Maintenance Manuals, and As-Built Drawing(s).
- 27.10** Together with its application for substantial completion payment the Contractor shall also deliver to the Town a verified statement certifying that all claims or liabilities arising from the completed work, including all charges for Extra Work, Change Orders, additional time, damages or credits (collectively referred to as "claims") have been presented to the Town. All such claims shall be described in sufficient detail so as to be easily identified. The contractor's failure to submit the verified statement shall constitute a full and final waiver of all claims against the Town from the beginning of the project through the date of substantial completion as established by the Town. The presentation of the verified statement to the Town shall not constitute an acknowledgement by the Town that any such claim is valid. The Town expressly reserves its right to assert that any such claim(s) is waived or precluded by reason of other provisions of the contract documents. Only claims particularly identified on the contractor's verified statement shall be preserved; all other claims whatever nature shall be deemed waived and released. It shall also submit proof of title of the materials and equipment covered by the contract. The contractor shall also, prior to the issuance of said Substantial Completion Payment, supply to the Town affidavits and certificates for labor, material and equipment (where applicable).

27.11 Within ten (10) days after receiving written notice from the contractor of completion of all the work, the Town will make a final inspection. If upon inspection the Town determines that no further work is needed, the Town will request that the Town approve the completion of the project and authorize payment of the Final Estimate.

Section 28. Payments To Subcontractors And Materialmen By Contractor

28.1 Within fifteen (15) calendar days of the receipt of any payment from the Town, the contractor shall pay each of its subcontractors and materialmen the proceeds from the payment representing the value of the work performed and/or materials furnished by the subcontractor and/or materialmen as reflected in the payment from the Town less an amount necessary to satisfy any claims, liens or judgment against the subcontractor or materialman which have not been suitably discharged and less any retained amount as hereafter described.

28.2 Nothing provided herein shall create any obligation on the part of the Town to pay or to see the payment of any moneys to any subcontractor or materialman from any contractor nor shall anything provided herein serve to create any relationship in contract or otherwise, implied or expressed between the subcontractor or materialman and the Town. Notwithstanding anything to the foregoing, the Town may tender payments to the Contractor in the form of joint or dual payee checks.

Section 29. Change in the Contract Price

29.1 The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to the contractor for performing the work pursuant to the contract. All duties, responsibilities and obligations assigned to or undertaken by the contractor shall be at its expense without change in the Contract Price.

29.2 The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered to Town within fifteen (15) days of the occurrence of the event giving rise to the claim. Notice of the amount of the claim with supporting data shall be delivered within twenty (20) days of such occurrence unless the Town allows an additional period of time to ascertain accurate cost data. Any change in the Contract Price resulting from any such claim shall be incorporated in a Change Order. All change orders are subject to the determination and approval of the Town Board.

Section 30. Proper Method of Work And Proper Materials

30.1 The Town shall have the power in general to direct the order and sequence of the work, which will be such as to permit the entire work under the contract to be begun and to proceed as rapidly as possible, and such as to bring the several parts of the work to a successful completion at about the same time.

30.2 If at any time before the commencement or during the progress of the work the materials and appliances used or to be used appear to the Town as insufficient or improper for securing the quality of work required, or the required rate of progress, he may order the contractor to increase its efficiency or to improve their character, and the contractor shall promptly conform to such order; but the failure of the Town to demand any increase of such efficiency or improvement shall not release the Contractor from its obligation to secure the quality of work or the rate of progress specified.

30.3 The Contractor will establish the lines, grades and measurements necessary in his opinion to properly locate the work, by setting suitably marked offset or reference stakes. These stakes are referenced to the control points, coordinates and similar data that may be shown on the contract drawings, but the Town reserves the right to modify that information.

30.4 The Contractor shall carefully and properly preserve all stakes, pins and markers required at no additional costs to the Town. All existing property lines and survey monuments which may, of necessity have to be disturbed during the construction work, will be property tied to fixed points and reset by the Contractor at no cost to the Town.

Section 31. Utilities and Service Lines

31.1 The Contractor is hereby warned that a reasonable opportunity is to be given the municipalities and public service corporations to alter and install pipes, conduits or other structures prior to placing to pavement. No guarantee is given that public utility structures and service lines herein shown are correctly located. Locations given are from the best available information.

Section 32. Protection, Existing Structures

32.1 The Contractor, at his expense, shall protect adjacent and other property or premises from damage of any kind during the progress of the work and shall erect and maintain guards around his work in such a way as to afford protection to the public. The Contractor shall be held responsible for improper, illegal, or negligent conduct of himself, his subcontractors, employees and agents in and about said work or in the execution of the work covered by this Contract.

32.2 The Contractor shall, at his expense, sustain in their places and permanently protect from direct or indirect injury any and all pipelines, subways, pavements, sidewalks, curbs, railways, buildings, trees, poles, wells, and other property in the vicinity of his work, whether over-or underground, or which appear within the trench or excavations, and he shall assume all costs and expenses for direct or indirect damage which may be occasioned by injury to any of them.

32.3 The Contractor's liability shall also include the damage or injury sustained by any structure whatsoever due to settlement of trenches or excavations or to settlement or lateral movement of the sides of such trenches or excavations, whether such movement occurs during or after excavation or backfilling of such trenches or excavations. His liability to so support and protect all such structures from damage or injury shall continue without limitation, throughout the Contract period and during the period of guarantee.

32.4 The Contractor shall at all times have on the ground suitable and sufficient material and shall use the same as may be necessary or required for sustaining and supporting any and all such structures which are uncovered, undermined, weakened, endangered, threatened, or otherwise materially affected.

32.5 In case injury occurs to any portion of a pipeline or structure, or to the material surrounding or supporting the same, through blasting or similar operations, the Contractor shall immediately notify the Engineer, and, at his expense, shall remove such injured work and shall rebuild the pipeline or structure and shall replace the material surrounding the supporting the same, or shall furnish such material and perform such work of repairs or replacement as the Town may order. Any damage whatsoever shall be promptly, completely and satisfactorily repaired by the Contractor at his expense.

Section 33. Acceleration of the Work

- 33.1** The Town may, at its sole discretion and as circumstances reasonably require, require the contractor to accelerate the schedule of performance by providing overtime, extended day, extra crews, Saturday, Sunday and/or holiday work and/or by having all or any subcontractors designated by the Town provide overtime, extended day, extra crews, Saturday, Sunday or holiday work by the contractor's or his subcontractor's own forces.
- 33.2** The Town, pursuant to a validly issued written change order, may reimburse the contractor for the direct cost to the contractor of the premium time for the labor utilized by the contractor in such overtime, extended day, extra crews, Saturday, Sunday or holiday work (but not for the straight time costs of such labor) together with any social security and state or federal unemployment insurance taxes in connection with such premium time. However, no overhead, supervision costs, commissions, profit or other costs and expenses of any nature whatsoever, including impact costs or costs associated with lost efficiency or productivity, shall be payable in connection therewith.
- 33.3** Anything to the foregoing notwithstanding, in the event that the contractor has fallen behind schedule or in the Town's judgment appears likely to fall behind schedule, Town shall have the absolute right to direct the contractor to accelerate the performance of its work, including that of its subcontractors, and the full costs for such acceleration shall be borne solely by the contractor.

Section 34. Stopping Work

34.1 Town May Suspend Work:

- i.** The Town may, at any time and without cause, suspend the work or any portion thereof for a period of not more than ninety (90) days by notice in writing to the contractor which shall fix the date on which work shall be resumed. The contractor shall resume the Work on the date so fixed. Subject to the approval of the Town Board, the contractor may be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

34.2 The Town May Terminate:

A. Upon the occurrence of any one or more of the following events:

1. If the contractor is adjudged bankrupt or insolvent,
2. If the contractor makes a general assignment for the benefit of creditors,
3. If a trustee or receiver is appointed for the contractor or for any of the contractor's property,
4. If the contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws,
5. If the contractor repeatedly fails to supply sufficient skilled workers or suitable materials or equipment,

6. If the contractor repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment,
 7. If the contractor disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction,
 8. If the contractor disregards the authority of the Town, or
 9. If the contractor otherwise violates in any substantial way any provisions of the Bid Documents or the Contract. The Town may after giving the contractor and its Surety seven (7) days written notice, terminate the services of the contractor, exclude the contractor from the site, incorporate in the Work all materials and equipment stored at the site or for which Town has paid the contractor but which are stored elsewhere, and finish the Work as Town may deem expedient. In such case the contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the work, including compensation for additional professional services, such excess shall be paid to the contractor. If such costs exceed such unpaid balance, the contractor shall pay the difference to the Town.
- B.** Where the contractor's services have been so terminated by the Town, the termination shall not affect any rights of Town against the contractor then existing or which may thereafter accrue. Any retention or payment of moneys due the contractor by Town will not release the contractor from liability.
- C.** Upon seven (7) days written notice to the contractor, Town may, without cause and without prejudice to any other right or remedy, elect to abandon the work and terminate the Agreement. In such case, the contractor shall be paid (without duplication of any items):
1. For completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date or termination, including fair and reasonable sum of overhead and profit on such work;
 2. For expenses sustained prior to effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 3. For amounts paid in settlement of terminated contracts with Subcontractors, manufacturers, fabricators, suppliers or distributors and others; and
 4. For reasonable expenses directly attributable to termination, the contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss or any consequential damages arising out of such termination.

Section 35. Date of Completion

- △ 35.1 The Town is desirous of having the work hereunder completed in a timely fashion so that the Granite Knolls Sports & Recreation Complex is ready for use no later than April 15, 2018. The Bidder must be able to provide assurances that the Complex will be substantially complete in time for March 1, 2018. Bidder must provide an expected date of completion together with a bid price for the work.

Section 36. Change in the Contract Time

- 36.1 The contractor agrees that it will make no claim against the Town or any of its representatives for damages for delay, interference or disruption in the performance of its Contract occasioned by any act or omission to act by the Town or any of its representatives, or occasioned by any act or omission of any other contractor and further agrees that any such claim shall be fully compensated for by an extension of time to complete the performance of the work as provided herein.
- 36.2 The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to Town within fifteen (15) days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within twenty (20) days of such occurrence unless the Town allows an additional period of time to ascertain more accurate data. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.
- 36.3 The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the contractor. Such delays shall include, but not be limited to, acts or neglect by Town, or to fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God. No extension of the Contract Time will be granted where the delay is attributable to a subcontractor, manufacturer, fabricator, supplier or distributor or any other party performing services or furnishing material or equipment on behalf of the contractor unless such party's delay is attributable to one of the above enumerated causes.
- 36.4 The time limits concerning Substantial Completion and final completion as stated in the Contract Documents are of the essence. The provisions of this section shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party, provided, however that the contractor shall not be entitled to damages for any delay occurring as a consequence of a delay if the performance of said additional work was noted in the Contract Documents and the delay (by others) was not directly caused by the fault of the Town.

Section 37. Disputed Work - Notice of Claims For Damages

- 37.1 If the contractor is of the opinion that any work required, necessitated, or ordered violates or conflicts with or is not required by the terms and provisions of the contract, he must promptly, within five (5) calendar days after being directed to perform such work, notify the Town, in writing, of its contentions with respect thereto and request a final determination thereon. If the Town determines that the work in question is contract and not extra work, or that the order complained of is proper, he will direct the Contractor in writing to proceed and the Contractor shall promptly comply. In

order, however, to preserve its right to claim compensation for such work or damages resulting from such compliance, the Contractor must, within seven (7) calendar days after receiving notice of the Town's determination and direction, notify the Town, in writing that the work is being performed or that the determination and direction is being complied with, under protest. Failure of the Contractor to so notify shall be deemed as a waiver of claim for extra compensation or damages therefore.

37.2 The contractor is bound by the provisions of all applicable laws, including but not limited to the General Municipal Law and the Town Law, as related to the presentation of claims.

37.3 While the contractor is performing disputed work or complying with a determination or order under protest in accordance with this Article, in each such case the contractor shall furnish the Town daily with three copies of written statements signed by the Contractor's representatives at the site showing:

- i.** the name of each workman employed on such work or engaged in complying with such determination or order, the number of hours employed thereon, and the character of the work each is doing; and
- ii.** the nature and quantity of any materials, plant and equipment furnished or used in connection with the performance of such work or compliance with such order, and from whom purchased or rented.

37.4 The contractor shall carry on the work and maintain the progress schedule during all disputes or disagreements with the Town. No work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the contractor and Town may otherwise agree in writing.

37.5 Before final acceptance of the work by the Town, all matters of dispute must be adjusted to the mutual satisfaction of the parties thereto. Determinations and decisions in case any question shall arise, shall constitute a condition precedent to the right of the Contractor to receive the money therefore, until the matter in question has been adjusted.

 **Section 38. Liquidated Damages**

Section Deleted

SECTION 0201

EARTHWORK

Addendum #3

PART 1: WORK

1.01 DESCRIPTION

Under this work, the Contractor shall furnish all labor, materials and equipment necessary to perform all excavation and grading not specifically included in other bid items and required to complete the proposed improvements of the project in the areas designated in the Contract Documents as shown on the Site Plan and specified herein. Work shall include but not be limited to the following:

- △ A. Excavation – General & Rock
- B. General grading for all site improvements including all grassed and surrounding areas.
- C. Backfilling and compaction as required.
- D. Screening of excavated material as required
- E. Dewatering or addition of water as required.
- F. Stockpiling and reuse of excavated material, topsoil and stone.
Protection of excavations.
- G. Proper disposal of excess and unsuitable materials resulting from earthwork operations.

Included in this item of work are the following item numbers:

△	0201.1	Earthwork - General
△	0201.2	Earthwork – Rock Excavation

Item 0201.1 Earthwork - General: The Contractor shall include the cost of furnishing all labor, materials and equipment, excavation, grading, screening of excavated material as required, placement and compaction. Excavation shall include transportation and stockpiling of material and miscellaneous survey work necessary to complete the work specified under this section as directed by the Engineer or Town.

Item 0201.2 Earthwork – Rock Excavation: The Contractor shall include the cost of furnishing all labor, materials and equipment, rock excavation, rock removal, grading, screening of excavated material as required, placement and compaction. Excavation shall include transportation and stockpiling of material and miscellaneous survey work necessary to complete the work specified under this section as directed by the Engineer or Town. For bid purposes, **500 cubic yards** have been assumed for this work.

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 Item 1002 Additional Miscellaneous Work.

1.02 RELATED WORK SPECIFIED ELSEWHERE

1. Section 0101 Site Preparation and Removals
2. Section 0102 Survey and Stakeout
3. Section 0103 Erosion and Sediment Control
4. Section 0202 Unclassified Excavation
5. Section 0203 Select Fill Material
6. Section 0204 Crushed Stone Fill
7. Section 0205 Nature Trail
8. Section 0206 Gravel Parking Area
9. Section 0301 Asphalt Pavement
10. Section 0401 Cast-In-Place Concrete
11. Section 0402 Cast-In-Place Concrete Curbs
12. Section 0501 Water Main
13. Section 0502 Force Main
14. Section 0503 Copper Water Service
15. Section 0601 Drainage Conveyance System
16. Section 0602 Furnish and Install Sanitary Sewers
17. Section 0701 Precast Concrete Catch Basins
18. Section 0702 Precast Concrete Manholes
19. Section 0703 Sewage Pumping Station
20. Section 0704 Storm Water Management System Basins (Pocket Wetlands)
21. Section 0802 Building Services – General Plumbing & Electrical Work
22. Section 0901 Synthetic Turf Preparation
23. Section 0903 Dugouts
24. Section 0906 Site Restoration

1.03 REFERENCES

- A. General: The work shall comply with the most recent standards or tentative standards as published at the date of the contract and as listed in this specification using the abbreviation shown.
- B. American Society for Testing and Materials (ASTM):
 1. D 698 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft).
 2. D 1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 3. D 1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³)(2,700 kN-m/m³).
 4. D 2167 Standard Test Method for Density and Unit Weight of Soil In Place by the Rubber Balloon Method.
 5. D 2216 Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
 6. D 2487 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 7. D 2922 Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 8. D 2937 Standard Test Methods for Density of Soil in Place by the Drive-Cylinder Method.
 9. D 3017 Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

10. D 4318 Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

C. New York State Department of Environmental Conservation – 6NYCRR PART 375

1.04 DEFINITIONS

- A. Controlled Fill: Controlled fill is fill required in all areas on which final grade is not placed on original excavated soil.
- B. Unclassified Excavation: For the purposes of payment, material shall not be classified except for those items specifically listed in the Bid Form.
- C. Rock: For the purposes of classified excavation, rock shall be defined as material that cannot be dislodged by a Caterpillar Model No. D-8N, heavy duty track-type tractor, rated at not less than 285 hp flywheel power and equipped with a single shank hydraulic ripper, capable of exerting not less than 45,000 lbs breakout force. Rock excavation includes up to 6 inches over-excavation below the required excavation depth. Excavated rock shall be quantified by measuring the volume of removed rock and reducing this amount by 35%. This definition of rock does not include materials such as hardpan, loose rock, concrete or other materials that can be removed by means other than drilling and blasting, but which for reasons of economy in excavating the CONTRACTOR chooses to remove by drilling and blasting.
- D. Trench Rock: For the purposes of classified excavation, trench rock shall be defined as material encountered in trench excavation that cannot be dislodged by a Caterpillar Model No. 215D-LC track-type hydraulic excavator, equipped with a 42-inch wide short-tip radius rock bucket, rated at not less than 120 hp flywheel power with bucket-curling force of not less than 25,000 lbs and stick-crowd force of not less than 18,000 lbs. Trench rock excavation includes up to 6 inches over-excavation below the required excavation depth. Rock shall be quantified by measuring the extent of rock in the trench, not by measuring the volume of removed rock. This definition of trench rock does not include materials such as hardpan, loose rock, concrete or other materials that can be removed by means other than drilling and blasting, but which for reasons of economy in excavating the CONTRACTOR chooses to remove by drilling and blasting.
- E. Unsuitable Material: For the purposes of classified excavation, unsuitable material shall be defined as material below subgrade elevation that exhibits excessive pumping or that does not meet density requirements due to unsatisfactory material as determined by Geotechnical Engineer.
- F. Satisfactory Materials: Materials classified by ASTM D 2487 as GW, GP, GM, GC, SW, SP, SM, SC, ML, and CL are satisfactory as fill for overlot grading and are satisfactory in-situ. Materials shall have a minimum compacted density of 95 pounds per cubic foot and a plasticity index in excess of 15.
- G. Unsatisfactory Materials: Materials classified by ASTM D 2487 as OL, OH, MH, CH, and PT are unsatisfactory in-situ and as fill. Unsatisfactory materials also include those materials containing roots and other organic matter, trash, debris, frozen materials, and stones larger than 6 inches. Fill materials containing stones larger than 3 inches shall not be used in the uppermost 2 feet.
- H. Cohesionless and Cohesive Materials: Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Cohesionless materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Materials classified as GM and SM will be identified as cohesionless only when the minus #40 fraction has a plasticity index of zero as classified by ASTM D 4318.

- I. Degree of Compaction: Degree of compaction is a percentage of the maximum density obtained by the test procedure presented in ASTM D 698 or ASTM D 1557 as specified, abbreviated below as a percent of laboratory maximum density.
- J. Topsoil: Material obtained from excavations, suitable for topsoils shall consist of friable clay loam, free from roots, stones, other undesirable material and shall be capable of supporting a good growth of grass.
- K. Native Material: Excavated material that has been stockpiled onsite for later re-use.
- L. Geotechnical Engineer: A representative of a commercial geotechnical testing laboratory which will be used by the CONTRACTOR to provide the required quality assurance testing.

1.05 DESIGN REQUIREMENTS

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1.06 SUBMITTALS

- A. Product Data: Submit manufacturers' information for the following:
 - 1. Each type of plastic warning tape.
 - 2. Drainage filter fabric.
 - 3. Separation fabric.
- B. Samples: For the following:
 - 1. 30-lb (14-kg) samples, sealed in airtight containers, of each proposed soil material from borrow sources.
- C. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
 - 1. Classification according to ASTM D 2487 of each on-site or borrow soil material proposed for fill and backfill.
 - 2. Laboratory compaction curve according to ASTM D 1557 for each on-site or borrow soil material proposed for fill and backfill.
- D. New York State Department of Environmental Conservation – 6NYCRR PART 375
 - 1. Laboratory test results.

1.07 QUALITY ASSURANCE

- A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.
- B. Regulatory Requirements
 - 1. Town of Yorktown: Work of this Section shall conform to all requirements of the Town of Yorktown, Department of Parks and Recreation regulations and all applicable regulations of governmental authorities having jurisdiction including safety, health, noise, and anti-pollution regulations. Where more severe requirements than those contained in the Town of Yorktown, Department of Parks and Recreation regulations are given in this Section, the requirements of this Section shall govern.
 - 2. New York State Department of Environmental Conservation
 - 3. New York State Department of Transportation

1.08 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Owner and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than three days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written permission.
 - 3. Contact utility-locator service for area where Project is located before the start of work.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Protect material from the elements and from other damage on the site before, during, and after installation.
- B. The Contractor shall replace and pay for any material and work damaged to the satisfaction of the Town and Engineer.

PART 2: MATERIALS

2.01 DESCRIPTION

- A. General: Imported materials utilized for this Project shall be obtained from a source that has been licensed or permitted for such use by local and state authorities. The Contractor shall be required to submit evidence of such if so requested.
- B. All excavated materials which in the opinion of the Engineer are suitable for backfilling shall be stockpiled convenient to areas for later re-use or placed within the limits of the Contract or where directed by the Town. All surplus materials and materials not suitable for backfill shall be removed from the site and disposed of by the Contractor. No additional payment will be made for this, but the cost thereof shall be deemed included in the price for the item for which work is being performed.
- C. Excavated Material: Excavated material shall be used as backfill under this item unless the Engineer deems the material to be unsuitable. Excavated material used as backfill and grading, shall meet the gradation requirements for Granular Fill. No additional payment will be made for this work.

2.02 BACKFILL MATERIAL

- A. All fill materials shall be free Materials containing excessive amounts of water, plastic clay, vegetation, organic matter, debris, pavement, construction debris, stones or boulders over 6 inches in greatest dimension, frozen material, and material which, in the opinion of the Engineer is unsuitable shall be immediately removed from the site. Materials from other sources may be used upon approval by the Geotechnical Engineer. Fill materials in the uppermost 2 feet shall not have any rocks larger than 3 inches in diameter.
 - 1. Imported soil or fill materials to the site shall be analyzed for the following chemical parameters using EPA methods. Volatiles, Semi-Volatiles, TAL Metals, Pesticides/Herbicides, PCB's. Concentrations shall be compared to the NYSDEC Technical Assistance Guidance Memorandum (TAGM) and approved by the ENGINEER. Samples shall be taken at a frequency of 1 per 5,000 cubic yards if originating from a natural borrow source and 1 per 1,000 cubic yards if manufactured or recycled.

- B. Borrow Material: Where undercutting or construction of embankments are required and the Engineer deems that onsite material is unsuitable, he may require that the Contractor import suitable fill material. Suitable soil materials are defined as those complying with ASTM D2487 soil classification groups SM, SW, and SP or NYSDOT Item 733-09 Select Borrow or as directed by the Engineer. The source shall approved by the Engineer. Borrow Material if ordered by the Engineer will be paid under Item 0203.1. No payment will be made without the prior approval of the Engineer or Town.
- C. Select Granular Fill: Material for use in replacing undercut areas or in construction of embankments or where called for shall be approved by the Engineer and obtained from approved sources. Suitable soil materials shall be sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials conforming to NYSDOT Item 733-1101 and have the following gradation as determined by ASTM Designation D-422, Particle Size Analysis of Soils:

Sieve Size Max	% Passing by Weight
4 inch	100
No. 40	5 – 70
No.200	0 -15

Select Granular Fill, if ordered by the Engineer, shall be paid under Item 0203.2. No payment will be made without the prior approval of the Engineer or Town.

- D. Granular Fill: Material for use as backfill where called for by the Engineer shall be approved by the Engineer and obtained from approved sources. Native material may be used as backfill provided it meets the gradation specified below. Granular fill shall consist of suitable soil materials and shall be sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials having the following gradation as determined by ASTM Designation D-422, Particle Size Analysis of Soils:

Sieve Size Max	% Passing by Weight
1 inch	100
No. 40	5 – 70
No.200	0 -15

Granular Fill, if ordered by the Engineer, shall be paid under Item 0203.3. No payment will be made without the prior approval of the Engineer or Town.

- E. Site Stripped Topsoil may be used as fill in landscape areas only.

PART 3: METHOD

3.01 DESCRIPTION

The Contractor shall perform the required work under this section in accordance with the conditions and requirements as specified. The Contractor shall perform and execute all necessary unclassified excavation required to finish the work needed to complete all items or as directed by the Engineer. The Contractor shall supply all labor and equipment to complete the work and will make provisions for sheeting, bracing or trench boxes for deep trench excavations. It is the Contractors obligation to make certain that grades stakes, bench marks, and offset staking are in place and accurately reflect elevations as per the construction drawings.

Excavation shall generally be taken to mean the removal of soil, pavements, curbs, sidewalks, stumps, boulders, concrete and other material of any nature whatsoever that may be encountered.

The methods of excavation shall also be defined as the following.

- △ A. Conservation of Topsoil: Topsoil shall be removed as required without contamination with subsoil and stockpiled if the material is to be re-used convenient to areas for later application or at locations specified. Any surplus of topsoil from excavations and grading shall be stockpiled in location approved by the Town. A silt fence shall be installed on the downslope side and the stockpiles seeded.
- △ B. Conservation of Excavated Material: Excavated material shall be removed as required and stockpiled if the material is to be re-used convenient to areas for later re-use or at locations specified. Any surplus of material from excavations and grading shall be stockpiled in location approved by the Town. A silt fence shall be installed on the downslope side and the stockpiles seeded.
- △ C. Conservation of Stone & Rock: Stone and rock shall be excavated as maybe required and stockpiled if the material is to be re-used convenient to areas for later application or at locations specified.
 1. The existing stone walls within the work area to be demolished shall be stock piled for later re-use. Stone not incorporated into the work shall become the property of the Town.
 2. The Contractor shall carefully protect all trees and shrubs and other landscape vegetation to remain shall be protected as per specification "Site Restoration." The Town shall have the final authority on the removal of all trees and existing features to remain. The Contractor at his expense in accordance with the Specification "Site Restoration" and the General Conditions shall replace any trees removed contrary to the orders of the Town. The Contractor shall be responsible for any and all damages to property caused by the removals operations. All damaged trees and plants or improvements shall be replaced or restored to their original condition to the satisfaction of the Town. Further any new or existing improvements to remain shall also be protected throughout the construction of the project. The Contractor will be responsible at his expense to replace any improvements damaged by his company workers and those of any subcontractors under the Contractor.

All materials removed under this item, which are not to be reset, shall be promptly and legally disposed of offsite by the Contractor. Burning material shall not be allowed. No removed trees, shrubs, stumps, roots, wood chips or branches may be used as backfill.

3.02 PERFORMANCE AND LIMITS

A. General

All areas subject to earthwork shall be brought to the required elevations and grades by excavating, filling, and grading. Excavated materials found suitable by the Engineer, shall be used in making embankments and filling the low areas of the work, and at such places as the Engineer may direct. Where required embankments shall be constructed as directed by the Engineer. The soil shall be placed in successive horizontal layers not over six (6") inches in depth, extending across the entire fill. It shall be spread and shall then be thoroughly compacted by rolling with a self-propelling roller weighing not less than ten (10) tons to the satisfaction of the Engineer. In places where the use of this roller is impracticable or where subsurface or surface structures may be damaged a lighter weight one may be substituted or the area shall be compacted by mechanical tamping, all with the approval, and to the satisfaction of the Engineer. Any hollows and/or depressions which may result from rolling and compacting shall be filled with like or acceptable material, and the sub-grade shall again be compacted. This shall be repeated until all

depressions are eliminated. Where clay or plastic soils are encountered rolling shall be done in such a manor as to avoid a plastic condition. In all cases these type soils should not be rolled when wet.

The Contractor shall make sure to level the bottoms of all excavations accurately to the limits and levels shown on the plans or as directed by the Engineer to receive the bottom of structures or other work supported on soil. Where the excavation limit has been exceeded by error on the part of the Contractor, the over excavated zone will be filled to the correct grade. At the discretion of the Engineer this zone will be filled with concrete or compacted crushed stone. The Contractor will not receive any additional payment for these corrective measures. Further all soft, wet, clay or other objectionable material below the proposed sub-grade shall be removed to the satisfaction of the Engineer. The excavated zone shall be brought up to sub-grade level with material acceptable to the engineer. Under foundations and structures, 3000 psi concrete will be used. Otherwise Crushed Stone will be used, placed in 6" lifts and fully compacted to the satisfaction of the Engineer. Payment shall be included in the item that requires this fill.

The Contractor shall maintain the banks of excavation in a safe and stable condition. The Contractor shall furnish and install temporary sheet piling or planks, braces and shores of good sound timber of adequate strength, and shall remove such piling or shoring as the foundation work progresses.

When the excavations have been completed to the required depth as shown on the drawings, the Contractor shall do no more work until after inspection by the Engineer, who shall order the foundation or other work to proceed, or further excavation, as the conditions indicate and no foundation or other work shall be done until the excavation therefore have been approved by the Engineer.

3.03 PREPARATION

- A. Compaction of the Subgrade - All subgrade materials shall be compacted prior to placement of fill or permeable aggregate base material as follows:
 - 1. Use a minimum of eight passes with a steel wheel roller having a minimum weight or centrifugal force of 10 tons.
 - 2. Compact the subgrade a minimum depth of 16 inches below the subgrade surface under all locations where synthetic turf will be installed
 - 3. Any soft or yielding areas shall be re-compacted or removed and replaced with suitable material to meet required compaction requirements.
- B. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- C. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- D. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- E. Rock: Rock shall be removed to a minimum depth of 12 inches below the subgrade elevation. The excavated area shall be brought up to subgrade with approved material placed and compacted as described herein

3.04 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.05 APPROVAL OF SUBGRADE

- A. Notify Engineer when excavations have reached required subgrade.
 - 1. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed by the Engineer. The Contractor shall conduct his operations to allow the Engineer to measure the cross-sections before placing the backfill.
 - 2. Additional excavation and replacement material as ordered by the Engineer will be paid for under the corresponding pay item according to Contract provisions.
 - 3. If unsatisfactory subgrade results from inadequate surface drainage or lack of maintenance, the Contractor shall excavate and replace the unsatisfactory material at his own cost. No additional payment will be made.
- B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer.

3.06 EXCAVATION - GENERAL

- A. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

△1. Excavation: Excavation shall be General Excavation except for those items specifically indicated in the Itemized Proposal & Bid Form. After topsoil removal has been completed, excavation of every description, regardless of material encountered, within the grading limits of the project shall be performed to the lines and grades indicated. Satisfactory excavation material to be re-used shall be transported to and placed in fill areas within the limits of the work. All unsuitable material including any soil which is disturbed by the CONTRACTOR's operations and surplus material shall be disposed of at locations off site secured by CONTRACTOR and approved by the Town. Excavations carried below the depths indicated, shall, except as otherwise specified, be refilled to the proper grade with satisfactory material as directed. All additional work of this nature shall be at the CONTRACTOR's expense, unless otherwise provided for in the Bid Form. Excavation and filling shall be performed in a manner and sequence that will provide drainage at all times. Excavations shall be kept free from water while construction therein is in progress. If the CONTRACTOR fails to provide adequate drainage and any material becomes soft or otherwise unsuitable as a result, such material shall be removed and replaced with satisfactory on-site material or borrow

material from approved sources, or shall be dried and recompact as directed by the Geotechnical Engineer at no additional cost to the Town.

2. Excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
3. Intermittent drilling; blasting, if permitted; ram hammering; or ripping of material not classified as rock excavation is earth excavation.

△4. Rock excavation includes removal, stockpiling and disposal of rock.

5. Do not excavate rock until it has been classified and cross-sectioned by the Contractor's surveyor.
6. Unsuitable and excess material shall be disposed of in designated waste areas or as directed.

B. Unauthorized Excavation:

1. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific instruction from the Town or the Geotechnical Engineer.
2. Under footings or foundations, fill unauthorized excavations by extending the indicated bottom elevation of the footing or base to the unauthorized excavation bottom, but in no way altering the required top elevation.
3. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations, unless otherwise directed by the Geotechnical Engineer.

C. Trench Excavation

1. Excavation for trenches shall be paid under the individual pay items.
2. Excavation for Trenches: Excavate to widths shown on the Drawings and depths indicated or required to establish indicated slope and invert elevations.
 - a. Produce an evenly graded, flat trench bottom at the subgrade elevation required for installation of pipe and bedding material.
 - b. Place backfill material directly into trench or excavation in lifts as shown on the Contract Drawings.

3.07 APPROVAL OF SUBGRADE

- A. Notify Engineer when excavations have reached required subgrade.
- B. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
 1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- C. Proof Rolling – The Engineer may require that the subgrade be proof rolled with heavy pneumatic - tired equipment to identify soft pockets and areas of excess yielding.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer.

3.08 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Contain stockpiles with silt fence.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.09 BACKFILL

Upon completion of excavation work and installation of the structures, utilities or other work required under that item the Contractor shall request an inspection prior to backfilling. Work shall not proceed prior to inspection and approval by the Engineer. Structures may; not be backfilled prior to approval by the Engineer. The excavated voids around masonry and other work shall be filled with clean excavated soil and compacted in layers of six (6") inches of depth. No direct payment shall be made for re-handling of excavated materials for backfilling structures, nor for any other purposes necessary to complete the work as shown on the Contract Drawings, but the compensation will be considered as having been included in the base bid for this project. Re-handling of excavated materials shall be incidental to and shall be included in any additional work which resulted as an outcome of a change made to the Contract Drawings, and is ordered in writing by the Engineer. Backfilling inside of sheeting shall be placed before sheeting is removed. After areas and trenches have been excavated and structures constructed therein, the spaces around and above them shall be carefully backfilled with acceptable material. Backfill shall be placed on both sides of structures to approximately the same elevation at the same time. All backfill shall be thoroughly tamped and rammed in place in layers not over six (6) inches in depth, using rammers of a weight acceptable to the Engineer. If directed by the Engineer, the backfill shall be thoroughly saturated with water as it is placed. Backfill adjacent to foundation walls shall be pneumatically compacted only when permitted and under the supervision of the Engineer.

- A. Prior to back fill operations the following shall be completed to the satisfaction of the Engineer:
 - 1. Underground utilities shall be surveyed for record documents.
 - 2. All underground utilities shall be tested.

3.10 FILL

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- C. Place and compact fill material in layers to required elevations.
- D. No stones larger than six (6) inches in any dimension shall be placed within two (2) feet of finished subgrade elevations under pavement or walks.

3.11 MOISTURE CONTROL

The Contractor shall furnish all materials, equipment and labor required to keep the site of the work free from water, ice and snow during construction. Shall provide ample means and equipment with which to promptly remove and dispose of all water and drainage during excavation, and keep all excavations dry until the structures to be constructed are completed. Pipe laying or masonry

construction will not be permitted if water is in the excavation. Prior to making a connection to an existing manhole or pipe line install a plug in the existing piping to prevent groundwater or drainage from entering. Leave the plug in place until its removal is directed by the Engineer.

Under no circumstances will completed portions of the work be used as a means of dewatering trenches, unless specifically provided for under a Specification Item, no direct payment will be made for dewatering, including the use of deep wells, but compensation therefore will be considered as being included in the unit prices bid for the various items of the Contract.

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 3 percent of optimum moisture content.
 - 1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 3 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than 12 inches in loose depth for material compacted by heavy compaction equipment, and not more than 8 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill material at 95 percent.
 - 2. Under walkways, scarify and re-compact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill material at 92 percent.
 - 3. Under lawn or unpaved areas, scarify and re-compact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill material at 85 percent.

3.13 GRADING

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading; Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances;
 - 1. Lawn or Unpaved Areas; Plus or minus 1 inch (25 mm)
 - 2. Walks: Plus or minus 1 inch (25 mm).
 - 3. Pavements: Plus or minus ½ inch (13 mm).

3.14 FIELD QUALITY CONTROL

- A. Testing Agency: The Contractor shall hire a qualified independent geotechnical/environmental engineering testing agency to perform laboratory and field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
 - 1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. (186 sq. m) or less of paved area or building slab, but in no case fewer than three tests.
 - 2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for each 100 feet (30m) or less of wall length, but no fewer than two tests.
 - 3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150 feet (46 m) or less of trench length, but no fewer than two tests.
- D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained.
- E. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- F. Repair and reestablish grades to the specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- G. Control Survey - Prior to commencement of this work, the Contractor shall check the existing bench marks and reference points located on or out of the site as indicated. The Contractor shall establish newly standard bench marks and control stakes for the work within the site as approved by the Engineer. A single benchmark must be established prior to any work and maintained by a licensed Surveyor of record during the entire construction process.
 - 1. Principal points – Principle points shall be established taking advantage of the existing reference points. Individual principal point posts shall be of wood, 4" x 4" size, with an indicating nail on the top, the surface of the post above the ground shall be painted white.
 - 2. Bench marks - When establishing bench marks within the site, a minimum of one (1) back and forth leveling operation shall be carried out. Establishment of temporary bench marks and stakes shall be determined and performed by the Contractor. Temporary bench mark posts shall be of wood, 2" x 2" in size, with an indicating nail on the top, the surface of the post above ground shall be painted.
 - 3. Grade Verification: A certified survey shall be performed on a 25-foot grid to verify grade and elevation of the subgrade.

- H. Finished Grading: The finished surface of the subgrade shall have a finished grade in accordance with the Plans and Specifications. Final subgrade shall be established to within a tolerance of +/- .5" (.04') of the designed subgrade elevation.

3.15 USE OR DISPOSAL OF EXCAVATED MATERIAL

- A. All undesirable material such as excavated boulders larger than 2 cubic feet, concrete, wood, metals, debris or any other deleterious material shall be removed from the site under this item. Stones under 2 cubic feet may be placed back into the excavation but shall be placed at least two (2') feet from the surface and three (3') feet away from pipes, footings or structures. Clean select fill approved by the Engineer shall be used for backfill to replace the removed debris and shall be provided and placed under this item.
- B. Any structures to be abandoned shall be broken down and excavated or removed to a depth of four (4') feet below the finished surface. Structures with solid bottoms shall be sufficiently broken to allow for drainage and the void backfilled with suitable materials approved by the Engineer. Any open ends of abandoned pipes shall be plugged to the satisfaction of the Engineer.
- C. All excavated materials which in the opinion of the Engineer are suitable for backfilling shall be stored or placed within the limits of the Contract, where directed by the Town. All surplus materials and materials not suitable for backfill shall be removed from the site and disposed of by the Contractor. No additional payment will be made for this, but the cost thereof shall be deemed included in the price for the item for which work is being performed.
- D. Where service connections for sewer, water, electric or other utility are encountered in the excavations, the service through same shall not be interrupted or disturbed by the Contractor except on order and direction of the Engineer. In the event that there is a need to disturb or relocate an existing service connection the Contractor is to notify the Engineer and the owner of the service connection and supplier of the service and a plan of action established prior to any such disturbance.
- E. Where settling occurs before project acceptance, the Contractor shall remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing. The Contractor shall restore the appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.16 SAFETY COMPLIANCE

All shoring work shall meet or exceed the requirements of the New York State Department of Labor Industrial Code Rule 23 and Title 29 Code of Federal Regulations Part 1926, Safety and Health Regulations for Construction.

Utilities and Services: It is the Contractor's responsibility to detect and protect existing utilities (to remain) from damage during construction. Prior to the start of construction the Contractor is required to notify:

1. UFPO (Underground Facilities Protective Organization) (800) 272-4480 (non-members must be contacted separately)
2. 16 NYCRR Part 753 "Protection of Underground Facilities" mandates that the Contractor notify all underground facility operators in the area no less than two (2) and not more than ten (10) business days before the start of excavation to ensure that utility service lines are properly marked prior to excavation.

The Contractor's obligation to protect utilities is not relieved by calling the One Call Center. The Contractor shall understand that not all utilities may be located and he is responsible to locate other utilities, to the best of his ability, using electronic probes, or other methods, prior to the start of excavation. The Contractor shall then proceed cautiously and perform hand excavation, as necessary, to protect the utility as directed by the Engineer and the operator of the utility, at no extra cost. If a utility is inadvertently damaged, it is the Contractor's responsibility to restore that utility to operating condition, equal to that existing prior to damage. The Contractor shall remain at the site with the damaged utility until it has been restored and there is no danger to the public (i.e., exposed live electrical wires, etc.).

PART 4: MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

- △ **0201.1 Earthwork – General** will be Lump Sum. The quantity of Earthwork - General shall be determined by the Contractor. The Engineer's estimate of quantity is provided for information purposes only and shall not be considered the actual Earthwork quantity.
- △ **0201.2 Earthwork – Rock Excavation** will be measured in cubic yards, measured to the nearest whole cubic yard, computed in the final position. The Engineer's estimate of quantity is for comparing bids only. Final quantities will be field determined as necessary. The estimated quantity may be adjusted as required by the Work. The Contractor shall provide written evidence in the form of an as-built survey including cross sections as specified in Section 3.14C of this specification to the Engineer for verification.

△ **4.02 BASIS OF PAYMENT**

Payment for all Work under this item shall be at **Unit Price** or **Lump Sum** bid as shown on the **Itemized Proposal & Project Bid Sheets** and shall include the cost of all labor, materials and equipment necessary to complete the work specified under this section within the limits shown on the Contract Drawings and as directed by the Engineer or Town. The Price bid shall include the cost of all labor, materials, including screening of excavated material as required, placement and compaction. Excavation shall include transportation and stockpiling of material, equipment and survey work necessary to complete the work specified. No additional payment will be made for unauthorized work or for work outside the limits shown on the Contract Drawings.

Included in this item of work are the following item numbers:

△	0201.1	Earthwork - General
△	0201.2	Earthwork – Rock Excavation

Item 0201.1 Earthwork - General: The Contractor shall include the cost of furnishing all labor, materials and equipment, excavation, grading, screening of excavated material as required, placement and compaction. Excavation shall include transportation and stockpiling of material and miscellaneous survey work necessary to complete the work specified under this section as directed by the Engineer or Town.

Item 0201.2 Earthwork – Rock Excavation: The Contractor shall include the cost of furnishing all labor, materials and equipment, rock excavation, rock removal, grading, screening of excavated material as required, placement and compaction. Excavation shall include transportation and stockpiling of material and miscellaneous survey work necessary to complete the work specified under this section as directed by the Engineer or Town. For bid purposes, **500 cubic yards of Rock Excavation** been assumed for this work.

END OF SECTION

SECTION 0401

CAST-IN-PLACE CONCRETE

Addendum #3

PART 1: WORK

1.01 DESCRIPTION

Under this work, the Contractor shall furnish and install all materials, equipment, labor and services required for cast-in place concrete structures. Work includes the installation of formwork, reinforcement, expansion joints, special formwork or form liners for concrete with smooth finishes and other items listed herein within the site.

Included in this item are the following work at the locations shown on the Contract Documents, details and these specifications.

- A.** Concrete Pads – Maintenance Building, Dugouts, Concession Stand, Restroom, Trash Enclosure Pad and Miscellaneous concrete required.
- B.** Concrete Foundations – Maintenance Building, Dugouts, Concession Stand, Pavilion Restroom.
- C.** Work ordered by the Engineer.

The Contractor shall coordinate his work and shall allow ample time and facility for the Work of other Divisions to be installed.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 0206 Gravel Parking Area
- B. Section 0402 Cast-In-Place Concrete Curbs
- C. Section 0501 Water Main
- D. Section 0502 Force Main
- E. Section 0701 Precast Concrete Catch Basins
- F. Section 0702 Precast Concrete Manholes
- G. Section 0703 Sewage Pumping Station
- H. Section 0801 Site Lighting
- I. Section 0803 Athletic Field Lighting
- J. Section 0902 Outdoor Equipment
- K. Section 0903 Dugouts
- L. Section 0906 Site Restoration
- M. Section 0907 Traffic Signs
- N. Section 0908 Timber Guard Rail

1.03 REFERENCES

- A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of American Concrete Institute (ACI) and American Society for Testing and Materials (ASTM) documents.
 - 1. ACI 301-05: Specification for Structural Concrete for Buildings.
 - 2. ACI 302.1R-04: Guide for Concrete Floor and Slab Construction.

3. ACI 302.2R-06: Guide for Concrete Slabs that Receive Moisture- Sensitive Flooring Materials.
4. ACI 304.2R-96: Placing Concrete by Pumping Methods.
5. ACI 305R-10: Hot Weather Concreting.
6. ACI 306R-10: Cold Weather Concreting.
7. ACI 308.1-11: Standard Specification for Curing Concrete.
8. ACI 318 -05 Building Code Requirements for Structural Concrete.
9. ASTM C 94/C 94M – 11b: Standard Specification for Ready- Mixed Concrete.
10. ASTM C 494/C 494M - 11: Standard Specification for Chemical Admixtures for Concrete.

B. In general, all work and materials will conform to the latest revision and addenda to the New York State Department of Transportation Standard Specifications for Construction and Materials, which is referred to herein as NYSDOT Standard Specifications dated January 2017.

1.04 DEFINITIONS

A. ACI 301, Section 1.2 - Definitions:

1. Add the following definitions:
 - a. Cementitious Material: Cementitious materials include cement, ground blast furnace slag and fly ash.
 - b. Corrosion Inhibitor Admixture: A liquid admixture, calcium nitrite that inhibits corrosion of concrete-embedded steel in the presence of chloride ions.
 - c. Pumped Concrete: Concrete that is conveyed by pumping pressure through rigid pipe or flexible hose.
 - d. Water-to-Cement Ratio (w/c): An ratio representing quantity in pounds of free moisture available for cement hydration divided by quantity of cementitious materials in pounds per cubic yard concrete.

1.05 DESIGN REQUIREMENTS

A. Performance Characteristics:

1. Walls: Normal weight concrete with a minimum 28 day compressive strength of 4000 psi, air entrained, and a maximum water to cement ratio of 0.45
2. Exterior slabs and pads on grade (pavements, stairs, etc): Normal weight concrete with a minimum 28 day compressive strength of 3500 psi, air entrained, and a maximum water to cement ratio of 0.40.

B. Mix design for concrete with smooth form is to contain a high-range water reducer (super plasticizer).

1.06 SUBMITTALS

A. Submittals Package: Submit product data for design mix(s) and materials for concrete specified below at the same time as a package.

B. Product Data:

1. Mix Design: Submit proposed concrete design mix(s) together with name and location of batching plant at least 28 days prior to the start of concrete work.
 - a. Include test results of proposed concrete proportions based on previous field experience or laboratory trial batches in accordance with ACI 301, Section 4.
 - b. Pumped Concrete: Include test results of proposed design mix(s) tested under actual field conditions with the maximum horizontal run and vertical lift required for this project.
2. Portland Cement: Brand and manufacturer's name.
3. Fly Ash: Name and location of source, and DOT test numbers.
4. Air-entraining Admixture: Brand and manufacturer's name.
5. Water-reducing Admixture: Brand and manufacturer's name.
6. High Range Water-reducing Admixture (Superplasticizer): Brand and manufacturer's name.
7. Corrosion Inhibitor Admixture: Brand and manufacturer's name.
8. Accelerating Admixture: Brand and manufacturer's name.
9. Aggregates: Name and location of source, and DOT test numbers.
10. Lightweight Coarse Aggregates: Brand and manufacturer's name.
11. Chemical Hardener (Dustproofing): Brand and manufacturer's name, and application instructions.
12. Chemical Curing and Anti-Spalling Compound: Brand and manufacturer's name, and application instructions.
13. Bonding Agent (Adhesive): Brand and manufacturer's name, and preparation and application instructions.
14. Expansion Joint Fillers: Brand and manufacturer's name.
15. Waterstop: Brand and manufacturer's name, and installation instructions.
16. Emery Aggregate: Brand and manufacturer's name, and application instructions.
17. Integral Water-Repellent Admixture: Brand, manufacturer name, specifications, and application instructions.

C. Quality Control Submittals:

1. Batching Plant Records: At the end of each day of placing concrete, furnish the Director's Representative with a legible copy of all batch records for the concrete placed.

2. Concrete Pumping Equipment Data: Include manufacturer's name and model of principal components, type of pump, and type and diameter of pipe/hose.
3. Minutes of the previous pre-installation conference.

D. LEED Design Submittals:

1. MR Credit 4.1 and MR Credit 4.2: Identify manufacturer's name, the percentage of post-consumer recycled content by weight, the pre-consumer recycled content by weight, and the cost of the product.
4. MR Credit 5.1 and MR Credit 5.2: Identify source, cost, and the fraction by weight that is considered regional.

1.07 QUALITY ASSURANCE

A. Qualifications

1. Concrete Installer: Company specializing in performing the Work of this Section shall have three years minimum experience on successful projects of similar size.
2. Concrete Producer: Company specializing in the production of concrete shall be certified by the National Ready Mixed Concrete Association (NRMCA) and shall have certification acceptable to either the Town or the NYS Department of Transportation. The plant shall use NYSDOT approved trucks and drivers shall be certified by the NRMCA.
3. Truck mixers for concrete shall be currently approved by the New York State Department of Transportation.
4. Pumping equipment for pumped concrete shall be subject to the approval of the Town.

B. Fly ash supplier shall be on the New York State Department of Transportation's current "Approved List of Suppliers of Fly Ash".

C. Source Quality Control: The Town reserves the right to inspect and approve the following items, at his own discretion, either with his own forces or with a designated inspection agency:

1. Batching and mixing facilities and equipment.
2. Sources of materials.

D. ACI 301, Section 1.3 Reference standards and cited publications:

E. Regulatory Requirements

1. Town of Yorktown: Work of this Section shall conform to all requirements of the Town of Yorktown Regulations and all applicable regulations of governmental authorities having jurisdiction including safety, health, noise, and anti-pollution regulations. Where more severe requirements than those contained in the Town

of Yorktown regulations are given in this Section, the requirements of this Section shall govern.

2. Industry Standards: The ACI Standards listed under references apply to Work of this Section. Where more severe requirements than those contained in the Standards are given in this Section or the NYSDOT Standard Specifications, the requirements of this Section shall govern.

F. Certifications

Acquire cement and aggregate from same source for all work. If a change in suppliers is required, a new mix submittal must be produced with the new material and submitted for approval.

G. Coordination

Coordinate this work with the work of other Sections so that items to be installed are done so correctly and in proper sequence.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. ASTM C 94/C 94M, Article 14 - Batch Ticket Information: In addition to the information required by Paragraph 14.1, also include the following:
 1. Type and brand, and amount of cement.
 2. Weights of fine and coarse aggregates.
 3. Class and brand, and amount of fly ash (if any).
- B. Protect material from the elements and from other damage on the site before, during, and after installation. Reinforcement shall be stored in a location to prevent damage and rusting, etc.
- C. Insure proper identification of reinforcement after bundles are broken.
- D. The Contractor shall replace and pay for any material and work damaged to the satisfaction of the Engineer or Town.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Adequately protect concrete placed during rain, sleet, or snow, or when the mean daily temperature falls below 40°F or rises above 90°F as provided in Article 3.08.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Reinforcing Bars: All reinforcing bars shall be of deformed type of new billet steel conforming to current requirements of ASTM A615 Grade 60. No rail or re-rolled steel will be permitted.

- B. Supports for Reinforcement: Support for reinforcement supported by ground shall be coated wire bar supports or bar supports made of dielectric material or other acceptable materials or precast concrete block, 4" square minimum, having a compressive strength equal to that of the concrete being placed.
- C. Cement: Shall conform to ASTM C150 Type 1 or Type II and shall be of the non-air-entrained type.
- D. Admixtures
 - 1. The use of admixtures shall comply with the requirements of all related sections of the NYS DOT Standard Specifications. The final soluble chloride content in concrete, percent by weight of cement, due to the addition of admixtures and other ingredients shall not exceed 0.05 at 28 days.
 - 2. Air-entraining admixtures shall conform to ASTM C260.
 - 3. Chemical admixtures shall conform to ASTM C494.
- F. Water: Shall be clean potable water free of injurious foreign matter conforming to the requirements of Section 500 and all related sections of the NYS DOT Standard Specifications.
- G. Aggregate: Aggregate shall conform to ASTM C33, No.57, No.67 or No.8. Maximum size of coarse aggregate shall conform to paragraph 3.3.2 of ACI 318.
- H. Expansion Joint Filler: Closed-Cell Polyurethane or Closed-Cell Expanded polyethylene Joint Filler - Resilient, compressible, semi-rigid; W.R. Meadow's Ceramar; A.C. Horn's Closed Cell Plastic Foam Filler, Code 5401; Sonneborn's Sonoflex F.
- I. Expansion Joint Sealant: Type 1A Sealant
 - 1. For Horizontal Joints: Two-part, self-leveling polyurethane sealant for traffic bearing construction; Mameco's Vulkem 255, Pecora's Urexpan NR-200, or Bostik's Chem-Calk 550 or Products Research & Chemical's RC-2SL.

2.02 MIXES

A. General

Cast-in-place concrete shall be air-entrained normal weight concrete except where lightweight concrete is indicated on the drawings.

Concrete for all parts of the Work shall be of the specified quality capable of being placed without excessive segregation and, when hardened, of developing all characteristics required by the Specifications and Drawings.

B. Strength

- C. Air-entraining Admixture: ASTM C 260, and on the New York State Department of Transportation's current "Approved List".

- D. Water-reducing Admixture: ASTM C 494/C 494M, Type A, and on the New York State Department of Transportation's current "Approved List".
- E. High Range Water-reducing Admixture (Superplasticizer): ASTM C 494/C 494M, Type F, and on the New York State Department of Transportation's current "Approved List".
- F. Corrosion-Inhibiting Admixture: ASTM C 494/C 494M, for use in resisting corrosion of steel reinforcement.
1. DCI Corrosion Inhibitor by W. R. Grace & Co., - Conn., 62 Whittemore Ave., Cambridge, MA 02140, (617) 876-1400 and Rheocrete CNI by Master Builders/BASF Building Systems, 23700 Chagrin Blvd., Cleveland, OH 44122, (800) 628-9990.
 2. DCI - S Corrosion Inhibitor by W. R. Grace & Co., - Conn., 62 Whittemore Ave., Cambridge, MA 02140, (617) 876-1400.
- G. Retarding Admixture: ASTM C 494, Type D, Water-reducing and retarding, for use in hot weather concreting, and on the New York State Department of Transportation's current "Approved List".
- H. Accelerating Admixture: Non-corrosive admixture, containing no chloride, complying with ASTM C 494, Type C or E, and on the New York State Department of Transportation's current "Approved List".
- I. Fly Ash: ASTM C 618, including Table 1 (except for footnote A), Class F except that loss on ignition shall not exceed 4.0 percent.
- J. ACI 301, Section 4.2.1.2 - Aggregates:
1. Add the following paragraph:
 - Fine aggregate for pumped concrete shall meet the requirements of ASTM C 33, except 15 to 30 percent shall pass the No. 50 sieve and 5 to 10 percent shall pass the No. 100 sieve. The fineness modulus of the fine aggregate for pumped concrete shall not vary more than 0.20 from the average value used in proportioning.
 2. Change paragraph 7.2.1 to read as follows:
 - Aggregates for lightweight concrete shall meet the requirements of ASTM C 330, except that fine aggregate for lightweight concrete shall meet the requirements of ASTM C 33.
 3. Add the following paragraph:
 - Aggregates shall be taken from storage silos or other approved locations that have been tested and approved by the New York State Department of Transportation, unless otherwise approved in writing by the Director.

- K. Moisture-Retaining Cover: Waterproof paper, polyethylene film, or polyethylene-coated burlap complying with ASTM C 171.
- L. Chemical Curing and Anti-Spalling Compound: ASTM C-309, Type 1D, Class B, with a minimum 18 percent total solids content. No thinning of material allowed.
1. SureCure Emulsion, Kaufman Products, Inc. 3811 Curtis Avenue, Baltimore, MD 21226, (800) 637-6372.
 2. Cure & Seal by Symons Corp., 200 East Touhy Ave., PO Box 5018, Des Plaines, IL 60017-5018, (847) 298-3200.
 3. Kure-N-Seal by Sonneborn/ BASF Building Systems, 889 Valley Park Dr., Shakopee, MN 55379, (800) 433-9517.
 4. Day-Chem Cure & Seal UV 26 percent (J-22 UV) by Dayton Superior Corp., 721 Richard St., Miamisburg, OH 45342, (800) 745-3700.
 5. Acrylseal HS by Master Builders/ BASF Building Systems, 23700 Chagrin Blvd., Cleveland, OH 44122, (800) 628-9990.
- M. Chemical Hardener (Dustproofing): Colorless aqueous solution of magnesium-zinc fluosilicate.
1. Lapidolith by Sonneborn/ BASF Building Systems, 889 Valley Park Dr., Shakopee, MN 55379, (800) 433-9517.
 2. Surfhard by The Euclid Chemical Co., 19218 Redwood Rd., Cleveland, OH 44110, (216) 531-9222.
 3. Pena-Lith by W.R. Meadows, Inc., PO Box 543, Elgin, IL 60121, (847) 683-4500.
 4. FluoHard by L & M Construction Chemicals, Inc., 14851 Calhoun Rd., Omaha, NE 68152, (402) 453-6600.
 5. Armortop by Anti Hydro International, Inc., 265 Badger Ave., Newark, NJ 07108, (800) 777-1773.
 6. Diamond by Kaufman Products , Inc., 3811 Curtis Avenue, Baltimore, MD 21226, (800) 637-6372.
- N. Type 1 Expansion Joint Filler: Preformed, resilient, nonextruding cork units complying with ASTM D 1752, Type II.
- O. Type 2 Expansion Joint Filler: Preformed, resilient, nonextruding, self-expanding cork units complying with ASTM D 1752, Type III.
- P. Type 3 Expansion Joint Filler: Preformed, resilient, nonextruding bituminous units complying with ASTM D 1751.
- Q. Epoxy Bonding Agent (Adhesive): 100 percent solids epoxy-resin-base bonding compound, complying with ASTM C 881, Types I, II, IV and V, Grade 2 (horizontal areas) or Grade 3 (overhead/vertical areas), and Class B (40-60 degrees Fahrenheit) or Class C (60 degree Fahrenheit and above).

1. SurePoxy HM Series by Kaufman Products, Inc., 3811 Curtis Avenue, Baltimore, MD 21226, (800) 637-6372.
 2. Sikadur Hi-Mod 32 by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071, (800) 933-7452.
 3. Epogrip by Sonneborn/-BASF Building Systems, 889 Valley Park Drive, Shakopee, MN 55379, (800) 433-9517.
- R. Emery Aggregate: Natural emery, crushed, polyhedral in shape, with not more than 10 percent flat or elongated pieces, properly screened, graded and packaged in the manufacturer's plant, and delivered to the Site in sealed, labeled packages.
1. Emerundum by Anti Hydro International, Inc., 265 Badger Ave., Newark, NJ 07108, (800) 777-1773.
 2. Non-Slip Aggregate by Setcon Industries, Inc., 5 Mathews Ave., Riverdale, NJ 07457-1020, (201) 283-0500.
 3. Frictex H by Sonneborn/ BASF Building Systems, 889 Valley Park Dr., Shakopee, MN 55379, (800) 433-9517.
- S. Waterstop: Extruded from virgin polyvinyl chloride plastic compound containing no scrap or reclaimed material or pigment.
1. Size: Minimum 6 inches wide by 3/8 inch thick, unless otherwise indicated.
 2. Minimum Tensile Strength (ASTM D 412): 2000 psi.
 3. Minimum Ultimate Elongation (ASTM D 412): 350 percent.
 5. Shore A/10 Durometer Hardness (ASTM D 2240): Minimum 65; Maximum 83.
 5. Maximum 24 Hour Water Absorption (ASTM D 570): 0.15.
- T. Waterstop: Water swelling sealant; minimum 3/4 inch wide by 3/8 inch thick, unless otherwise indicated; minimum tensile strength (ASTM D 412) 100 psi minimum ultimate elongation (ASTM D 412) 500 percent.
1. MC-2010M by Adeka Ultra Seal Corporation, PO Box 459, Spearfish, SD 57783, (605) 642-3959.
 2. Volclay Waterstop RX-101 by Colloid Environmental Technologies Company, Building Materials Division, 1350 W. Shure Drive, Arlington Heights, IL 60004, (708) 392-5800.
- U. Expansion Joint Dowels: Smooth steel expansion joint dowel with minimum 5 inch long steel dowel cap, unless otherwise indicated.
- V. Integral Water-Repellent Admixture:
1. Hydrocide Powder by Sonneborn/ BASF Building Systems, 889 Valley Park Drive, Shakopee, MN 55379, (800) 433-9517.

2. Darapel by W. R. Grace & Co., - Conn., 62 Whittemore Ave., Cambridge, MA 02140, (617) 876-1400.

2.02 MIXES

- A. Cast-in-place concrete shall be air-entrained normal weight concrete except where lightweight concrete is indicated on the drawings.
 1. Normal weight concrete, except as otherwise specified, shall have a minimum compressive strength of 3000 psi with a minimum of 564 pounds per cubic yard or 4000 psi, with a minimum of 611 pounds of cement per cubic yard. Slump: Maximum 4 inches; minimum 2 inches before the addition of any water-reducing admixtures or high-range water-reducing admixtures (superplasticizers) at the Site.
 2. Normal weight concrete for exterior slabs, pads, ramps and stairs shall have a minimum compressive strength of 4000 psi, with a minimum of 611 pounds of cement per cubic yard. Slump: Maximum 3 inches; minimum 2 inches before the addition of any water-reducing admixtures or high-range water-reducing admixtures (superplasticizers) at the Site.
 3. Optional Material: Fly ash may be substituted for (Portland) cement in normal weight and lightweight concrete up to a maximum of 15 percent by weight of the required minimum (Portland) cement. If fly ash is incorporated in a concrete design mix, make necessary adjustments to the design mix to compensate for the use of fly ash as a partial replacement for (Portland) cement.
 - a. Adjustments shall include the required increase in air-entraining admixture to provide the specified air content.
 - b. Lower early strength of the concrete shall be considered in deciding when to remove formwork.
- B. Lightweight concrete shall be air-entrained concrete having a minimum compressive strength of 4000 psi and an air-dry unit weight between 95 and 115 lb/cu ft, with a minimum of 611 pounds of cement per cu yd. Lightweight concrete shall be made with normal fine aggregate; lightweight fine aggregate shall not be used. Slump: Maximum 4 inches; minimum 1 inch before the addition of any water-reducing admixtures or high-range water-reducing admixtures (superplasticizers) at the Site.
- C. Slump for Pumped Concrete: When a water-reducing admixture is not used, maximum slump shall be 4 inches. When a water-reducing admixture is used, maximum slump shall be 6 inches and when a high-range water-reducing admixture (superplasticizers) is used, maximum slump shall be 8 inches.
- D. Design Air Content: Design air content for concrete shall be 6 percent by volume, with an allowable tolerance of plus or minus 1.5 percent for total air content, except as otherwise specified. Use air-entraining admixture, not air-entrained cement.

- E. Water-Cement Ratio: Cast-in-place concrete shall have a maximum water-cement ratio of 0.40.
- F. ACI 301, Section 4.2.2.3: Change article to read as follows:
- 4.2.2.3 - Size of Coarse Aggregates:
 - 4.2.2.3.a Normal Weight Concrete: Coarse aggregates shall conform to gradation requirements for various sizes as tabulated in Table No. 2 of ASTM C 33. The sizes of coarse aggregates for various classes of Work shall be as follows with all percentages being determined by weight.
 - 4.2.2.3.b For concrete floors, floor and roof slabs, reinforced beams and girders, columns and piles, concrete encasing underground electric conduits, and concrete in which the space between restricting objects is 2 inches or less, the coarse aggregate shall be Size No. 67.
 - 4.2.2.3.c For other concrete Work having a minimum cross-sectional dimension of not more than 6 inches, the coarse aggregate shall be a well graded mixture of No. 67 and No. 57, provided that not more than 50 percent nor less than 30 percent shall be Size No. 67 and not more than 70 percent nor less than 50 percent shall be Size No. 57.
 - 4.2.2.3.d For other concrete Work having a minimum cross-sectional dimension greater than 6 inches and not more than 12 inches, the coarse aggregate shall consist of a mixture of No. 67, No. 57 and No. 467, providing that not more than 25 percent nor less than 10 percent shall be Size No. 67 and not more than 40 percent shall be Size No. 467.
 - 4.2.2.3.e For other concrete Work having a minimum cross-sectional dimension of more than 12 inches, the coarse aggregate shall consist of a mixture of No. 67, No. 57 and No. 357, providing not more than 25 percent nor less than 10 percent shall be Size No. 67 and not more than 40 percent shall be Size No. 357.
 - 4.2.2.3.f Lightweight Concrete: Lightweight aggregates shall be graded from 3/4 inch to No. 4 sieve size in conformance with Table No. 1 of ASTM C 330.
- G. Application Rate for Corrosion-Inhibiting Admixture: The application rate for the corrosion-inhibiting admixture shall be TBD gallons per cubic yard of concrete for all concrete placements where indicated on the drawings.
- H. Admixtures: Do not use admixtures in concrete unless specified or approved in writing by the Director.
- I. ACI 301, Section 4.1.2.1 - Mixture Proportions:
1. Add the following to paragraph 4.1.2.1:
 - Proposed design mix(es) for pumped concrete and the pumping equipment shall have been tested under actual field conditions with the maximum horizontal run and vertical lift required for this project.
- J. Application Rate for Integral Water Repellent Admixture:
1. Hydrocide Powder, 1 lb. for each 94 lb. of cement
 2. Darapel, 3 to 6 oz. for each 100 lb. of cement.

2.03 JOINTS

- A. ACI 301, Section 5.3.2.6 - Construction joints and other bonded joints:
1. Delete the following subparagraphs:
 - Use an acceptable adhesive applied in accordance with the manufacturer's recommendations;
 - Use an acceptable surface retarder in accordance with manufacturer's recommendations;
 - Roughen the surface in an acceptable manner that exposes the aggregate uniformly and does not leave laitance, loosened particles of aggregate, or damaged concrete at the surface; or
 - Use Portland-cement grout of the same proportions as the mortar in the concrete in an acceptable manner.
 2. Add the following in place of the above subparagraph:
 - The use of bonding agent (adhesive).
 - The use of cement grout.
- B. ACI 301, Section 10.2.5 – Isolation-joint filler materials:
1. Add the following paragraphs:
 - Except as otherwise shown on the Drawings, expansion joints shall be as follows:
 - In joints required to receive a sealant, the joint filler shall be 1/2 inch thick and recessed as required to form a caulking slot.
 - In joints not required to receive a sealant, the joint filler shall be 1/2 inch thick and extend through the full cross-section of the concrete.
 - Tool edges of concrete with 1/8 inch radius edging tool.

2.04 PRODUCTION OF CONCRETE

- A. Provide ready-mixed concrete, either central-mixed or truck-mixed, unless otherwise approved in writing by the Engineer.
- B. ACI 301, Section 5.3.2.1 Weather considerations
1. Delete paragraph under 5.3.2.1.c - Hot Weather, and add the following:
 - 5.3.2.1.c Provide adequate controls to insure that the temperature of the concrete when placed does not exceed 90 degrees F., and make every effort to place it at a lower temperature. The temperature of the concrete as placed shall not be so high as to cause difficulty from loss of slump, flash set or cold joints. Ingredients may be cooled before mixing by shading the aggregates, fog spraying the coarse aggregate, chilling the mixing water or other approved means. Mixing water may be chilled with flake ice or well-crushed ice of a size that will melt completely during mixing, providing the water equivalent of the ice is calculated into the total amount of mixing water.
- C. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing.
1. In cold weather, comply with ACI 306R.

- a. When air temperature is below 40 degrees F (4 degrees C) heat the mixing water and, if necessary, the aggregates to obtain a concrete mixture temperature of not less than 50 degrees F (10 degrees C) and not more than 80 degrees F (27 degrees C) at point of placement. If the mixing water is heated, do not exceed a temperature of 140 degrees F at the time it is added to the cement and aggregates.
2. In hot weather, comply with ACI 305R.
 - a. When air temperature is between 85 degrees F (30 degrees C) and 90 degrees F (32 degrees C), reduce mixing and delivery time from 1 1/2 hours to 75 minutes, and when air temperature is above 90 degrees F (32 degrees C), reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Do not use items of aluminum for mixing, chuting, conveying, forming or finishing concrete, except magnesium alloy tools may be used for finishing.
- B. Check items of aluminum required to be embedded in the concrete and insure that they are coated, painted or otherwise isolated in an approved manner.
- C. Install waterstops in accordance with manufacturer's printed instructions.
- D. Hardened concrete, reinforcement, forms, and earth which will be in contact with fresh concrete shall be free from frost at the time of concrete placement.
- E. Do not deposit concrete in water. Keep excavations free of water by pumping or by other approved methods.
- F. Prior to placement of concrete, remove all hardened concrete spillage and foreign materials from the space to be occupied by the concrete.
- G. Prior to placement of a concrete slab-on-grade, insure roof is watertight and install polyethylene or other preventative measures to mitigate exposure to external moisture sources such as rainwater; runoff from adjacent slopes; landscaping water; water from curing; or wet grinding, sawing, and cleaning.
- H. Place vapor barrier directly under concrete slab-on-grade with no cushion or blotter layer.

3.02 ADMIXTURE ADDITIONS AT THE SITE

- A. Site additions shall be limited to high-range water-reducers, non-chloride accelerators, and corrosion inhibitors. Comply with manufacturers' printed instructions for discharge of admixtures shall be furnished.

B. High-Range Water-Reducers:

1. Concrete shall arrive at a slump of 2 to 4 inches (50 to 100 mm). Water additions at the Site shall be limited to comply with water-to-cementitious ratio requirements.
2. Following addition of high-range water-reduced concrete, a minimum of 70 revolutions or 5 minutes of mixing shall be completed to assure a consistent mixture.

C. All concrete with other admixture additions shall mix a minimum of 70 revolutions or 5 minutes to assure a consistent mixture.

3.03 PLACING

A. ACI 301, Section 5.3.2.3 Conveying equipment:

1. Add the following paragraphs:
 - 5.3.2.3.d When pumping concrete, the lubricating mortar for the delivery line shall not be discharged into an area of concrete placement.
 - 5.3.2.3.e The inside diameter of the delivery lines for pumped concrete shall be the greater of either a minimum of 5 inches or 3 times the maximum size of coarse aggregate.

B. ACI 301, Section 5.3.2.2 - Conveying:

1. Add the following paragraph:
 - Operation of truck mixers and agitators and discharge limitations shall conform to the requirements of ASTM C 94.

C. ACI 301, Section 5.3.2.4 - Depositing:

1. Add the following paragraph:
 - Do not allow concrete to free fall more than 4 feet.

3.04 REPAIRING SURFACE DEFECTS

A. ACI 301, Section 5.3.7 – Repair of surface defects:

1. Add the following paragraph:
 - 5.3.7.1.a Finish patched areas to match the texture of the surrounding surface.

B. ACI 301, Section 5.3.7.2 - Repair of tie holes:

1. Delete last paragraph in 5.3.7.2 and replace with the following:
 - The patch mixture shall consist of a mixture of dry-pack mortar, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for placing and handling. For surfaces exposed to view, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and

color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

3.05 FINISHING FORMED SURFACES

- A. Finish Schedule: Except where indicated otherwise on the Drawings, provide the finishes below:
 - 1. Rough Form Finish for concrete surfaces not exposed to view.
 - 2. Smooth Form Finish for concrete surfaces exposed to view.
 - 3. Smooth Rubbed Finish for exterior concrete surfaces exposed to view.
 - 4. Grout Cleaned Finish for interior concrete surfaces exposed to view.
- B. ACI 301, Section 5.3.3.3 - As-cast Finishes:
 - 1. Add the following to paragraph 5.3.3.3:
 - Fins shall be completely removed on surfaces to receive waterproofing.

3.06 SLABS & PADS

- A. Slabs and Pads On Grade: Provide key type joints unless otherwise shown. Tool exposed joints.
- B. ACI 301, Section 5.3.4 – Finishing unformed surfaces:
 - 1. Add the following paragraph to section 5.3.4.1 Placement:
 - Provide monolithic finishes on concrete floors and slabs without the addition of mortar or other filler material. Finish surfaces in true planes, true to line, with particular care taken during screeding to maintain an excess of concrete in front of the screed so as to prevent low spots. Screed and darby concrete to true planes while plastic and before free water rises to the surface. Do not perform finishing operations during the time free water (bleeding) is on the surface.
- C. Finish Schedule: Except where indicated otherwise on the Drawings, provide the finishes below:
 - 1. Floated Finish for:
 - a. Treads and platforms of exterior steps and stairs.
 - b. Slabs and fill over which waterproofing, roofing, vapor barrier, insulation, terrazzo, or resin bound flooring is required.
 - 2. Troweled Finish for:
 - a. Interior slabs that are to be exposed to view.
 - b. Slabs and fill over which resilient wood flooring, resilient tile or sheet flooring, carpet, or thin-film coating system is required.

- c. Slabs and fill over which thin-set ceramic tile is required, except fine-broom finished surface.
 - d. Treads and platforms of interior steps and stairs.
3. Broom or Belt Finish for:
- a. Exterior slabs. Texture as approved by the Director's Representative.
4. Scratched Finish for:
- a. Surfaces to be covered with ceramic tile set in a bonded thick mortar bed, except screed to a Class B tolerance.
5. Integral Emery Aggregate Surfacing with Floated Finish for:
- a. Interior pedestrian ramps.
- D. ACI 302 Chapter 8.2.8.2 - Tools for jointing; Saw-cutting.
- 1. Add the following paragraph:
 - Early-entry dry-cut saws are preferred in place of conventional wet-cut saws.
- E. ACI 302 Chapter 8.3.12
- 1. Add the following to Conventional wet-cut saw cutting:
 - Begin saw-cutting as soon as the saw will not dislodge the aggregate or ravel the edge of the saw-cut, but in no case longer than 12 hours after the slab is placed. Saw-cut a minimum of one quarter of the slab depth leaving a clean, sharp edge in the pattern shown on the Contract Documents. Provide sufficient personnel and equipment to complete saw-cutting operations within 18 hours after the slab is placed.
- F. Exposed surfaces with fibrous reinforcement: After curing of the concrete, remove any protruding fibers in a manner which will not harm the parent concrete.
- G. Floor flatness and levelness tolerances: For flatness and levelness tolerances of floor slabs refer to ACI 302 Chapter 8.15. Floor surface tolerances shall be 1/8 inch over a horizontal distance of 10 feet in any direction, unless otherwise specified by floor profile quality classifications in ACI 302.
- 1. When flatness or levelness tolerances are not met then the floor shall be ground or scarified and repoured to meet specifications.

3.07 CURING AND PROTECTION

- A. Hot Weather Concreting: Comply with ACI 305R whenever the atmospheric temperature or the form surface temperature is at or above 90 degrees F., or climatic conditions of wind and/or low humidity will cause premature drying of the concrete.
- B. Curing Temperature: Maintain the temperature of the concrete at 50 degrees F. or above during the curing period. Keep the concrete temperature as uniform as possible and protect from rapid atmospheric temperature changes. Avoid

temperature changes in concrete which exceeds 5 degrees F. in any one hour and 50 degrees F. in any 24-hour period.

1. Do not cure slabs by adding water; ponding or wet burlap method.
2. Do not use curing compounds or cure-and-seal materials unless such use is approved in writing by the adhesive and floor covering manufacturers. The curing product manufacturer's conformance to ASTM c 1315 is not a substitute for the adhesive and floor covering manufacturer's approval.
3. Cure the slab by covering with waterproof paper, plastic sheets, or a combination of the two for 3 to 7 days.

3.08 CHEMICAL HARDENER (DUSTPROOFING)

- A. Apply chemical hardener to all troweled finished interior floors which are to be left exposed.
- B. Do not apply chemical hardener until concrete has cured the number of days recommended in manufacturer's instructions.
- C. Prepare surfaces and apply chemical hardener in accordance with manufacturer's printed instructions and recommendations.

3.09 FIELD QUALITY CONTROL

- A. ACI 301, Section 1.6.4.2 - Testing Services:
 1. Add the following paragraph:
 - 1.6.4.2. j Strength Tests for Pumped Concrete: Prepare strength test specimens and make strength tests from concrete samples obtained at the truck discharge chute and at the end of the pump delivery line in accordance with paragraph 16.3.4.4.
- B. ACI 301, Section 1.6.3.3 – Tests required of Contractor's testing agency:
 1. Add the following paragraph:
 - 1.6.3.3.c Make available to the Town's Representatives whatever test samples are required to make tests. Furnish shipping boxes for compression test cylinders.
- C. Adjustment to Concrete Mixes: Mix design adjustments may be requested by the Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, at no additional cost to the State and as accepted by the Director. Laboratory test data for revised mix design and strength results must be submitted to and accepted by the Director's Representative before using in the work.
- D. Test results will be reported in writing to the Town's Representative, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class,

location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

- E. Nondestructive Testing: Impact hammer, Windsor probe, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- F. Additional Tests: The State shall make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Town's Representative. The testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Pay for such tests when unacceptable concrete is verified, including all inspection and Engineering fees when non-conforming work is verified.
- G. Moisture Testing: Test all slabs-on-grade for moisture content that will receive resilient flooring. For a preferred moisture testing method and limits; consult the written instructions of the floor covering manufacturer, the adhesive manufacturer, the patching/underlayment manufacturer, or combination thereof. Test repeatedly until the desired moisture content is obtained.
- H. pH Testing: Test concrete floors for pH level prior to the installation of resilient flooring. Do not exceed the recommended pH level of the resilient flooring manufacturer or the adhesive manufacturer, or both.

PART 4: MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

Cast-In-Place Concrete will be measured in cubic yards, measured to the nearest whole cubic yard, computed in the final position.

4.02 BASIS OF PAYMENT

Payment for all Work under this item shall be at the **Unit Price** bid and shall include the cost of furnishing all labor, materials and equipment for construction of cast-in-place concrete including but not limited to excavation, backfilling, removal and disposal of surplus material, concrete, reinforcing, expansion joints, repair or patching, and any incidental work required to complete the work in accordance with the Contract Documents and Specifications, to the satisfaction of the Engineer or Town. The unit price bid shall include the cost of placement and compaction, and testing.

END OF SECTION

SECTION 0501

WATER MAIN

Addendum #3


PART 1: WORK

1.01 DESCRIPTION

Under this item the Contractor shall furnish and install the Work Items listed below at the location and grades shown on the drawings. All labor, materials and equipment including but not limited to saw cutting asphalt and concrete, excavation including trenching and sheeting, backfilling, screening of excavated material as required, compaction, pipe, fittings, couplings, restraints, concrete trust blocks, pipe sleeve, removal and disposal of material, cleaning up, and any incidental work required to complete the work as specified in the Contract Documents and these Specifications.

Water mains, fire hydrants and appurtenance shall conform to these specifications and shall be selected from the Town of Yorktown's Approved List of Suppliers or as shown on the Contract Drawings.

Included in this item of work are the following Work Items:

	0501.1	Water Main
	0501.2	CLSM/Flowable Fill (K – Crete)

Item 0501.1 Water Main - Under this work item, the Contractor shall install water mains, valves, manual air relief valve connection, all appurtenances, sleeving and insulation at the locations and grades shown on the Contract Drawing. This work shall include and not be limited to saw cutting, excavation, trust blocks, backfill piping, fittings, crushed stone, filter fabric, select fill, insulation, removal of surplus material and cleaning up at the location shown on the Contract Documents or as directed by the Engineer or Town.

Item 0501.2 CLSM/Flowable Fill (K – Crete) - Under this work item, the Contractor shall backfill with CLSM/Flowable Fill (K – Crete) as directed by the Engineer. This work shall include and not be limited to removal of surplus material and cleaning up at the location shown on the Contract Drawings or as directed by the Engineer or Town.

The work under this item shall not be performed without the prior authorization of the Engineer or Town. For bid purposes, **100 cubic yards** of CLSM/Flowable Fill (K – Crete) has been assumed for this pay item.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 0101 Site Preparation and Removals
- B. Section 0102 Survey and Stakeout
- C. Section 0103 Erosion and Sediment Control
- D. Section 0201 Earthwork
- E. Section 0202 Unclassified Excavation
- F. Section 0203 Select Fill Material
- G. Section 0204 Crushed Stone Fill
- H. Section 0401 Cast-In-Place Concrete
- I. Section 0503 Copper Water Service
- J. Section 0703 Sewage Pumping Station
- K. Section 0802 Building Services – General Plumbing & Electrical Work
- L. Section 0906 Site Restoration

1.03 REFERENCES

References and industry standards listed in this Section are applicable to the Work in this Section unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

- A. Materials for water systems shall meet the appropriate American Water Works Association (AWWA) Standard C219 and American National Standards Institute (ANSI) specifications, except as modified by these specifications. Asbestos cement pipe or lead tipped gaskets shall not be used. The materials provided shall meet the requirements specified in the "Town Requirements for Water Mains and Appurtenances".
- B. American Society of Testing and Materials (ASTM) standards, latest editions.
 - 1. ASTM Designation: PS 31-95
Provisional Standard Test Method for Ball Drop on Controlled Low Strength Material to Determine Suitability for Load Application.
 - 2. ASTM Designation: PS 30-95
Provisional Standard Practice for Sampling Freshly Mixed Controlled Low Strength Material.
 - 3. ASTM Designation: PS 28-95
Provisional Standard Test Method for Flow Consistency of Controlled Low Strength Material.
 - 4. ASTM Designation: PS 29-95
Provisional Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Controlled Low Strength Material
 - 5. ASTM Designation: D6103, C939, C143, D6023, C1152, D4380, D1556, D2922, D6024, C403, D4832, D1196, & D4429, ASTM C552.
- C. American Concrete Institute: ACI 229 Controlled Low Strength Material
- D. National Ready Mixed Concrete Association (NRMCA): Guide Specification for Controlled Low Strength.
- E. National Fire Protection Association (NFPA)
- F. New York State Department of Transportation Standard Specifications

1.04 DEFINITIONS

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1.05 DESIGN REQUIREMENTS

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1.06 SUBMITTALS

- A. Product Data: Manufacturer's specifications including dimensions and coatings.
- B. Quality Control Submittals: Statement of compliance with ANSI & AWWA Specifications.
- C. Temporary or Permanent Sheeting: The Contractor shall retain a Licensed Professional Engineer to design all excavation methods including temporary or permanent sheeting.
- D. Design Data: Submit design mixes for concrete and CLSM/Flowable Fill, including list of admixtures to be used, to the Engineer. After approval and prior to placement, send the approved mix the Engineer.
- E. Certificates: Concrete producer's Computer Batch Ticket must be presented at site before CLSM is placed for every load delivered.

1.07 QUALITY ASSURANCE

The Contractor shall disinfect, flush and test the pipeline in accordance with AWWA C-600-99 (except 4.2.2) Standard for Disinfection Water Main.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Protect material from the elements and from other damage on the site before, during, and after installation.
- B. Insure proper identification of materials.
- C. The Contractor shall replace and pay for any material and work damaged to the satisfaction of the Engineer.

PART 2: MATERIAL

2.01 DUCTILE IRON PIPE

Ductile iron pipe shall be supplied with push-on joints. The pipe shall conform to the requirements of ANSI Standard A 21.51 (AWWA C-151) Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for water or other liquids.

The thickness class of the pipe shall be Class 52 minimum.

Minimum thickness of linings for pipe and fittings:

Pipe and Fitting Size, inches	Thickness of Linings, inches
3-12	1/16
14-24	3/32
30-64	1/8

Ductile iron fittings shall conform to the requirements of ANSI Standard A 21.10 (AWWA C-153) Ductile Iron and Gray Iron Fittings, 3 Inch through 48 Inch, for water and other liquids.

All ductile iron pipe and fittings shall have a cement mortar lining conforming to the requirements of ANSI Standard A 21.4 (AWWA C-104) Cement-Mortar Lining for Ductile Iron Pipe and Fittings for water. The cement lining shall be given a seal coat of bituminous material.

All pipe and fittings shall have the standard outside bituminous coating of either coal tar or asphalt base and shall be approximately 1 mil thick. Pipes and fittings which will be exposed to the heat of the sun before or during installation shall be coated with whitewash on the exterior to prevent expansion damage to the cement lining.

Special fittings, if required, shall meet the requirements of the above applicable specifications and unless otherwise shown they shall be of corresponding thicknesses and diameters as standard fittings.

2.02 JOINTS

Ductile iron pipe joints shall be mechanical for bends and all other fittings; slip-type for all straight pipe.

- A. Mechanical joints shall conform to the applicable sections of ANSI Standard A 21.11 (AWWA C-111) Rubber Gasket joints for Ductile Iron Pressure Pipe and Fittings. Lock type mechanical joints shall be used only where approved by the Engineer or Water Superintendent.

Bolts and nuts for pipe flanges shall conform to ANSI Standard B 18.21 heavy dimensions, semi-finished bolts with square heads and cold-punched hexagonal nuts. Bolts and nuts shall conform to the applicable sections of the Standard Specification for Low Carbon Steel Externally and internally threaded Standard Fasteners ASTM Designation: A307-Grade B. Threads shall conform to the Course Thread Series, Class 2 fit in accordance with ANSI Standard B 1.1 Unified Standard for Screw Threads.

Bolt heads and nuts and all unpainted surfaces of the flange, shall be coated with two (2) heavy applications of black asphaltum varnish.

- B. Single Rubber Gasket "Slip-Type" Joint: Unless otherwise specified, single rubber gasket joints shall be "Tyton" type joints in accordance with ANSI Standard A 21.11 (AWWA C-111). The single rubber "slip-type" joint shall be made with an elongated grooved rubber gasket which fits into a socket in the bell of the pipe. The gasket shall be wiped clean, flexed and then placed in the socket. Any bulges in the gasket which might interfere with the entry of the plain end of the pipe shall be removed. A thin film of lubricant shall be applied to the gasket surface which will come into contact with the plain end of the pipe. The lubricant shall be as furnished by the pipe manufacturer.

The plain end of the pipe, which is tapered for ease of assembly, shall be wiped clean and a thin film of lubricant applied to the outside of the plain end about 1" back from the end. The pipe shall be aligned and carefully entered into the socket until it just makes contact with the gasket. The joint assembly shall be completed by inserting the plain end past the gasket until it makes contact with the bottom of the socket. The pipe shall be pulled "home" with an approved jack assembly as recommended by the pipe manufacturer. If assembly is not accomplished with reasonable effort the plain end shall be removed and the adverse condition corrected.

To insure metal to metal contact of the installed pipe, two serrated bronze wedges or copper jumper strips shall be installed at all joints of the pipe and fittings.

Unless otherwise specified, shown or ordered, pipe shall conform to the following specifications.

In general, fittings, special shapes and connecting pieces shall conform to the same or equal strength and quality specifications as the pipe with which they are used.

Unless otherwise specified in more detail, each piece of pipe shall be so marked or coded that it can be identified at the site of its installation as to its conforming with the specifications and approved shop drawings.

Where the joints are not covered by the specifications or otherwise designated, they shall be equally strong as the pipe itself and shall be such as will be watertight and result in a permanent smooth continuous interior surface across the joint. The joints shall be rubber gasketed similar or equal to those which are specifically required or detailed as a standard. Inferior materials or methods of joining pipe will not be permitted.

2.03 VALVES

- A. **GATE VALVES:** Gate valves shall be iron-body, bronze mounted, non-rising stem, with O-ring stem seal, vertically mounted, conforming to the requirements of AWWA Standard C-509 Resilient-seated Gate Valves, for water supply service. Valves for use with ductile iron pipe shall be furnished with mechanical joint ends. Where shown or specified, valves shall also be furnished with flange ends. Joints shall be as specified in Standard C111.

Valves shall be furnished for working pressure as required; the minimum working pressure for sizes up to 12 inch diameter shall be 200 psi, and 150 psi for 16 inch diameter and larger.

Valves generally shall be furnished with 2 inch square operating nuts which shall be turned counterclockwise (open left) to open the valves.

- B. **VALVE BOXES:** Valve boxes shall be cast-iron of the adjustable telescope Buffalo type, suitable to withstand heavy traffic, 5-1/4" I.D. as manufactured by the Mueller Company or an approved equal. The covers shall be marked "WATER" and bases shall be the round type.

All valve boxes shall be placed so as not to transmit shock or stress to the valve and shall be centered and plum over the operating nut of the valve. The ground in the trench upon which the valve boxes rest shall be thoroughly compacted to prevent settlement. The boxes shall be fitted together securely and set so that the cover is flush with the surface of the ground or street. Before permanent paving is placed, the Contractor shall, if necessary, raise or lower the valve boxes so that the covers shall be even with the final surface or the permanent paving.

2.04 CONTROLLED LOW STRENGTH MATERIAL (CLSM/Flowable Fill)

Where shown on the drawings or as ordered by the Engineer, the trench shall be backfilled with Controlled Low Strength Material (CLSM/Flowable Fill) meeting the following minimum requirements:

Flowable Fill Strengths	
Type of Flowable	Range of psi
Excavatable or Removable	100 - 200psi
Non-excavatable or Non-removable:	300 -1200 psi

The Guideline for Excavatable or Removable Flowable Fill	
Materials	Mix design parameters
Cementitious Materials(Portland Cement Type I or II, Fly Ash or Slag)	100 - 300 lb. (Maximum of 200 lbs of straight cement)
Sand	2000-3000 lbs(depends on air, water & cementitious materials)
Water	water to cementitious ratio = 1.0 to 1.5
Air	10-30% (10-15% is common)
Unit Weight	118 f +/- 8

2.05 BACKFILL MATERIAL

A. Excavated Material: Excavated Material shall be used for backfilling of the water main. Excavated material shall meet the gradation specified below. In all instances, backfill shall be approved by the Engineer. Backfill material shall consist of suitable soil materials and shall be sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials having the following gradation as determined by ASTM Designation D-422, Particle Size Analysis of Soils:

Sieve Size Max	% Passing by Weight
1 inch	100
No. 40	5 – 70
No.200	0 -15

1. If the Engineer deems the excavated material to be unacceptable, Granular Fill shall be to backfill the water main. Granular Fill, if ordered by the Engineer, shall be paid under Item 0203.3. No payment will be made without the prior approval of the Engineer or Town.

B. Crushed Stone shall conform to NYSDOT Item 703-0201 have the following gradation as determined by ASTM Designation D-422, Particle Size Analysis of Soils:

Sieve Size Max	% Passing by Weight
1 inch	100
½ inch	45 to 85
¼ inch	30 to 65
No.10	15 to 45
No.200	0 to 5

2.06 MISCELLANEOUS MATERIALS

- A. Pipe Insulation: Watermain insulation shall be FOAMGLAS and PITTWRAP by Pittsburgh Corning. Installation shall be in accordance with Pittsburgh Corning installation specifications.

PART 3: METHOD

3.01 DESCRIPTION

Earth excavation shall mean the removal from the trench lines of all materials except rock, and shall include topsoil, trees, hedges, shrubs, vegetation and structures above and below ground. The trench excavation will not be plowed, scraped or machine-dug closer than 3 inches to the finished grade. The last 3 inches of depth will be removed with pick and shovel to the exact grade just before placing of the pipe to provide firm bedding. All excavation carried beyond the lines and grades shown on the contract drawing, or established by the Town Engineer, together with the disposal of excavated material, shall be at the contractor's expense.

All unnecessary excavation will be filled with Backfill Material as specified. Backfilling of these specifications by the contractor at his own expense as directed by the Town Engineer.

3.02 ALIGNMENT AND GRADE

Lay and maintain the sewers to the required lines and grades at the required locations. The Contractor will correct any deviation from established lines and grades at his own cost. Wherever obstructions not shown on the Plans are encountered during progress of the work and they interfere to such an extent that an alteration in the Plans is required, the Engineer will have the authority to change the Plans and order a deviation from the line and grade shown on the Plans.

Prior to excavation, mark the location of all underground utilities on the surface of the ground. Caution will be taken in preparing for excavation so that the exact location of the underground structures including pipe lines may be determined.

Excavate test pits to determine the location of existing underground structures and pipe lines as directed by the Engineer. Payment for making test pits will be made under the Specification Item for Unclassified Excavation.

3.03 EXCAVATION AND PREPARATION OF TRENCH

Excavate the trench in open cut from the surface of the ground, except where otherwise indicated on the Plans. The Contractor shall be responsible for the protection of all existing adjacent piping, structures and other utilities and will repair any damage at his own expense.

The trench shall be properly excavated to provide a uniform and continuous bearing and support for the pipe on solid and undisturbed ground at every point between the bell holes. The finished sub-grade shall be prepared accurately by means of hand tools. If the soil conditions at sub-grade are unsuitable, the Contractor shall excavate the trench below the pipe invert, to the limits shown or ordered and place the pipe on foundation material or concrete.

In rock trench, the bedding of the pipe in foundation material or concrete shall be in accordance with the details shown or specified. Special care in handling shall be exercised during delivery and unloading of pipe to avoid damage. Damaged pipe shall be rejected and replaced. The pipe shall be stored in such a manner as to keep the interior free from dirt and foreign matter. Any pipe that becomes contaminated shall be hand cleaned and washed before it is incorporated in the work. (It must be stressed that contamination in the line will prolong and impede the disinfection operation. Flushing, per se, shall not be relied upon for cleaning the pipe.)

Limit the length of trench to be excavated each day to that length which can be backfilled before the completion of work each day. In open field areas, the trench may be excavated ahead of pipe laying, but in no case will trench excavation be made more than two hundred linear feet in advance of pipe laying. Excavate the trench to the depth required so as to provide a uniform and continuous bearing and support for the compacted bedding and the pipe as detailed on the Plans. Trenches excavated below the specified grade will be brought back to grade by filling with approved concrete, crushed stone bedding or bank run sand and gravel and thoroughly compacted as directed by the Engineer and at no cost to the Town.

Stockpile all excavated material in such a manner so as not to endanger the work or to limit free access to all parts of the work. Maintain access to utility valve boxes, manholes and fire hydrants at all times. Material deemed unsuitable by the Engineer for backfilling, will be removed from the site and disposed of as directed by the Engineer. Stockpile excess material suitable for backfilling about the job site, for use as backfill for any settlement that may occur subsequent to the initial trench backfilling. All excavated unsuitable materials must be replaced by clean fill approved by the Engineer. Surplus excess material, which is suitable for backfill, is the property of the Town and will be disposed of as directed, within two miles of the site of the work or as directed by the Engineer. All disposal areas will be leveled and graded as directed by the Engineer.

3.04 STEEL TRENCH BOXES

Steel trench boxes, (trench shields), may be used in lieu of temporary timber sheeting at the Contractor's option in trenches up to twenty (20') feet in depth, unless prohibited by the Engineer. The use of steel trench boxes and the type and fabrication of the boxes will be subject to applicable State and Federal Codes and Standards. In using trench boxes, the trench sides will be maintained in the placing and removal of the boxes to avoid opening the trench to excessive widths. All bedding and backfill to twenty-four (24") inches above the pipe will be properly tamped in place and maintained in position when the boxes are moved or removed to avoid disturbing the pipe and affecting the alignment and grade of the pipe. In unstable ground additional pea gravel or mixed crushed stone up to size 3/4 inch properly compacted in place will be required from the top of the pipe to twelve (12") inches above the pipe, as directed by the Engineer.

No direct payment will be made for temporary sheeting, compensation will be considered as being included in the unit prices bid for the various items of the Contract.

3.05 TEMPORARY SHEETING

Temporary timber or steel sheeting, except that which has been ordered left in place, may be removed after backfilling has been completed or has been brought up to such an elevation as to permit its safe removal. Sheeting and bracing may be removed before compacting of the trench, but only in such manner as will insure adequate protection of the water mains and/or other existing utilities, adjacent ground and structures. Take extreme care to fill all of the voids left after withdrawal of the sheeting. No direct payment will be made for temporary sheeting, compensation will be considered as being included in the unit prices bid for the various items of the Contract.

3.06 DEWATERING

Provide ample means and equipment with which to promptly remove and dispose of all water and drainage during excavation, and keep all excavations dry until the pipes to be installed are completed. Pipe laying will not be permitted if water is in the excavation. Prior to making a connection to an existing pipe line install a plug in the existing piping to prevent groundwater or drainage from entering. Leave the plug in place until its removal is directed by the Engineer.

Under no circumstances will completed portions of the work be used as a means of dewatering trenches.

Unless specifically provided for under a Specification Item, no direct payment will be made for dewatering, including the use of deep wells, but compensation therefore will be considered as being included in the unit prices bid for the various items of the Contract.

3.07 WATERMAIN INSTALLATION

All pipe and fittings shall be installed to the lines and elevations shown, ordered or specified.

Unless otherwise specified, laying of ductile iron pipe shall comply with the applicable provisions of AWWA Standard C-600 Installation of Ductile-Iron Water Mains and their appurtenances. The laying condition of the ductile iron pipe shall consist of pipe being laid in a flat bottom trench with holes provided for the bells and tamped backfill to 24" over the pipe. The depth of trench in general shall be such as to provide no less than 4 feet and no more than 5 feet of cover over the pipe.

In accordance with the manufacturer's recommendations, proper and suitable tools and equipment shall be used for the safe and convenient handling and laying of pipe and fittings. Deflections at the pipe joints shall be limited to 75% of the maximum amount recommended by the manufacturer. Care shall be taken to prevent the bell and the cement lining from being damaged.

When it is necessary to cut ductile-iron pipe in the field, such cuts shall be made in accordance with AWWA C-600 Standard for Installation of Ductile-Iron Water Mains and their appurtenances. In no instance will torch cutting of pipe be permitted.

At the close of work each day, the end of the pipeline shall be tightly sealed with a cap or plug so that no water, dirt, or other foreign substance may enter the pipeline, and this plug shall be kept in place until pipe laying is resumed.

Slip type joints shall be installed in accordance with the recommendations of the manufacturer. Two serrated bronze wedges shall be supplied and installed in all slip type joints to insure continuous metal to metal contact of the installed pipe. Wedge design shall be of type approved by pipe manufacturer for this purpose.

Bolts on mechanical joints shall be tightened uniformly, using only torque-limiting wrenches to avoid over stressing the bolts.

3.08 JOINT RESTRAINTS AND THRUST BLOCKING

Joints shall be restricted at all fittings and other places and locations where the joints are susceptible to separation. Where rodding is used the bands shall be 2 inch thick by 2 inches wide. The band shall be wrought iron and fabricated to provide a snug fit between pipe and fitting bell. The tie rods shall be 3/4 inch diameter threaded steel rods unless otherwise approved. Before backfilling, all exposed metal shall receive a heavy coat of bitumastic paint.

Where retainer glands are used they shall be installed in accordance with the manufacturer's instructions. Diametrically opposed tee-bolts and set screws shall be tightened together to bring the gland into position evenly. Excessive tightening of the bolts and set screws shall be avoided and torque wrenches shall be used to prevent excessive tightening. Deflections at joints must be made prior to tightening of tee-bolts and set screws and shall be in accordance with these specifications.

Rodding and/or retainer glands are a supplement and shall not reduce the thrust blocking requirements. Concrete thrust blocking shall be provided at plugs, tees, bends, and other locations as may be designated where unbalanced thrust may be developed. The blocking shall be, in general, of such shape and form that the load due to the thrust shall not exceed 2 tons per square foot against earth or 5 tons per square foot against rock when the water pressure in the main is carried at the test pressure. The excavation at such locations shall receive special attention with such hand trimming as may be required to provide a good bearing against undisturbed materials within as short a distance as possible from the pipe or fitting.

Where reactions are in the vertical plane, provisions to restrain the thrust shall be made to meet the existing field conditions by either concrete anchorages, steel dowels grouted into holes drilled in rock, or a combination of both.

The minimum surface bearing area of thrust blocks shall be at least four square feet.

3.09 INSPECTION AND TESTING

The rights to witness any and all tests are reserved. The manufacturer shall furnish a sworn statement that the inspection and all of the specified tests have been made and the results thereof comply with the requirements of the ANSI Standard A 21.51 or AWWA C151.

Each watermain pipe shall be subjected to a hydrostatic test of not less than 500 psi. This test may be made either before or after the standard outside coating has been applied, but shall be made before the application of cement lining. This requirement is not intended to preclude retesting, at the manufacturer's option, after application of a cement lining.

The pipe shall be under the full test pressure for at least 10 seconds. Suitable controls and recording devices shall be provided so that the test pressure and duration may be adequately ascertained. Any pipe that leaks or does not withstand the test pressure shall be rejected.

Testing shall be witnessed by the Engineer and/or the Town Water Department. Before the copper water line, valves or other appurtenances are covered, test to 150 pounds hydrostatic pressure. Protect tubing from movement during test.

3.10 BACKFILLING

A. General

No backfill shall be placed until the pipe has been inspected in place and approved by the Town. All backfilling will consist of approved sound material, free from organic material, rubbish, or other unsuitable materials. No material containing stones having a dimension of greater than 1 inch will be used for backfill. Backfill will be placed in uniform horizontal layers and properly compacted. No stones will be permitted within 2 feet of the pipe. The trench will be backfilled to a depth of 2 feet over the top of the pipe, and tamped solidly in a manner that will not produce unequal pressures or injure the pipe.

Backfilling will be carried out as soon as possible after the pipe has been inspected and approved. The length of pipe trench left open after inspection and approval will not be greater than 100 feet during working hours, and 25 feet at the end of each working day;

and approved temporary fencing around open excavation will be required at night, on week ends, and on holidays or when work is not in progress for any extended period of time. All backfilling will be in conformance with AWWA C-600 Standard for INSTALLATION OF DUCTILE WATER MAINS.

All trenches within the existing pavement areas including driveways will be backfilled with granular material meeting the specifications of New York State Department of Transportation Item 722-04 Subbase Course, Type 4.

Pipe foundations, to a depth of one (1) foot above the pipe, shall be placed in 12-inch layers and thoroughly compacted by approved mechanical methods to ensure firm bedding and side support. The density requirement is 95% minimum compaction in accordance with ASTM Method D1557.

When backfill reaches one (1) foot above the top of the pipe, the entire surface shall be compacted by mechanical means. The remainder of the trench shall be backfilled in layers not exceeding eighteen (18) inches thick and each layer thoroughly compacted with a backhoe mounted hydraulic or vibratory tamper, up to four (4) feet under pavement (below bottom of pavement base). The upper four (4) feet shall be compacted using hand-guided or small self-propelled vibratory or static rollers or pads in layers not exceeding twelve (12) inches in thickness.

The Town may order in-place density tests to ascertain conformance with the compaction requirements. Tests may be ordered for every 200 cubic yards of fill or backfill placed or at 75 linear foot intervals of pipeline backfilled, or frequencies deemed necessary by the Town. The Contractor shall dig test holes at no additional cost to the Town when requested for the purpose of taking an in-place density test below the current fill level. Excavated material in excess of that required for backfill, including material unsuitable for backfill, will be disposed of at the expense of the contractor at a place of disposal approved by the Town Engineer or Water Superintendent.

B. Controlled Low Strength Material (CLSM/Flowable Fill) shall be placed as ordered by the Engineer.

3. 11 PAVEMENT

Cuts for pavement removal will be made with straight paralleled sides with pneumatic cutters or other approved power tools. All cuts and shall be straight and true and follow the limits set in the plans. No payment will be made for additional excavation or pavement for any over cutting.

Refer to Technical Specification 0301Asphalt Pavement.

All trenches in the pavement area will be backfilled with material as specified under 3.10 of these specifications, "Backfilling."

3.12 SAFETY, PUBLIC CONVENIENCE AND TRAFFIC CONTROL

The Contractor will conduct his operations in such a manner as to provide maximum safety for all employees on the work and the public as well. The Contractor will provide suitable bridges, barricades, railings, or other protection about open trenches, and warning signs and flashing lights for any obstructions to the traffic. No driveway entrances will remain blocked overnight. The Contractor will promptly comply with such regulations as may be prescribed by the Town Engineer or Water Superintendent and will, when so directed, properly correct any unsafe conditions created by, or unsafe practices on the part of his employees. In the event of the contractor's failure to comply, the Town Engineer or his representative may take the necessary measures to correct the conditions or practices complained of, and all costs thereto, will be deducted from any

monies due the contractor. Failure of the Town Engineer to direct the correction of unsafe conditions or practices will not relieve the Contractor of his responsibilities thereunder. The Contractor will provide traffic control when required by the Town Engineer or Water Superintendent. The Contractor will fully cooperate at all times regarding traffic control, and will promptly comply with regulations prescribed by the Town Engineer or Water Superintendent. The entire cost of providing traffic control will be included in the unit price bid for this item.

3.13 DISINFECTION, FLUSHING AND TESTING

The Contractor shall disinfect, flush and test the pipeline in accordance with AWWA C-600-99 (except 4.2.2) Standard for Disinfection Water Main.

A. Procedure for Disinfecting: The water injector for introducing the chlorine-bearing water into the pipe should be supplied from a tap on the pressure side of the gate valve controlling the flow into the pipeline extension. Water from the existing distribution system or other source of supply shall be controlled so as to flow slowly into the newly laid pipeline during application of chlorine. The rate of chlorine mixture flow will be in such proportion to the rate of water entering the pipe that the chlorine dose applied to the water entering the newly laid pipe will produce at least 50 PPM residual with a reading of 25 PPM after a 24-hour period.

Final Flushing and Testing: Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipeline at its extremities until the replacement water throughout its entire length shall, upon test, be proved comparable in quality to the water served the public from the existing water supply system and as approved by the public health authority having jurisdiction. Should the initial treatment fail to result in the conditions specified, the entire procedure shall be repeated until satisfactory results are obtained.

B. Flushing: The Contractor shall flush the pipeline, in sections, governed by the sources of clean water and suitable discharge points. The pipe section shall be flushed until the water runs clear. The contractor is advised that flushing does not create sufficient velocities to clear the pipeline of matter that may cause an unsatisfactory bacteriological test. Permission of the Town Engineer or Water Superintendent to stop flushing or directions to continue flushing shall involve no responsibility for the results of the bacteriological tests.

C. Hydrostatic Tests: The Contractor shall make hydrostatic tests upon all sections of the pipeline, in the presence of the Town Engineer or his representative. The hydrostatic tests shall be at 150% of the maximum working pressure and shall be as described in AWWA Standard C-600-99, except 4.2.2.

The Contractor shall furnish, install, complete with reaction blocking, necessary plugs and caps required for this operation. Main line valves shall be utilized wherever possible to segregate test sections except as directed by the Town Engineer or his representative.

The Contractor shall furnish all test equipment, including pumps, and meters. The test equipment shall be approved by the Town Engineer or his representative.

The line shall be filled with water for a period of no less than two hours; then subjected to a pressure equivalent to 150% of the maximum working pressure. All air shall be purged from the line before testing. During this test, the measured leakage over a period of 2 hours shall comply with the allowable leakage at various pressures as shown in the table below:

Allowable Leakage per 1000 ft of Pipeline – gph Nominal Pipe Diameter – in.						
Avg. Test Pressure psi (bar)	3	4	6	8	10	12
450 (31)	0.48	0.64	0.95	1.27	1.59	1.91
400 (28)	0.45	0.60	0.90	1.20	1.50	1.80
350 (24)	0.42	0.56	0.84	1.12	1.40	1.69
300 (21)	0.39	0.52	0.78	1.04	1.30	1.56
275 (19)	0.37	0.50	0.75	1.00	1.24	1.49
250 (17)	0.36	0.47	0.71	0.95	1.19	1.42
225 (16)	0.34	0.45	0.68	0.90	1.13	1.35
200 (14)	0.32	0.43	0.64	0.85	1.06	1.28
175 (12)	0.30	0.40	0.59	0.80	0.99	1.19
150 (10)	0.28	0.37	0.55	0.74	0.92	1.10
125 (9)	0.25	0.34	0.50	0.67	0.84	1.01
100 (7)	0.23	0.30	0.45	0.60	0.75	0.90

D. Leakage Test: The leakage test requirements shall be in accordance with the AWWA C-600 standard for Installation of Ductile-Iron Water Mains and their appurtenances and shall in no instance, for any length of pipe tested, exceed the amount determined by the formula. All air shall be purged from the pipe before testing. The Contractor shall provide all gauges, pumps, equipment and personnel for the pressure and leakage tests. The gauges shall be of suitable ranges and shall have been recently certified as to accuracy.

E. Bacteriological Tests: The Contractor shall make all arrangements with the Town Engineer for bacteriological tests, and shall make the tests under their direction. The contractor shall furnish all equipment, disinfectants, piping, etc. required for the tests.

The pipelines shall be flushed and re-chlorinated until satisfactory bacteriological sampling has been achieved. The contractor shall obtain certificates of satisfactory bacteriological tests and furnish them to the Water Superintendent before the request is made for acceptance of the work.

F. The Water District shall furnish all water for flushing, testing, and disinfection. The contractor shall furnish all means and apparatus for getting the water into the pipelines and shall furnish, install, and remove any additional temporary blow-off piping required to discharge water used for flushing, testing and disinfection.

Note: The Contractor shall give the Town Engineer or Water Superintendent seventy-two (72) hours' notice prior to their intent to test the new water main. The Westchester County Department of Health (WCDOH) shall witness the pressure test and said test date and time shall be set by the WCDOH.

PART 4: MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

Measurement will be made as follows:

0501.1 Water Main – will be measured on a per linear foot (LF) along the center line of the pipe.

0501.2 CLSM/Flowable Fill (K – Crete) – CLSM/Flowable Fill (K – Crete) will be measured on a per cubic yard basis in place with a deduction made for the pipe diameter.

4.02 BASIS OF PAYMENT

Payment for all Work under this item shall be the **Unit Price** bid and shall include the cost of all labor, laboratory testing, materials and equipment necessary to complete the work specified under this section and as listed below within the limits shown on the Contract Drawings and per the manufacturers shop drawing or as directed by the Engineer or Town. All labor, materials and equipment including but not limited to saw cutting asphalt and concrete, excavation including trenching and sheeting, backfilling, screening of excavated material as required, compaction, pipe, fittings, couplings, restraints, concrete thrust blocks, pipe sleeve, removal and disposal of material, cleaning up, and any incidental work required to complete the work as specified in the Contract Documents and these Specifications to the satisfaction of the Engineer, Water Superintendent, WCDOH and or Town.

Payment shall be made for the following work Items as listed on the Project Bid Sheet:

0501.1	Water Main
0501.2	CLSM/Flowable Fill (K – Crete)

Item 0501.1 Water Main - Under this work item, the Contractor shall remove and re-install water mains, valves, manual air relief valve connection, insulation, fittings, couplings, restraints, concrete thrust blocks, connections to other pipes including tees and tapping sleeves and any incidental work required to complete the work as specified in the Contract Documents and Specifications to the satisfaction of the Engineer or Town.

Item 0501.2 CLSM/Flowable Fill (K – Crete) - Under this work item, the Contractor shall backfill with CLSM/Flowable Fill (K – Crete) as specified as directed by the Engineer. This work shall include and not be limited to removal of surplus material and cleaning up at the location shown on the Contract Drawings or as directed by the Engineer or Town. No payment will be made for any work performed without the prior written authorization of the Engineer or Town. The unit price bid shall include the cost of placement and compaction, and testing.

END OF SECTION

SECTION 0502

FORCE MAIN Addendum #3

PART 1: WORK

1.01 DESCRIPTION

Under this item the Contractor shall furnish and install sanitary force main and sanitary sewer manholes at the locations and grades shown on the Contract Drawings and these specifications. This work shall include the cost of all labor, materials and equipment necessary to complete the work including all piping, fittings and sanitary sewer manholes. This work shall not be limited to excavation, saw cutting asphalt and concrete, trenching and sheeting, screening of excavated material as required, backfilling and compaction, connections, temporary pavement, pavement repair or patching, street closure permits, and any incidental work required to complete the work as specified in the Contract Documents and Specifications, and to the satisfaction of the Engineer or Town.

- A. Tie-In - Included in this item shall be the cost to furnish and install all pipe, valves and appurtenances required to connect the new 2" ϕ SDR 21 Force Main into the existing 8" diameter PVC forcemain.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 0101 Site Preparation and Removals
- B. Section 0102 Survey and Stakeout
- C. Section 0103 Erosion and Sediment Control
- D. Section 0201 Earthwork
- E. Section 0202 Unclassified Excavation
- F. Section 0203 Select Fill Material
- G. Section 0204 Crushed Stone Fill
- H. Section 0301 Asphalt Pavement
- I. Section 0401 Cast-In-Place Concrete
- J. Section 0602 Furnish and Install Sanitary Sewers
- K. Section 0703 Sewage Pumping Station
- L. Section 0802 Building Services – General Plumbing & Electrical Work
- M. Section 0906 Site Restoration

1.03 REFERENCES

References and industry standards listed in this Section are applicable to the Work in this Section unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

- A. Materials for water systems shall meet the appropriate American Standard Testing Materials (ASTM) Standard:
 - 1. ASTM D-1784 Rigid Vinyl Compounds.
 - 2. ASTM D 2241 PVC Pressure Rated Pipe (SDR Series)
 - 3. ASTM F 1668 Procedures for Buried Plastic Pipe

- B. 10 State Standards – Recommended Standards for Wastewater Facilities
- C. Rules and Regulations of the Westchester County Department of Health

1.04 SUBMITTALS

- A. Product Data: Manufacturer’s specifications including dimensions and coatings.
- B. Quality Control Submittals: Statement of compliance with ANSI & AWWA Specifications.

PART 2: MATERIAL

2.01 BACKFILL MATERIAL

- A. Excavated Material: Excavated material shall be used as backfill under this item unless the Engineer deems the material to be unsuitable. Excavated material used as backfill and grading, shall meet the gradation requirements for Granular Fill. No additional payment will be made for this work but the cost thereof shall be deemed included in the price for the item for which work is being performed.
- B. Granular Fill: Material for use in replacing undercut areas or in construction of embankments or where called for shall be approved by the Engineer and obtained from approved sources. Suitable soil materials shall be sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials and shall have the following gradation as determined by ASTM Designation D-422, Particle Size Analysis of Soils:

Sieve Size Max	% Passing by Weight
1 inch	100
No. 40	5 – 70
No.200	0 -15

- 1. If the Engineer deems the excavated material to be unacceptable, Granular Fill shall be to backfill the forcemain. Granular Fill, if ordered by the Engineer, shall be paid under Item 0203.3. No payment will be made without the prior approval of the Engineer or Town.
- C. Crushed Stone: Shall conform to NYSDOT Item 703-0201 have the following gradation as determined by ASTM Designation D-422, Particle Size Analysis of Soils:

Sieve Size Max	% Passing by Weight
1 inch	100
½ inch	45 to 85
¼ inch	30 to 65
No.10	15 to 45
No.200	0 to 5

2.02 PVC FORCEMAIN

All pressure lateral sewer pipe and fittings shall be not less than 1-1/4 inch in diameter PVC or HDPE.

A. Acceptable Materials:

1. Polyvinyl Chloride Pipe (PVC)

- a. Minimum diameter and strength - 2" ϕ SDR 21
- b. Pipe and fittings - ASTM D-1784 Rigid Vinyl Compounds
- c. Curb Stop - Minimum size: 2" brass ball Ford model B11 555 or equivalent.

2. Curb Box

- a. Minimum size: Ford model EA1-50-40-42R or equivalent.

2.03 SEWER

- A. Check Valve - Minimum size: 2" PVC full ported passage Way Environment One Corp. or equivalent.

PART 3: METHOD

3.01 DEFINITION

Earth excavation shall mean the removal from the trench lines of all materials except rock, and shall include topsoil, trees, hedges, shrubs, vegetation and structures above and below ground. All excavation carried beyond the lines and grades shown on the contract drawing, or established by the Engineer, together with the disposal of excavated material, shall be at the Contractor's expense.

All unnecessary excavation will be filled with Backfill Material as specified in D. Backfilling of these specifications by the contractor at his own expense as directed by the Engineer.

3.02 ALIGNMENT AND GRADE

Lay and maintain the sewers to the required lines and grades at the required locations. The Contractor will correct any deviation from established lines and grades at his own cost. Wherever obstructions not shown on the Plans are encountered during progress of the work and they interfere to such an extent that an alteration in the Plans is required, the Engineer will have the authority to change the Plans and order a deviation from the line and grade shown on the Plans.

Prior to excavation, mark the location of all underground utilities on the surface of the ground. Caution will be taken in preparing for excavation so that the exact location of the underground structures including pipe lines may be determined.

Excavate test pits to determine the location of existing underground structures and pipe lines as directed by the Engineer. Payment for making test pits will be made under the Specification Item for Unclassified Excavation.

3.03 EXCAVATION AND PREPARATION OF TRENCH

Excavate the trench in open cut from the surface of the ground, except where otherwise indicated on the Plans. The Contractor shall be responsible for the protection of all existing adjacent piping, structures and other utilities and will repair any damage at his own expense.

The trench shall be properly excavated to provide a uniform and continuous bearing and support for the pipe on solid and undisturbed ground at every point between the bell holes. The finished sub-grade shall be prepared accurately by means of hand tools. If the soil conditions at sub-grade are unsuitable, the Contractor shall excavate the trench below the pipe invert, to the limits shown or ordered and place the pipe on foundation material or concrete.

In rock trench, the bedding of the pipe in foundation material or concrete shall be in accordance with the details shown or specified. Special care in handling shall be exercised during delivery and unloading of pipe to avoid damage. Damaged pipe shall be rejected and replaced. The pipe shall be stored in such a manner as to keep the interior free from dirt and foreign matter.

Limit the length of trench to be excavated each day to that length which can be backfilled before the completion of work each day. In open field areas, the trench may be excavated ahead of pipe laying, but in no case will trench excavation be made more than two hundred linear feet in advance of pipe laying. Excavate the trench to the depth required so as to provide a uniform and continuous bearing and support for the compacted bedding and the pipe as detailed on the Plans. Trenches excavated below the specified grade will be brought back to grade by filling with approved concrete, crushed stone bedding or bank run sand and gravel and thoroughly compacted as directed by the Engineer and at no cost to the Owner.

Stockpile all excavated material in such a manner so as not to endanger the work or to limit free access to all parts of the work. Maintain access to utility valve boxes, manholes and fire hydrants at all times. Material deemed unsuitable by the Engineer for backfilling, will be removed from the site and disposed of as directed by the Engineer. Stockpile excess material suitable for backfilling about the job site, for use as backfill for any settlement that may occur subsequent to the initial trench backfilling. All excavated unsuitable materials must be replaced by clean fill approved by the Engineer. Surplus excess material, which is suitable for backfill, is the property of the Owner and will be disposed of as directed, within two miles of the site of the work or as directed by the Engineer. All disposal areas will be leveled and graded as directed by the Engineer.

3.04 STEEL TRENCH BOXES

Steel trench boxes, (trench shields), may be used in lieu of temporary timber sheeting at the Contractor's option in trenches up to twenty (20') feet in depth, unless prohibited by the Engineer. The use of steel trench boxes and the type and fabrication of the boxes will be subject to applicable State and Federal Codes and Standards. In using trench boxes, the trench sides will be maintained in the placing and removal of the boxes to avoid opening the trench to excessive widths. All bedding and backfill to twenty-four (24") inches above the pipe will be properly tamped in place and maintained in position when the boxes are moved or removed to avoid disturbing the pipe and affecting the alignment and grade of the pipe. In unstable ground additional pea gravel or mixed crushed stone up to size 3/4 inch properly compacted in place will be required from the top of the pipe to twelve (12") inches above the pipe, as directed by the Engineer.

No direct payment will be made for temporary sheeting, but compensation therefore will be considered as being included in the unit prices bid for the various items of the Contract.

3.05 TEMPORARY SHEETING

Temporary timber or steel sheeting, except that which has been ordered left in place, may be removed after backfilling has been completed or has been brought up to such an elevation as to permit its safe removal. Sheeting and bracing may be removed before compacting of the trench, but only in such manner as will insure adequate protection of the water mains and/or other existing utilities, adjacent ground and structures. Take extreme care to fill all of the voids left after withdrawal of the sheeting.

No direct payment will be made for temporary sheeting, but compensation therefore will be considered as being included in the unit prices bid for the various items of the Contract.

3.06 DEWATERING

Provide ample means and equipment with which to promptly remove and dispose of all water and drainage during excavation, and keep all excavations dry until the pipes to be installed are completed. Pipe laying will not be permitted if water is in the excavation. Prior to making a connection to an existing pipe line install a plug in the existing piping to prevent groundwater or drainage from entering. Leave the plug in place until its removal is directed by the Engineer.

Under no circumstances will completed portions of the work be used as a means of dewatering trenches.

Unless specifically provided for under a Specification Item, no direct payment will be made for dewatering, including the use of deep wells, but compensation therefore will be considered as being included in the unit prices bid for the various items of the Contract.

3.07 INSTALLATION

All pipe and fittings shall be installed to the lines and elevations shown, ordered or specified.

Unless otherwise specified, laying of ductile iron pipe shall comply with the applicable provisions of 10 State Standards – Recommended Standards for Wastewater Facilities and the Rules and Regulations of the Westchester County Department of Health. The laying condition of the pipe shall consist of pipe being laid in a flat bottom trench with backfill material consistent with the provided details. The depth of trench in general shall be such as to provide no less than 4 feet and no more than 5 feet of cover over the pipe.

In accordance with the manufacturer's recommendations, proper and suitable tools and equipment shall be used for the safe and convenient handling and laying of pipe and fittings. Deflections at the pipe joints shall be limited to 75% of the maximum amount recommended by the manufacturer.

No water shall be allowed to gather in excavations or trenches. All excavations must be properly refilled to grade in compacted layers and the original type of surface replaced. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the Sewer District and any other authority having jurisdiction. Soil or foreign matter shall be kept out of the pipe during construction and damage of pipe shall not be allowed. Open ends of pipes shall be kept plugged or bulk headed during construction.

No defective materials shall be used or installed.

In order to be accepted by the District, all manhole frame sets shall be set to finish grade, all valve boxes and curb boxes shall be set squarely down on the valve or curb stop and shall be centered and plumb over the wrench nut of the valve or operating rod of the curb stop and shall not be over extended. All valves and curb stops shall be suitable marked.

3.08 INSPECTION AND TESTING OF PIPE

Inspection of all sanitary sewer pipe and appurtenances shall fall under the guidelines of the Sewer District Quality Assurance Program.

- A. Inspection is considered full time while contractor is doing sanitary work, laying pipe backfilling 2' minimum over pipe, backfilled laterals, setting structures, wet wells, prefabricated pump stations and testing. Bench and trough, frame sets, air release, blow-off, flushing, odor control buildings and laterals, if left open, will be considered periodic inspection.
- B. Hydrostatic testing shall be performed on the finished system after it is completely backfilled. Test to Conform to AWWA C600-93 Section 4. Parameters are:
 - 1. Test Pressure – 120 PSI minimum – Test Duration 2 Hours
 - 2. Allowable leakage, per thousand feet of pipe:

Pipe Diameter	Leakage	Pipe Diameter	Leakage
1-1/4"	0.20 gallons	4"	0.66 gallons
1-1/2"	0.25 gallons	6"	0.99 gallons
2"	0.25 gallons	8"	1.32 gallons
2-1/2"	0.41 gallons	10"	1.64 gallons
3"	0.55 gallons		

3.09 BACKFILLING (EXCEPT ROAD AREAS)

- A. No backfill shall be placed until the pipe has been inspected in place and approved by the Engineer. All backfilling will consist of approved sound material, free from organic material, rubbish, or other unsuitable materials. No material containing stones having a dimension of greater than 10 inches will be used for backfill. Backfill will be placed in uniform horizontal layers and properly compacted. No stones will be permitted within 2 feet of the pipe. The trench will be backfilled to a depth of 2 feet over the top of the pipe, and tamped solidly in a manner that will not produce unequal pressures or injure the pipe.
- B. Backfilling will be carried out as soon as possible after the pipe has been inspected and approved. The length of pipe trench left open after inspection and approval will not be greater than 100 feet during working hours, and 25 feet at the end of each working day; and approved temporary fencing around open excavation will be required at night, on week ends, and on holidays or when work is not in progress for any extended period of time. All backfilling will be in conformance with the Contract Drawings.
- C. All trenches within the existing pavement areas including driveways will be backfilled with granular material meeting the specifications of New York State Department of Transportation Item 722.04 Type 4.

- D. Pipe foundations, to a depth of one (1) foot above the pipe, shall be placed in 12-inch layers and thoroughly compacted by approved mechanical methods to ensure firm bedding and side support. The density requirement is 95% minimum compaction in accordance with ASTM Method D1557.
- E. When backfill reaches one (1) foot above the top of the pipe, the entire surface shall be compacted by mechanical means. The remainder of the trench shall be backfilled in layers not exceeding eighteen (18) inches thick and each layer thoroughly compacted with a backhoe mounted hydraulic or vibratory tamper, up to four (4) feet under pavement (below bottom of pavement base). The upper four (4) feet shall be compacted using hand-guided or small self-propelled vibratory or static rollers or pads in layers not exceeding twelve (12) inches in thickness.
- F. The Town may order in-place density tests to ascertain conformance with the compaction requirements. Tests may be ordered for every 200 cubic yards of fill or backfill placed or at 75 linear foot intervals of pipeline backfilled, or frequencies deemed necessary by the Owner. The contractor shall dig test holes at no additional cost to the Owner when requested for the purpose of taking an in-place density test below the current fill level. Excavated material in excess of that required for backfill, including material unsuitable for backfill, will be disposed of at the expense of the contractor at a place of disposal approved by the Engineer or Water Superintendent.

3.10 PAVEMENT

Cuts for pavement removal will be made with straight paralleled sides with pneumatic cutters or other approved power tools. All cuts shall be straight and true and follow the limits set in the plans. No payment will be made for additional excavation or pavement for any over cutting.

All trenches in the pavement area will be backfilled with material as specified under 0301 of these specifications, "Backfilling." The backfill in the road trench area will be placed uniformly in layers of one foot and will be firmly compacted by an approved mechanical tamper.

3.11 SAFETY, PUBLIC CONVENIENCE AND TRAFFIC CONTROL

The Contractor will conduct his operations in such a manner as to provide maximum safety for all employees on the work and the public as well. The contractor will provide suitable bridges, barricades, railings, or other protection about open trenches, and warning signs and flashing lights for any obstructions to the traffic. No driveway entrances will remain blocked overnight. The Contractor will promptly comply with such regulations as may be prescribed by the Engineer and will, when so directed, properly correct any unsafe conditions created by, or unsafe practices on the part of his employees. In the event of the contractor's failure to comply, the Engineer or his representative may take the necessary measures to correct the conditions or practices complained of, and all costs thereto, will be deducted from any monies due the contractor. Failure of the Engineer to direct the correction of unsafe conditions or practices will not relieve the contractor of his responsibilities thereunder. The contractor will provide traffic control when required by the Engineer. The contractor will fully cooperate at all times regarding traffic control, and will promptly comply with regulations prescribed by the Engineer. The entire cost of providing traffic control will be included in the unit price bid for this item. Flagmen shall be provided at all times when working within public roads or driveways.

PART 4: MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

Force main will be measured per linear foot along the centerline of the pipe. All pipe will be measured from the exact beginning of the pipe to the end of the line without deduction for fittings.

4.01 DESCRIPTION

Payment for all Work under this item shall be the **Unit Price** bid and shall include the cost of all labor, materials and equipment necessary to complete the work as shown on the Contract Drawings. All labor, materials and equipment including but not limited to excavation, saw cutting asphalt and concrete, trenching and sheeting, screening of excavated material as required, backfilling and compaction, sub-base material, removal and disposal of surplus material, proposed force main pipe, valves, fittings, couplings, restraints, concrete thrust blocks, laying of pipe, connection to other pipes, temporary pavement, pavement repair or patching, street closure permits, and any incidental work required to complete the work as specified in the Contract Documents and Specifications, and to the satisfaction of the Engineer or Town.

END OF SECTION

SECTION 0802

BUILDING SERVICES – GENERAL PLUMBING & ELECTRICAL WORK

Addendum #3

PART 1: WORK

1.01 DESCRIPTION

The Contractor shall be responsible for the installation of all service connections for the premanufactured buildings and general building services for the site. This shall include the copper water service connections to all locations shown, interior tie in of water service to building plumbing, sanitary connections, install back flow preventers, outside spigots, electrical wiring, connections, underground service, conduit and the installation of electrical fixtures.

A. Building Services as required will be provided at the following locations of the project:

1. Concession Building – Electrical Service & Plumbing
2. Outdoor Pavilion – Electrical Service & Plumbing
3. Pavilion Rest Rooms – Electrical Service & Plumbing
4. Maintenance Building – Electrical Service & Plumbing
5. Public Announcement System (3 Fields)
6. Dugouts
7. Score Boards (3)

B. The Contractor will be responsible to include the furnishing and installation of all piping, valves, backflow/double check assembly, lighting fixtures, switches, outlets, GFCI outlets indoor and outdoor, bulbs, wire, conduit, underground conduit, pull boxes, electrical breaker panels etc. where required and not furnished by the premanufactured building Manufacturer.

C. The Contractor will arrange for power to be brought to a transformer pad near the Concession Building. The main power panel will be located in the utility room of the concession building for the site, including the field lighting. The contractor will be required to bring the underground service to a sub-panel in the maintenance shed. This location will house the controls for the site lighting. The Contractor will determine the power requirements and sizing of all wiring and plumbing pipe to meet the site requirements and all applicable codes. The Contractor shall coordinate his work and shall allow ample time and facility for the work of other Sections to be installed.

D. The Contractor will be required to bring underground communication lines to the concession building. The Contractor will determine the requirements and sizing of all wiring required for telephone and Internet hubs. The Contractor shall coordinate his work and shall allow ample time and facility for the work of other Sections to be installed.

E. The Contractor shall furnish and install leaders and gutters for the Concession Building including all materials and tie-ins to the underground drainage system.

F. The Contractor shall bring water service to the Concession Building, Pavilion Rest Rooms and Maintenance Building. The Contractor shall coordinate his work and shall allow ample time and facility for the work of other Sections to be installed.

1.02 RELATED SECTIONS

- A. Section 0101 Site Preparation and Removals
- B. Section 0102 Survey and Stakeout
- C. Section 0103 Erosion and Sediment Control
- D. Section 0201 Earthwork
- E. Section 0202 Unclassified Excavation
- F. Section 0401 Cast-In-Place Concrete
- G. Section 0501 Water Main
- H. Section 0502 Force Main
- I. Section 0503 Copper Water Service
- J. Section 0801 Site Lighting
- K. Section 0803 Athletic Field Lighting
- L. Section 0901 Synthetic Turf Preparation
- M. Section 0906 Site Restoration

1.03 REFERENCES

References and industry standards listed in this Section are applicable to the Work in this Section unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

- A. American National Standards Institute (ANSI)
- B. American Society for Testing and Materials International (ASTM)
- C. Illuminating Engineering Society of North America (IESNA)
- D. International Electrotechnical Commission (IEC)
- E. National Electrical Manufacturers Association (NEMA)
- E. National Fire Protection Association (NFPA) - NFPA 70
- F. National Electrical Code (NEC)
- G. New York State Electrical Code (Latest Version)
- H. New York State Plumbing Code
- I. Comply with the State Department of Health Sanitary Code for Cross Connection Control, and the other standards listed in Part 2 of this section.
- J. Where conflicts occur between the referenced standards, the most stringent requirements shall apply.
- K. Comply with applicable requirements of FS WW-P-541, and the following standards:
 - a. ANSI/ASME A112.6.1M - Floor Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use.
 - b. ANSI/ASME A112.18.1M - Plumbing Fixture Fittings.
 - c. ANSI/ASME A112.19.1M - Enameled Cast Iron Plumbing Fixtures.
 - d. ANSI/ASME A112.19.2M - Vitreous China Plumbing Fixtures.
 - e. ANSI/ASME A112.19.6 - Hydraulic Requirements for Water Closets and Urinals.
- L. ASTM B 88: Copper Tube, Types K, L, and M.

- M. ASME B16.22: Wrot Copper Tube Fittings, Solder Joint.
- N. ASME B16.18: Cast Copper Alloy Tube Fittings, Solder Joint.
- O. ASTM B 306: Drainage Tube, Type DWV.
- P. ASME B16.29: Wrot Copper Drainage Tube Fittings, Solder Joint.
- Q. Materials and installations designated as handicapped accessible shall conform to the following:
 - a. ANSI A117.1 - Buildings and Facilities - Providing Accessibility and Usability for Physically Handicapped People.
 - b. The Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG), (Appendix A to 28 CFR Part 36).
 - c. The Uniform Federal Accessibility Standards (UFAS), (Appendix A to 41 CFR Part 101-19.6).
- R. ASTM F876: Standard Specification for Crosslinked Polyethylene (PEX) Tubing.
- S. ASTM F877: Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold- Water Distribution Systems.
- T. ASTM F2023: Oxidative resistance of PEX to Hot Chlorinated Water per NSF protocol P171 (Non-Barrier PEX Tubing).
- U. CSA B137.5: Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications.
- V. NSF/ANSI 61-G, NSF/ANSI 372, nsf-pw-g: Complies with NSF/ANSI standard 61-G for Lead-Free Drinking Water System Components (Non-Barrier PEX Tubing). UPC listed by IAPMO (International Association of Plumbing and Mechanical Officials).
- W. Each fixture carrier support shall be listed by model number in the fixture support manufacturer's Fixture Support Selection Guide as being recommended for support of the appropriate fixture.

1.04 SUBMITTALS

- A. Underwriters Certificate of the completed works Certified by a Qualified Electrical Underwriter with credentials accepted by the Town of Yorktown.
- B. Product Data:
 - 1. Catalog sheets and specifications indicating manufacturer name, type, applicable reference standard, schedule, or class for specified pipe and fittings.
 - 2. Material Schedule: Itemize pipe and fitting materials for each specified application in Pipe and Fittings Schedule in Part 3 of this Section. Where optional materials are specified indicate option selected.
- C. Product Data: Manufacturer's catalog sheets, specifications, and installation instructions for each type backflow preventer and test kit.
- D. UL Listing: Equipment and materials for which Underwriters' Laboratories, Inc. (UL) provides product listing service shall be listed and bear the listing mark.

- E. Underwriter's Certificate: A New York Board of Fire Underwriters inspection or certificate is not required.

1.05 QUALITY ASSURANCE

- A. Company Field Advisor:
The Contractor shall contact a manufacturer's representative when installing the lights to meet at the site and review the installation requirements.
- B. All Electrical and Plumbing work shall be performed under the direction supervision of licensed contractors meeting the requirements of the Town of Yorktown Building Department.
- C. Quality Control Submittals: Copy of hydraulic press fitting manufacturer's printed field inspection procedures for hydraulic press joints in copper tubing.
- D. Qualifications: The persons performing the Work of this Section and their supervisor shall be personally experienced in plumbing and electrical work and shall have been regularly performing such work for a minimum of 3 years.

1.06 PERMITS, TESTING, AND INSPECTIONS

- A. The Contractors shall be responsible for obtaining all permits necessary to complete work. This will include all preparation of plans, permit applications, provision of insurance requirements, and fees. The Town will directly reimburse the contractor for any filing fees.
- B. The Contractor is responsible to coordinate with the Town Departments and the Westchester County Department of Health for all testing of plumbing and electrical work.
- C. The Contractor is responsible to have the Backflow Assemblies tested by a New York State Certified Tester.
- D. The Contractor is responsible to coordinate with the Town Departments and the Westchester County Department of Health for all inspections of plumbing and electrical work.
- E. The Contractor is responsible to provide all certificates of final approval from the appropriate agency and where necessary provide asbuilt certification documents.

1.06 WARRANTY

The contractor shall provide a warranty that all work has been completed in conformance with the Contract Documents and with all applicable codes. The Contractor shall warranty all work for five (5) years.

PART 2: MATERIALS

2.01 PLUMBING


- A. Copper:
 - 1. Tube, Types K, L, and M.
 - 2. Wrot Copper Tube Fittings, Solder Joint.
 - 3. Cast Copper Alloy Tube Fittings, Solder Joint.
 - 4. Drainage Tube, Type DWV.
 - 5. Wrot Copper Drainage Tube Fittings, Solder Joint.

- B. Cross-Linked Polyethylene (PEX)
 - 1. High-density polyethylene
 - 2. All types (A, B, C) of PEX compatible Crimp, Clamp or Push-to-connect type connection systems:
 - 3. Crimp system: Crimp Tool + Copper Crimp + Crimp style PEX Fittings (brass – per F877/F1807 or poly – per F877/F2159 standards).
 - 4. Clamp (Cinch) system: Clamp Tool + Stainless Steel Clamps (per ASTM F2098) + Crimp style PEX Fittings (same as above).
 - 5. Push system: Push-Fit or Push-to-Connect style fittings

- C. Type A: Reduced Pressure Zone Principle device, with atmospheric vent, conforming to ASSE Standard 1013, AWWA C-511, USC specifications manual for Cross Connection Control, and listed as acceptable in the State Department of Health, Environmental Health Manual.
 - 1. Performance: 150 psig, and 130 degrees F maximum working conditions.
 - 2. Assembly: Strainer and gate valve on inlet side, gate valve on outlet side, and four test cocks, all as furnished or recommended by the backflow preventer manufacturer.

- D. Type B: Double Check Valve device, conforming to ASSE Standard 1015, AWWA C-510, USC specifications manual for Cross Connection control, and listed as acceptable in the New York State Department of Health, Environmental Health manual.
 - 1. Performance: 150 psig, and 130 degrees F, maximum working conditions.
 - 2. Assembly: Strainer and gate valve on inlet side, gate valve on outlet side, and four test cocks, all as furnished or recommended by the backflow preventer manufacturer.

- E. Type C: Double check valve with intermediate atmospheric vent, conforming to ASSE 1012.
 - 1. Performance: 175 psig and 210 degrees F maximum working conditions.
 - 2. Assembly: Internal strainer, and union connections.

-  PVC drain piping shall be schedule 40 conforming to ASTM D1784 and ASTM D1785.
 - 1. PVC Cement shall meet NSF/ANSI 14 & 61 standards.
 - 2. PVC Primer shall meet ASTM F-656 & SCAQMD 1168.

2.02 ELECTRICAL - GENERAL

- A. Raceways For Concealed Work: Rigid ferrous metal conduit, intermediate ferrous metal conduit, or electrical metallic tubing.
- B. Raceways For Exposed Work: Mono-System Inc.'s, Wiremold Co.'s, or Thomas & Betts Corp.'s surface metal raceway systems.
- C. Conductors: Copper, insulated with Type FEP, THHN, THW, THW-2, THWN, THWN-2, XHH, XHHW, XHHW-2 insulation rated 600 volts and shall UL listed. Electrician shall properly size wire for application.
- D. Galvanized Steel Outlet Boxes: Standard galvanized steel boxes and device covers by Appleton Electric Co., Beck Mfg./Picoma Industries, Cooper/Crouse-Hinds, Raco/Div. of Hubbell , or Steel City/T & B Corp.
- E. Galvanized Steel Junction and Pull Boxes: Code gage, galvanized steel screw cover boxes by Delta Metal Products Inc., Hoffman Enclosures Inc., Hubbell Wiegmann, Lee Products Co., or Rittal/Electromate.
- F. Specific Purpose Outlet Boxes: As fabricated by equipment manufacturers for mounting their equipment thereon.
- G. Outlet Boxes and Related Products for Fire Rated Construction:
 - 1. Parameters For Use of Listed Metallic Outlet or Switch Boxes: UL Electrical Construction Equipment Directory - Metallic Outlet Boxes (QCIT).
 - 2. Wall Opening Protective Materials: As listed in UL Fire Resistance Directory - Wall Opening Protective Materials (CLIV), or UL Electrical Construction Equipment Directory - Wall Opening Protective Materials (QCSN).
- H. Local Switches:
 - 1. Single Pole, 15A, 120/277 V ac: Bryant's 4801, Crouse-Hinds/AH's 1891, General Electric's GE5931-1G, Hubbell's 1201, Leviton's 1201, Pass & Seymour's 15AC1, or Slater's 710-BR.
 - 2. Double Pole, 15A, 120/277 V ac: Bryant's 4802, Crouse-Hinds/AH's 1892, General Electric's GE5932-1G, Hubbell's 1202, Leviton's 1202, Pass & Seymour's 15AC2, or Slater's 712-BR.
 - 3. Three-Way, 15A, 120/277 V ac: Bryant's 4803, Crouse-Hinds/AH's 1893, General Electric's GE5933-1, Hubbell's 1203, Leviton's 1203, Pass & Seymour's 15AC3, or Slater's 713-BR.
 - 4. Four-Way, 15A, 120/277 V ac: Bryant's 4804, Crouse-Hinds/AH's 1894, General Electric's GE5934-1G, Hubbell's 1204, Leviton's 1204, Pass & Seymour's 15AC4, or Slater's 714-BR.

I. Receptacles:

1. Single Receptacle, NEMA 5-15R (15A, 125 V, 2P, 3W): Bryant's 5251, Crouse-Hinds/AH's 5251, General Electric's 5251-1, Hubbell's 5251, Leviton's 5251, Pass & Seymour's 5251, or Slater's 5361-AG-BR.
2. Duplex Receptacle, NEMA 5-15R (15A, 125 V, 2P, 3W): Bryant's 5262, Crouse-Hinds/AH's 5252-S, General Electric's GEN5252-1, Hubbell's 5252, Leviton's 5252, Pass & Seymour's 5252 or Slater's 5252-AG-BR.
3. Ground Fault Interrupter Receptacle Rated 15A (NEMA 5-15R), Circuit-Ampacity 20A: Bryant's GFR52FT, Crouse-Hinds/AH's 1591-F, General Electric's TGTR15B, Leviton's 6194, Pass & Seymour's 1591-F, or Slater's SIR-15-F-BR.

2.03 CONDUIT

- A. PVC Conduit shall be Prime Conduit Schedule 40, CSA and UL listed, rated for use with 90° C conductors, ETL Listed to UL 651 or approved equal.
- B. Material shall comply with NEMA Specification TC-2 (Conduit), TC- 3 (Fittings) and UL 51 (Conduit) and 514b (Fittings).
- C. Conduit and fittings shall carry an ETL label or printline (Conduit - on each 10 foot length; Fittings – stamped or molded on each fitting).
- D. Conduit and fittings shall be identified for type and manufacturer and shall be traceable to location of plant and date manufactured. The markings shall be legible and permanent.
- E. Conduit shall be made from polyvinyl chloride compound (recognized by ETL) which includes inert modifiers to improve weatherability and heat distortion. Clean rework material, generated by the manufacturer's own conduit production, may be used by the same manufacturer, provided the end products meet the requirements of this specification.
- F. Fittings - The conduit and fittings shall be homogeneous plastic material free from visible cracks, holes or foreign inclusions. The conduit bore shall be smooth and free of blisters, nicks or other imperfections which could mar conductors or cables.
- G. All conduit and fittings shall be solvent cemented in applications in accordance with instructions from the Manufacturer.

2.04 ELECTRICAL WIRE

- A. The wire shall be sized in accordance with National Electrical Code, but shall be a minimum of No. 8 American Wire Gauge, unless otherwise specified by a utility company providing power supply.
- B. Conductors: Copper, insulated with Type FEP, THHN, THW, THW-2, THWN, THWN-2, XHH, XHHW, XHHW-2 insulation rated 600 volts and shall UL listed. Electrician shall properly size wire for application.

PART 3: METHOD

3.01 GENERAL

- A. The Contractor shall follow all applicable state and local plumbing codes, and shall follow the manufacturer's installation instruction.
- B. The Contractor shall follow all applicable electrical codes, and shall follow the manufacturer's installation instructions.
- C. Install the Work in accordance with the requirements of NFPA 70 - National Electrical Code.
- D. The Contractor shall examine the Drawings and familiarize himself with location and conditions under which each type of lighting fixture is to be installed, so that details of construction will best suit mounting conditions and/or obstructions at the job.
- E. Install the Work in accordance with the requirements of NFPA 70 - National Electrical Code and the NYS Electrical Code and all references contained within, and the standard electrical practices.
- F. Install the Work in accordance with the requirements of the NYS Plumbing Code and all references contained within, and shall follow all standard plumbing practices.



3.02 PREMANUFACTURED CONCESSION BUILDING AND RESTROOM BUILDING

- A.** The premanufactured buildings will be delivered and assembled by the manufacturer. Prior to the pouring of the building slabs the Contractor shall extend the water, sewer, floor drain lines and electric service to the pre-determined locations. Once in place the slabs can be poured. After assembly of the buildings, all plumbing and electric connections can be made. The buildings will have all fixtures, plumbing, and wiring in place and terminated at the room. The Contractor shall install backflow assembly and make service connections to plumbing main lines. The Contractor shall make all waste line and floor drain connections. The Contractor shall install the required electrical sub-panel and tie in the main electrical lines. All services shall be tested as required.

3.03 PREMANUFACTURED MAINTENANCE BUILDING

- A. The premanufactured building will be delivered and assembled by the manufacturer. Prior to the pouring of the building slab the Contractor shall extend the water, sewer, and electric service to the predetermined locations. Similarly the utilities shall be extended prior to pouring of the slab. The maintenance building shall have an electrical panel and shall be the control for all of the site lighting other than the field lights. The interior wiring shall be tied to the panel. An exterior freeze proof spigot shall be installed at a determined location. Leaders and gutters shall be installed as required.

3.04 OUTDOOR PAVILION

- A. The pavilion will be delivered and assembled by the manufacturer. After the installation of the Pavilion, the Contractor shall extend power to the building from the maintenance building. A power supply conduit shall be extended underground to the pavilion. A timer control shall be installed inside of the maintenance building. A conduit shall be run up along one of the pavilion columns for lighting and GFCI outlets. The contractor shall install 12 lights and 6 GFCI protected outlets.

3.05 DUGOUTS

- A. Underground power shall be extended to the dugouts and maintenance building. The power shall be extended underground from the concession building. Similarly the utilities shall be extended prior to pouring of the slab. The dugouts shall be fitted with two lights and two GFCI outlets. The controls for the dugouts shall be inside the mechanical room of the concession building. The shed shall be fitted with one light and light switch, and one GFCI outlet.

3.06 PUBLIC ANNOUNCEMENT SYSTEMS

- A. Underground power shall be extended to three determined locations near the field for the connection of portable public announcement systems. These will be located centrally in the vicinity of the concession building.

3.07 SCORE BOARDS

- A. Underground power shall be extended to the three score boards at the locations show on the Drawings.

PART 4: MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

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4.02 PAYMENT

Payment for all Work under this item shall be at the **Lump Sum** bid and shall include the cost of all plans, permits, inspections, testing, labor, materials and equipment necessary to complete the work as shown on the Contract Drawings. All labor, materials and equipment including but not limited to the proposed supply and installation of all underground piping, fittings, valves, taps, spigots, backflow assemblies, underground conduit, service, communication wiring, conduit, wiring, switches, outlets, pull boxes, electrical panels, leaders, gutters or other connections and any incidental work required to complete the work as specified in the Contract Documents and Specifications, and to the satisfaction of the Engineer. Included in this work shall be all underground service for power to be brought to a transformer pad near the Concession Building as well as the underground service to a sub-panel in the maintenance building. No additional payment will be made for this work.

The Work under this item shall include building services for the following locations:

1. Concession Building
2. Outdoor Pavilion
3. Pavilion Rest Rooms
4. Maintenance Building
5. Public Announcement System (3 Fields)
6. Dugouts
7. Score Boards (3)

END OF SECTION

SECTION 0901

SYNTHETIC TURF PREPARATION Addendum #3

PART 1: WORK

1.01 DESCRIPTION

Under this Work the Contractor shall prepare the site for the installation of the Synthetic Turf Fields. This work will include a complete Underground Field Drainage System (UFDS) including all related products specified on the Contract Drawings including storage media, geotextile fabric, inlet and outlet pipe with connections, cleanouts and curtain drains, concrete curb and final grading. The Underground Field Drainage System shall be installed at the locations and grades shown on the drawings.

Special Note: The actual Synthetic Turf material will be purchased and installed by the Town. No payment will be made for this work.

Included in this item shall be the cost to prepare the site for the installation of the synthetic turf fields. This work shall be limited to:

1. Preparation of the Soccer Fields
2. Preparation of the Baseball Field
3. Preparation of the Putting Green

This work shall not be limited to excavation and grading, compaction, testing, installation of geotextile fabric, subgrade reinforcement and construction of the permeable aggregate base layer, concrete perimeter curbing, piping and any incidental work required to complete the work in accordance with the Plans and Specifications, to the satisfaction of the Engineer or Town.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 0201 Earthwork
- B. Section 0202 Unclassified Excavation
- C. Section 0203 Select Fill Material
- D. Section 0204 Crushed Stone Fill
- E. Section 0402 Cast-In-Place Concrete Curbs
- F. Section 0601 Drainage Conveyance System
- G. Section 0701 Precast Concrete Catch Basins
- H. Section 0702 Precast Concrete Manholes
- I. Section 0902 Outdoor Equipment
- J. Section 0903 Dugouts
- K. Section 0904 Metal Fence & Gates
- L. Section 0906 Site Restoration

1.03 REFERENCES

References and industry standards listed in this Section are applicable to the Work in this Section unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the

recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

A. American Society of Testing and Materials

1. D 698 Test Method for Laboratory Compaction
2. D 1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
3. D 1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
4. D 2167 Standard Test Method for Density and Unit Weight of Soil In Place by the Rubber Balloon Method
5. D 2216 Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
6. D 2487 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
7. D 2922 Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
8. D 2937 Standard Test Methods for Density of Soil in Place by the Drive-Cylinder Method
9. D 3017 Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
10. D 4318 Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
11. D7001 Standard Specification for Geocomposites
12. D6088 Standard Practice for Installation of Geocomposite
13. F2306 Standard Specification for 12 to 60 in. [300 to 1500 mm] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications
14. D2321 Underground Installation of Thermoplastic Pipe (non-pressure applications)
15. F1668 Construction Procedures for Buried Plastic Pipe

B. American Association of State and Highway Transportation Officials

1. AASHTO M 294 Standard Specification for Corrugated Polyethylene Pipe

D. New York State Department of Environmental Protection

1.04 DEFINITIONS

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1.05 DESIGN REQUIREMENTS

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1.06 SUBMITTALS

- A. Product Data: Manufacturer's specifications including dimensions, allowable height of cover information, and installation instructions.
- B. Samples: For the following:
- C. 1. 10-lb (4.5-kg) samples, sealed in airtight containers, of each proposed soil material from source.
- D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
 - 1. Classification according to ASTM D 2487 of each on-site soil material proposed for fill and backfill.
 - 2. Laboratory compaction curve according to ASTM D 1557 for each on-site soil material proposed for fill and backfill.

1.07 QUALITY ASSURANCE

- A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.
- B. Regulatory Requirements
 - 1. Town of Yorktown: Work of this Section shall conform to all requirements of the Town of Yorktown, Department of Parks and Recreation regulations and all applicable regulations of governmental authorities having jurisdiction including safety, health, noise, and anti-pollution regulations. Where more severe requirements than those contained in the Town of Yorktown, Department of Parks and Recreation regulations are given in this Section, the requirements of this Section shall govern.
 - 2. New York State Department of Environmental Conservation
 - 3. New York State Department of Transportation
- C. Testing of Completed Permeable Aggregate Layer:
 - 1. The surface of the processed stone course shall be well drained at all times. No standing water shall be permitted at any time. The permeability of the aggregate shall be field checked. Test samples shall be taken (at a minimum of) one sample per every 10,000 square feet or as otherwise directed by the Owner's Representative. Final in-place aggregate shall have a percolation rate of not less than 20" per hour. Surface elevations and planarity shall be verified by means of an independent survey utilizing a maximum grid size spacing of 25' x 25'. (Grid size may be reduced to 20' x 20' or even 10' x 10' depending on individual field dimensions and configuration.)

2. All test results will be logged and documented by the Owner's Representative or Project Engineer. If at any time the processed stone base does not meet specifications, it shall be the Contractor's responsibility to restore, at his expense, the processed stone base to the required grade, cross-section, and density.
3. When the Contractor has independently confirmed that he is in compliance with all the above listed requirements (planarity and elevation verified by a licensed Surveyor and compaction, gradation, and permeability verified by the specified tests), he shall notify the Owner's Representative to schedule a final inspection by the Synthetic Turf System Installer. During this final inspection, the Contractor shall make available an orbital laser system for checking grades. Any deficiencies uncovered during this inspection must be remedied to the satisfaction of the Synthetic Turf System Installer before the base system will be considered acceptable.

1.08 PROJECT CONDITIONS

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1.09 DELIVERY, STORAGE, AND HANDLING

Permeable Aggregate Base Layer: Processed stone must contain 90% to 110% of the optimum moisture content to ensure that fines do not migrate in transit or during placement and to facilitate proper compaction. It is critical that the installation contractor ensure that aggregate leaving the source plant meet this requirement. The Contractor shall apply water to the processed stone on site to attain and maintain this minimum moisture content.

PART 2: PRODUCTS AND MATERIALS

2.01 MANUFACTURERS

- A. Storm Tech, A Division of ADS, Inc, 70 Inwood Road, Suite 3, Rocky Hill, Connecticut, 06067, <http://www.stormtech.com>
- B. In-Line Plastics, LC or approved equal.
- C. Advanced Drainage Systems, Inc., Columbus, Ohio, or approved equal.
- D. Tensar Corporation, 2500 Northwinds Parkway, Suite 500, Alpharetta, Georgia 30009 or approved equal.
- E. TenCate Geosynthetics Americas Corporate Headquarters, 365 South Holland Drive, Pendergrass, Georgia 30567, Tel: 706-693-2226, Fax: 706-693-4400, Email: spec@tencate.com

2.02 MATERIALS

- A. Underground field drainage system shall consist of AdvanEDGE panel shape Pipe and fittings.
- B. Permeable Aggregate Base Layer shall conform to the following gradation:

Sieve Size	Sieve Metric (mm)	Percent Passing by Weight
1.5"	38.1	100
1"	25.4	95 - 100
0.75"	19.0	80 - 100
0.50 "	12.7	60 - 80
0.375"	9.52	30 - 50
No. 4	4.75	20 - 40
No. 8	2.38	10 - 30
No. 40	0.42	5 - 17
No. 200	0.074	1 - 4

Note: If local resources cannot provide a single blended mix approximating the above listed gradation breakdown, it will be acceptable to install a 2-layer base system consisting of 4" of open-graded bottom layer (+/- .75" clean stone), topped by a 2" layer of finishing stone and or screenings. Completed 2-layer system must meet same compaction and percolation specifications.

- Aggregate shall be durable and not exceed 12% loss of materials as determined by a sulfate soundness test (ASTM C88).

2.03 BACKFILL MATERIAL

- A. All fill materials shall be free Materials containing excessive amounts of water, plastic clay, vegetation, organic matter, debris, pavement, construction debris, stones or boulders over 6 inches in greatest dimension, frozen material, and material which, in the opinion of the Engineer is unsuitable shall be immediately removed from the site. Materials from other sources may be used upon approval by the Geotechnical Engineer. Fill materials in the uppermost 2 feet shall not have any rocks larger than 3 inches in diameter.
- Imported soil or fill materials to the site shall be analyzed for the following chemical parameters using EPA methods. Volatiles, Semi-Volatiles, TAL Metals, Pesticides/Herbicides, PCB's. Concentrations shall be compared to the NYSDEC Technical Assistance Guidance Memorandum (TAGM) and approved by the ENGINEER. Samples shall be taken at a frequency of 1 per 5,000 cubic yards if originating from a natural borrow source and 1 per 1,000 cubic yards if manufactured or recycled.
 - Unsatisfactory soil materials are defined as those complying with ASTM 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT; Shale shall not be considered suitable for fill unless specifically approved by the Engineer.

- B. Borrow Material: Where undercutting or construction of embankments are required and the Engineer deems that onsite material is unsuitable, he may require that the Contractor import suitable fill material. Suitable soil materials are defined as those complying with ASTM D2487 soil classification groups SM, SW, and SP or NYSDOT Item 733-09 Select Borrow or as directed by the Engineer. The source shall approved by the Engineer. Borrow Material if ordered by the Engineer will be paid under Item 0203.1. No payment will be made without the prior approval of the Engineer or Town.
- C. Select Granular Fill: Material for use in replacing undercut areas or in construction of embankments or where called for shall be approved by the Engineer and obtained from approved sources. Suitable soil materials shall be sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials conforming to NYSDOT Item 733-1101 and have the following gradation as determined by ASTM Designation D-422, Particle Size Analysis of Soils:

Sieve Size Max	% Passing by Weight
4 inch	100
No. 40	5 – 70
No.200	0 -15

Select Granular Fill, if ordered by the Engineer, shall be paid under Item 0203.2. No payment will be made without the prior approval of the Engineer or Town.

- D. Granular Fill: Material for use as backfill or for use in replacing undercut areas where called for by the Engineer shall be approved by the Engineer and obtained from approved sources. Native material may be used as backfill provided it meets the gradation specified below. Granular fill shall consist of suitable soil materials and shall be sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials having the following gradation as determined by ASTM Designation D-422, Particle Size Analysis of Soils:

Sieve Size Max	% Passing by Weight
1 inch	100
No. 40	5 – 70
No.200	0 -15

Granular Fill, if ordered by the Engineer, shall be paid under Item 0203.3. No payment will be made without the prior approval of the Engineer or Town.

- E. Site Stripped Topsoil may be used as fill in landscape areas only.

- F. Permeable Geotextile Fabric Liner Material: Mirafi 140NC or a non-woven fabric weighing at least 4 oz./SY meeting the following average values:

Property	Test Method	Min. Avg Roll Values US Units/Metric Units
Mechanical		
Tensile Strength	ASTM D 4632	112 lbs 510 N
Elongation At Break	ASTM D 4632	50% 50%
Trapezoidal Tear	ASTM D 4533	49 lbs 210 N
Mullen Burst	ASTM D 3786	210 psi 1551 Kpa
Puncture Strength	ASTM D 4833	65 lbs 289 N
Hydraulic		
EOS (AOS)	ASTM D 4751	70 US Sieve 212 mm
Water Permittivity	ASTM D 4491	2.0 sec-1 2.0 sec-1
Water Permeability	ASTM D 4491	0.22 cm / sec 0.22 cm / sec
Flow Rate	ASTM D 4491	140 gpm/ft ² 5698 lpm/m ²
Endurance		
UV Resistance	ASTM D 4355	70% 70%

G. Subgrade Reinforcement – The sub-base reinforcement shall be Tensar TX130S

PART 3: METHOD

3.01 DESCRIPTION

The Contractor shall perform the required work under this section in accordance with the conditions and requirements as specified. The Contractor shall perform and execute all necessary excavation required to finish the work needed to complete all items or as directed by the Engineer. The Contractor shall supply all labor and equipment to complete the work and will make provisions for sheeting or bracing. It is the Contractors obligation to make certain that grades stakes, bench marks, and offset staking are in place and accurately reflect elevations as per the construction drawings.

Excavation shall generally be taken to mean the removal of soil and other material of any nature whatsoever that may be encountered.

3.01 PERFORMANCE AND LIMITS

A. General

All areas subject to earthwork shall be brought to the required elevations and grades by excavating, filling, and grading. Excavated materials found suitable by the Engineer, shall be used in making embankments and filling the low areas of the work, and at such places as the Engineer may direct. Where required embankments shall be constructed as directed by the Engineer. The soil shall be placed in successive horizontal layers not over six (6") inches in depth, extending across the entire fill. It shall be spread and shall then be thoroughly compacted by rolling with a self-propelling roller weighing not less than ten (10) tons to the satisfaction of the Engineer. In places where the use of this roller is impracticable or where subsurface or surface structures may be damaged a lighter weight one may be substituted or the area shall be compacted by mechanical tamping, all with the approval, and to the satisfaction of the Engineer. Any hollows and/or depressions which may result from rolling and compacting shall be filled with like

or acceptable material, and the sub-grade shall again be compacted. This shall be repeated until all depressions are eliminated. Where clay or plastic soils are encountered rolling shall be done in such a manner as to avoid a plastic condition. In all cases these type soils should not be rolled when wet.

The Contractor shall make sure to level the bottoms of all excavations accurately to the limits and levels shown on the plans or as directed by the Engineer to receive the bottom of structures or other work supported on soil. Where the excavation limit has been exceeded by error on the part of the Contractor, the over excavated zone will be filled to the correct grade. At the discretion of the Engineer this zone will be filled with compacted crushed stone. The Contractor will not receive any additional payment for these corrective measures.

All soft, wet, clay or other objectionable material below the proposed sub-grade shall be removed to the satisfaction of the Engineer. The excavated zone shall be brought up to sub-grade level with material acceptable to the engineer. Under foundations and structures, 3000 psi concrete will be used. Otherwise Crushed Stone will be used, placed in 6" lifts and fully compacted to the satisfaction of the Engineer. Payment will be made under the Item 0203, 0204 or 0401 as determined by the Engineer or Town.

The Contractor shall maintain the banks of excavation in a safe and stable condition. The Contractor shall furnish and install temporary sheet piling or planks, braces and shores of good sound timber of adequate strength, and shall remove such piling or shoring as the work progresses.

When the excavation(s) have been completed to the required depth as shown on the drawings, the Contractor shall not proceed with the work until the subgrade has been inspected and approved by the Engineer. The Engineer may order further excavation as the conditions indicate. No additional work shall be done until the excavation has been approved by the Engineer.

3.03 PREPARATION

- A. Compaction of the Subgrade - All subgrade materials shall be compacted prior to placement of fill or permeable aggregate base material as follows:
 - 1. Use a minimum of eight passes with a steel wheel roller having a minimum weight or centrifugal force of 10 tons.
 - 2. Compact the subgrade a minimum depth of 16 inches below the subgrade surface under all locations where synthetic turf will be installed
 - 3. Any soft or yielding areas shall be re-compacted or removed and replaced with suitable material to meet required compaction requirements.
- B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- D. The Contractor shall establish control stakes which will be used to determine the amount of excavation and fill.

3.04 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.05 APPROVAL OF SUBGRADE

- A. Notify Engineer when excavations have reached required subgrade.
- B. If required by the Engineer, the subgrade shall be proof rolled using a 20 ton vibratory roller making a minimum of 3 passes. Soft spots and any unsuitable material shall be removed and replaced with compacted with the material specified in NYSDOT Standard Specifications Section 733-1302 Select Granular Subgrade (Typical). If the Engineer determines that additional removal is required, continue excavation and replace with compacted backfill or fill material as directed.
 - 1. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed by the Engineer. The Contractor shall conduct his operations to allow the Engineer to measure the cross-sections before placing the backfill.
 - 2. Additional excavation and replacement material as ordered by the Engineer will be paid for under the corresponding pay item according to Contract provisions.
 - 3. If unsatisfactory subgrade results from inadequate surface drainage or lack of maintenance, the Contractor shall excavate and replace the unsatisfactory material at his own cost. No additional payment will be made.
- C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer.

3.06 PERMEABLE AGGREGATE BASE LAYER

- A. The stone layer shall be compacted to a minimum of 95% of maximum density as determined by ASTM D698. The Contractor shall apply water to the processed stone on site to attain and maintain the minimum moisture content specified.
- B. Prior to the placement of the stone aggregate, remove any excess or contaminated backfill from the drainage trenches. Should any separation of the materials occur, during any stage of the spreading or stockpiling, the Contractor must immediately remove and dispose of segregated material and correct or change handling procedures to prevent any further separation. Double handling of materials should be avoided.

- C. The Contractor shall utilize laser-controlled equipment for the grading of the processed stone to ensure accuracy in grading tolerances.
- D. Install stone base, whenever possible, from sideline toward centerline, parallel to the composite drain network, to the lines and grades shown on the drawings. Distance material is pushed from point of discharge should be limited to that where segregation of materials does not occur.
- E. Each layer must be spread uniformly with equipment that will not cause perceptible separation in gradation (segregation of the aggregates), preferably a self-propelled paving machine, or a small grader or low ground pressure (LPG) dozer.
- F. The Contractor shall grade the surface of the processed stone acceptable to receive the final synthetic turf surface system. Care shall be taken to maintain the grade designed for the base.
- G. Planarity

The finished aggregate surface shall not deviate (tolerance-to-grade) by more than plus or minus .25" (.02') from designated compacted grade elevations when checked by 25' grid survey. Surface shall also not indicate any deviation more than .25" (.02') in 10' (any direction) when placed under a 10' straight edge. This tolerance is required over the entire field. Areas that deviate should be marked with spray paint and corrected by re-grading or filling low areas with crushed stone, granite chips or screenings, and rolling tight to achieve proper density.

3.07 GRADING

- A. Backfilling of the underground field drainage system shall be in accordance with the Manufacturers Specifications and Installation instructions.
- B. Subgrade and base shall be uniformly compacted to a minimum of 95% of maximum dry density. Care must be exercised to minimize segregation. The Engineer and Contractor shall make written records available to Synthetic Turf Contractor's inspector for both drainage/permeability and compaction/planarity as obtained from a minimum 10' x 10' grid.
- C. The completed base and adjacent curbs/perimeter nailer shall be inspected by the Engineer by means of a laser and plotted on a 10-foot grid. Based upon the Engineers inspection of the topographical survey, the Contractor shall fine grade the base suitably, including properly rolling and compacting the base to achieve a surface planarity within 1/4" in 10-feet (+0, -1/4"). The Engineer, Town will not approve the bas for tolerance to grade without a Topographical Survey. Work may not proceed with approval of the Engineer or Town.

3.08 SUBBASE REINFORCEMENT

- A. Prepare the subgrade by compacting and grading the existing subgrade to the required elevation. Install Tensar TX 130S geogrid over the prepared subgrade. Place and compact aggregate base as specified in Section 3.06. The geogrid installation shall be in compliance with Tensar published

installation guidelines. A Tensar authorized representative shall inspect the geogrid installation prior to placement of the aggregate base course.

3.09 CONCRETE PERIMETER CURB

- A. Install concrete curb at the perimeter of the synthetic turf area as per the manufacturer's specifications. Reference Item 0402 Cast in Place Concrete Curbs for means and methods. No additional payment will be made for this work.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: The Contractor shall hire a qualified independent geotechnical/environmental engineering testing agency to perform laboratory and field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
- D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained.
- E. Control Survey - Prior to commencement of this work, the Contractor shall check the existing bench marks and reference points located on or out of the site as indicated. The Contractor shall establish newly standard bench marks and control stakes for the work within the site as approved by the Engineer. A single benchmark must be established prior to any work and maintained by a licensed Surveyor of record during the entire construction process.
 - 1. Principal points – Principle points shall be established taking advantage of the existing reference points. Individual principal point posts shall be of wood, 4" x 4" size, with an indicating nail on the top, the surface of the post above the ground shall be painted white.
 - 2. Bench marks - When establishing bench marks within the site, a minimum of one (1) back and forth leveling operation shall be carried out. Establishment of temporary bench marks and stakes shall be determined and performed by the Contractor. Temporary bench mark posts shall be of wood, 2" x 2" in size, with an indicating nail on the top, the surface of the post above ground shall be painted.
- F. Finished Grading: The finished surface of the subgrade shall have a finished grade in accordance with the Plans and Specifications. Final subgrade shall be established to within a tolerance of +/- .5" (.04') of the designed subgrade elevation.
- G. Grade Verification: A certified survey shall be performed on a 25-foot grid to verify grade and elevation of the subgrade.

3.11 UNDERGROUND FIELD DRAINAGE

The installation of the underground field drainage system shall be in accordance with the Manufacturers Specifications and Installation instructions and the Contract Drawings.

PART 4: MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

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4.02 BASIS OF PAYMENT

Payment for all Work under this item shall be at the **Unit Price** bid and shall include the cost of furnishing all labor, materials and equipment for the installation of a complete Underground Field Drainage System and all incidental work as shown on the Contract Drawings. This work shall include all related products specified on the Contract Drawings or Specifications including storage media, geotextiles, inlet and outlet pipe with connections, cleanouts, curtain drains and concrete perimeter curbing. The Underground Field Drainage System shall be installed at the locations and grades shown on the drawings. This work shall not be limited to excavation and grading, compaction, testing, installation of geotextile fabric, subgrade reinforcement and construction of the permeable aggregate base layer and any incidental work required to complete the work in accordance with the Plans and Specifications, to the satisfaction of the Engineer or Town. Incidental work shall include trenching and sheeting if required, select backfilling and compaction, washed gravel or stone, removal and disposal of surplus material, installation of pipe, connections to any structures, fittings and connections required to install a complete Underground Field Drainage System in accordance with the plans and specifications to the satisfaction of the Engineer or Town.

The cost for this work under item shall be **Lump Sum** bid and shall include the cost of all labor, materials and equipment necessary to install the following work items:

1. Preparation of the Soccer Fields
2. Preparation of the Baseball Field
3. Preparation of the Putting Green

END OF SECTION

SECTION 0906

SITE RESTORATION

Addendum #3

PART 1: WORK

1.01 DESCRIPTION

Under this Work the Contractor shall furnish and supply all materials, labor and equipment necessary to restore the site as specified under this section and within the limits shown on the Contract Drawings and as directed by the Engineer or Town. The work shall include but not be limited to all removal and replacement of existing asphalt, removal and cleaning of spalled concrete, patching of cracks and spalls in concrete, overlay coatings on asphalt and concrete, lines and striping, rough and fine grading, topsoil, seeding and fertilizing, soil preparation, and tree planting to complete the project in accordance with the Contract Documents and to the satisfaction of the Town.

Included in this item of work are the following Work Items:

Item No.	
0906.1	Reconstruction of the Basketball Courts
0906.2	Rehabilitation of the Handball Courts
0906.3	Topsoil & Seeding
0906.4	Landscape and Plantings
0906.5	Tree Planting
0906.6	Stone Retaining Wall
0906.7	Brick Pavers
0906.8	Grass Pavers
0906.9	Gravel Path
0906.10	Pickleball Courts – Playing Surface
0906.11	Putting Green & Picnic Area – Surface

 **Item 0906.1 Reconstruction of the Basketball Courts:** The following work is included in this work item:

- a. Final Grading
- b. Playing Surface - Acrylic Overlay (Color by the Town)
- c. Lines

Under this work item, the Contractor shall reconstruct the basketball courts as shown on the Contract Drawings and these specifications. This work shall include items a, b, & c as specified above. The work shall not be limited to select fill, base material, acrylic paint, final grading, removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town. The asphalt surface shall be paid under Item # 0301.4

Item 0906.2 Rehabilitation of the Handball Courts: The following work is included in this work item:

- a. Patching & Cleaning
- b. Vertical Concrete Overlay – Color by Town
- c. Sealing
- d. Playing Surface - Acrylic Overlay & Color Coat (Color by the Town)
- e. Lines
- f. Fencing – 3' High

Under this work item, the Contractor shall rehabilitate the existing handball courts as shown on the Contract Drawings and these specifications. This work shall include items a, b, c, d, e & f as listed above. The work shall not be limited to cleaning, patching, concrete overlay, base material, acrylic paint, final grading, removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town. The asphalt surface shall be paid under Item # 0301.4

Item 0906.3 Topsoil & Seeding: Under this work item, the Contractor shall furnish and install grass seed and wildflower seed or hydroseed/hydromulch within the limits shown on the Contract Drawings and as specified in the specifications. This work shall include and not be limited to rough grading, fine grading, topsoil, mulch, grass seed, wildflower seed, hydroseed/hydromulch, erosion blankets, removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town.

Item 0906.4 Landscaping & Plantings: Under this work item, the Contractor shall furnish and install landscape areas and plantings to the limits shown on the Contract Drawings and as specified in the specifications. This work shall include and not be limited to plantings, topsoil, peat moss, mulch, decorative rock, seed, final grading, and removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town.

Item 0906.5 Tree Planting: Under this work item, the Contractor shall furnish and install all trees as shown on the Contract Drawings and as specified in the specifications. This work shall include and not be limited to topsoil and seed, peat moss, final grading, decorative rock, removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town.

Item 0906.6 Stone Retaining Wall: Under this work item, the Contractor shall construct a stone retaining wall as shown on the Contract Drawings and as specified. This work shall include and not be limited to excavation, crushed stone, washed gravel, perforated pipe, mortar mix, backfill, fine grading, topsoil and seed, removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town.

Item 0906.7 Brick Pavers: Under this work item, the Contractor shall furnish and install a brick pavers as shown on the Contract Drawings and as specified. This work shall include and not be limited to excavation, compaction, base material, brick pavers, backfill, fine grading, topsoil and seed, removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town.

Item 0906.8 Grass Pavers: Under this work item, the Contractor shall furnish and install grass pavers as shown on the Contract Drawings and as specified in the specifications. This work shall include and not be limited to excavation, compaction, base material, grass pavers, infill, backfill, fine grading, topsoil and seed, removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town.

Item 0906.9 Gravel Path: Under this work item, the Contractor shall furnish and install a gravel path as shown on the Contract Drawings and as specified in the specifications. This work shall include and not be limited to excavation, compaction, base material, native gravel, backfill, fine grading, topsoil and seed, removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town.

Item 0906.10 Pickleball Courts – Playing Surface: The following work is included in this work item:

- a. Playing Surface - Acrylic Overlay and Color Coat (Color by the Town)
- b. Lines

Under this work item, the Contractor shall construct the pickleball courts as shown on the Contract Drawings and these specifications. This work shall include items a & b as specified above. The work shall not be limited acrylic paint, final grading, removal of surplus material and cleaning up at the locations shown on the Contract Documents or as directed by the Engineer or Town. The asphalt surface shall be paid under Item # 0301.3

△ **Item 0906.11 Putting Green & Picnic Area – Surface:** Under this work item, the Contractor shall furnish and install pre-cast concrete curb sections as shown on the Contract Drawings and as specified. This work shall include and not be limited to excavation, compaction, base material, pre-cast concrete curb sections, backfill, fine grading, 3/8" gravel, cement grout, removal of surplus material and cleaning up at the location shown on the Contract Documents or as directed by the Engineer or Town.

- a. Playing Surface – 3/8" diameter gravel over filter fabric.
- b. Area Curb – Pre-cast concrete curb – See Detail for type.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 0101 Site Preparation and Removals
- B. Section 0103 Erosion and Sediment Control
- C. Section 0201 Earthwork
- D. Section 0202 Unclassified Excavation
- E. Section 0205 Nature Trail
- F. Section 0206 Gravel Parking Area
- G. Section 0301 Asphalt Pavement
- H. Section 0401 Cast-In-Place Concrete
- I. Section 0402 Cast-In-Place Concrete Curbs
- J. Section 0501 Water Main
- K. Section 0502 Force Main
- L. Section 0503 Copper Water Service
- M. Section 0601 Drainage Conveyance System
- N. Section 0603 Furnish and Install Sanitary Sewers
- O. Section 0701 Precast Concrete Catch Basins
- P. Section 0702 Precast Concrete Manholes
- Q. Section 0703 Sewage Pumping Station
- R. Section 0704 Stormwater Management System Basins (Pocket Wetlands)
- S. Section 0801 Site Lighting
- T. Section 0802 Building Services – General Plumbing & Electrical Work
- U. Section 0803 Athletic Field Lighting
- V. Section 0901 Synthetic Turf Preparation
- W. Section 0902 Outdoor Equipment
- V. Section 0903 Dugouts
- X. Section 0904 Metal Fence & Gates
- Y. Section 0907 Traffic Signs
- Z. Section 0908 Timber Guard Rail

1.03 REFERENCES

References and industry standards listed in this Section are applicable to the Work in this Section unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

- A. American Society of Testing and Materials (ASTM) standards, latest editions.

- B. School Construction Authority Standard Specifications & Details
- C. National Federation of State High School Association (NFSHSA).
- D. New York State Department of Environmental Conservation – 6NYCRR PART 375
- E. American Joint Committee on Horticultural Nomenclature Standard: Standardized Plant Names, Latest Edition.
- F. American Association of Nurserymen., Inc. Standard: American Standard for Nursery Stock, ANSI Z60.1 Latest Edition.

1.04 SUBMITTALS

- A. Shop Drawings: manufacturer's product data and samples for all materials supplied, layouts, and manufacturers installation instructions. Machine duplicated copies of Contract Drawings will not be accepted. Included under this specification are the following required submittals:
 - 1. Vertical Concrete Overlay - Submit product data and manufacturer's installation instructions for the system.
 - 2. Acrylic Overlay Paint - Submit product data and manufacturer's installation instructions for the system.
 - 3. Court lines and Markings - Submit "Line Layout Drawing" prior to applying line markings.
 - 4. Basketball Court layout
 - 5. Pickleball Court layouts
 - 6. Plantings & Trees:
 - a. Manifests or delivery tickets for all plant material delivered to site.
 - b. Certification: Submit certificates of inspection as required by governmental authorities, and manufacturer's or vendor's certified analysis for soil amendments. Submit other data substantiating that materials comply with specified requirements.
 - c. Planting Schedule: Submit planting schedule showing schedule dates for each type of planting in each area of site. Schedule is subject to modification by the Engineer, Landscape Architect, or Town in accordance with accepted horticultural practice.
- B. Samples
 - 1. Topsoil - 5-pound sample along with an independent lab test result indicating the particle size analysis of the material specified. All test shall be performed in accordance with ASTM F1632
 - 2. Samples
 - a. Submit color samples of each type and color of acrylic overlay on asphalt base.
 - b. Submit color samples of each type and color of line marking.
 - c. Submit a sample of the brick and grass paver.
 - d. Submit a sample of the native stone and decorative rock for the paths.

1.05 QUALITY CONTROL

- A. Manufacturer/Fabricator: Minimum of 3 years successful experience in the manufacture/fabrication of the type of equipment specified.
- B. Installer: Minimum of 3 years successful experience in construction of basketball courts.
- C. Acrylic Overlay Applicator: Company performing the Work of this Section shall have had a minimum of three years' experience and at least three projects with similar square footage of placement.
- D. Line Markers: Personnel with a minimum of three years' experience.
- E. Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
 - 1. Do not make substitutions. If specified landscape material is not obtainable, submit a proof of non-availability and proposal for use of equivalent material. When authorized, adjustment of contract amount will be made. Analysis and Standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.
- F. Trees and Shrubs: Provide trees and shrubs grown in a recognized nursery in accordance with good horticultural practice. Provide healthy, vigorous stock free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions or disfigurement.
- G. Sizes: Provide trees and shrubs of sizes shown or specified. Trees and shrubs of larger size may be used if acceptable to Architect, and if sizes of roots or balls are increased proportionately.
- H. Inspection: Owner reserves right to inspect trees and shrubs either at place of growth or at site before planting for compliance with requirements for name, variety, size and quality. Contractor shall notify Architect when all plants are tagged at the nursery and ready for inspection.

1.06 QUALITY ASSURANCE

- A. Regulatory Requirements - Town of Yorktown: Work of this Section shall conform to all requirements of the Town of Yorktown, Department of Parks and Recreation regulations and all applicable regulations of governmental authorities having jurisdiction including safety, health, noise, and anti-pollution regulations. Where more severe requirements than those contained in the Town of Yorktown, Department of Parks and Recreation regulations are given in this Section, the requirements of this Section shall govern.
- B. The Contractor shall guarantee an 80% survival rate of all vegetation for one (1) year. In lieu of a bond, The Town will retain five percent (5%) of the payment for this item. The retainer will be returned to the Contractor at the end of one (1) year.
- C. NYS Department of Environmental Conservation - Part 205 on "Architectural Surface Coatings" - for Volatile Organic Compounds (VOC).
- D. Do not perform application during rain, if rain is imminent, or if the surface is wet or covered with frost. Air temperature during application must be 50°F and rising.

- E. Subcontract landscape work to a single firm specializing in landscape work.
- F. Field Example: Prior to construction of the stonewall, construct a wall panel at the site. When approved, the panel will be the standard of workmanship required for all stonework constructed of the same materials.
 - 1. Start a section of wall panel 5 feet long by 3 feet high by full wall thickness, showing the approved color range, bond, mortar joints, exposed surfaces conditions, and workmanship.
 - 2. Do not start stonework until the example panel has been approved by the Town.


1.07 DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
- B. Trees and Shrubs: Provide freshly dug trees and shrubs. Do not prune prior to delivery. Do not bend bind- tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery.
- C. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed for more than six (6) hours after delivery, set trees and shrubs in shade and protect from weather and mechanical damage; keep roots moist
- D. Do not remove container grown stock from containers until planting time.
- E. Label at least one (1) tree and one (1) shrub of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name.

PART 2: PRODUCTS AND MATERIALS

2.01 MANUFACTURERS

- A. Concrete Vertical Overlay – Surecrete Design Products, 15246 Citrus County Drive, Dade City, Florida 33523, www.SURECRETEDESIGN.com
 - 1. Refer to the Manufactures Specifications contained herein at the end of this section.
- B. Acrylic Overlay
 - 1. California Products Corporation, Andover, MA. "Plexipave" system.
 - 2. Nova Sport USA, Milford, MA. "Novacrylic Combination Surface" system.
 - 3. SportMaster Sport Surfaces, Sandusky, OH. "SportMaster Color Concentrate" system; including Acrylic Patch Binder C1480, Acrylic Resurfacer C1300, "Color Concentrate With Sand" filler coat, and "Color Concentrate" finish coat.
- C. Court Lines and Markings
 - 1. Sherwin Williams (800 524-5979) for markings on resilient surfacing and asphaltic concrete pavement. Latex traffic marking paint such as Setfast Latex Traffic Marking paint by Sherwin Williams, or preformed thermoplastic marking coating by Surface Signs.

2. California Products Corp. (800 225-1141) for markings on athletic wearing surface. 100% acrylic latex paint such as Plexicolor by California Products Corp.
 3. Surface Signs (718 507-5437) for markings on asphaltic concrete pavement.
 4. SportMaster Sport Surfaces, Sandusky, OH. "SportMaster Color Concentrate" system; including Acrylic Patch Binder C1480, Acrylic Resurfacer C1300, "Color Concentrate With Sand" filler coat, and "Color Concentrate" finish coat.
- D. Brick Pavers: Hollandstone by Unilock or approved equal. Color – Rustic Red
- E. Grass Paver System - CORE Systems, Tel: 1.855.777.2673 (CORE)
E-mail: info@coregravel.ca
- F. Expansion Joints: Sika Corporation, 201 Polito Avenue Lyndhurst, NJ 07071,
Tel: 800-933-7452.
-  G. Pre-cast Concrete Curb: Lineo Dimensional Stone by Unilock or approved equal.
Color – Almond Grove

2.02 TREES AND PLANTINGS

- A. Provide trees, shrubs and other plants complying with recommendations and requirements of ANSI Z60.1 "Standard for Nursery Stock" and as specified.
- B. Evergreen Trees: Provide trees of height and caliper listed or shown and with branching configuration recommended by ANSI Z60.1 for type and species required. Provide single stem trees except where special forms are shown or listed.
 1. Provide balled and burlapped (BB) evergreen trees.
 2. Container grown deciduous trees will be acceptable in lieu of balled and burlapped deciduous trees subject to specified limitations of ANSI Z60.1 for container stock.
- C. Deciduous Trees : Provide trees of height and caliper listed
 1. Provide balled and burlapped (BB) deciduous trees.

2.03 TOPSOIL AND FERTILIZER

- A. Topsoil furnished from off the site shall be natural, fertile, friable agricultural soil, capable of sustaining vigorous plant growth, free from stones, roots, sticks, and other foreign substances and shall pass a 1/4-inch screen.
- B. The topsoil shall have an acidity range of pH 5.0 to pH 7.0 and shall contain not less than 6 percent organic matter.
- C. Topsoil (loam) shall contain between 7 and 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.
- D. The Engineer reserves the right to reject any topsoil with too high a percentage of clay.
- E. Fertilizer - All fertilizers (either granular or liquid) shall be uniform in composition, free flowing and suitable for application with approved equipment. Fertilizers shall be delivered to the site fully labeled, according to applicable fertilizer laws and shall bear the name, trade name or trademark, and warranty of the producer or manufacturer.

- i. Shall be as follows: 100% organic: (15-0-10) shall be applied as per label directions. All fertilizer shall be phosphorus free.
- ii. Low pH Correction Materials: Lime material shall be ground limestone (hydrated or burnt lime may be substituted), which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Ground limestone shall be ground to such fineness that at least 50% shall pass through an IDO-mesh sieve and 98% to 100% shall pass through a 20-mesh sieve.

2.04 GRASS SEED

- A. The seed used on this project shall be fresh, re-cleaned and of the latest crop year.
- B. The seed shall conform to Federal and state standards.
- C. Each type of grass in the mixture shall meet or exceed the minimum percentage of purity and germination listed for that type of grass with a maximum weed content of 0.1 percent.

The table below presents the suggested seed mixture to be used on this Project. A turf grass specialist may submit variations from these suggestions subject to the Engineers review. The suggested mixture listed shall be provided if the Engineer does not review a variation.

% by Weight	Variety	Purity %	Germination
50	Kentucky Blue Grass	85	80
20	Red or Chewing Fescue	97	80
30	Red Top	92	90
100	---	---	---

2.05 WILDFLOWER SEED

A. NEW ENGLAND WILDFLOWER MIXTURE

- 1. This mixture contains a selection of native wildflowers and grasses that ensures a variety of species.
- 2. Application rate 23 LBS per acre.
- 3. Fertilization of rootzone is NOT required.
- 4. Seed is available from New England Wetland Plants, Inc., 820 West Street, Amherst, MA 01002 Phone (413) 548-8000, Fax (413) 549-4000, info@newp.com.

2.06 WALL STONE

- A. Sound natural site stone in range of sizes required by the Work. It is the intent to re-use excavated site stone and rock.

2.07 MORTAR TYPES

- A. Type S: For setting stonework.
- B. Type N: For pointing stonework.
- C. Cement: One of the following complying with the indicated requirements:
 - 1. Portland Cement: ASTM C 150, Type 1, of natural color or white as required to produce the desired color.
 - 2. Masonry Cement: ASTM C 91, of natural color or custom color as required to produce the desired color.

- D. Hydrated Lime: ASTM C 207, Type S.
- E. Mortar Sand: ASTM C 144, except that for joints less than 1/4 inch thick use sand graded with 100 percent passing the No. 16 sieve.

PART 3: METHOD

3.01 AREAS AND FEATURES TO BE RESTORED

- A. All areas, including natural and artificial features occurring thereon, which are damaged or disturbed by the Contractor's operations, shall be restored, repaired or replaced to the same or superior condition which existed prior to construction unless otherwise shown on the Contract Drawings.
- B. Grassed or lawn areas shall be dressed with topsoil, raked, fertilized, seeded, mulched, and maintained as specified in later part. Existing cultivated or landscape items such as trees, shrubs, hedges, saplings, vines, ground cover vegetation, etc., shall be reestablished or replaced with new materials.
- C. Walls, fences, ditches, drains, culverts, roadways, drives, posts, and all other artificial features shall be repaired, restored or replaced to the same or superior condition which existed prior to construction.

3.02 AREAS TO BE DEVELOPED

- A. When the project site is to be modified and developed to meet new conditions, the Contractor shall perform all required grading, top soiling, fill, fertilizing, seeding, planting, mulching of construction and maintenance of areas, all in accordance with the Contract Drawings and as specified herein. This includes and shall not be limited to landscape areas shown, basketball courts, pickle ball courts, soccer fields, parking area etc. including all excavation and grading, plants, soil mixes, and geotextiles required to meet that specified in the Contract Documents.

3.03 RECONSTRUCTION OF BASKETBALL COURTS

- A. This work shall be limited to reconstruction of the basketball courts. All work shall be in accordance with NCAA and as shown on the Contract Drawings. Materials furnished under this work shall meet the requirements specified under Item 0203 and Item 0204. Sub base material shall be compacted to 90% of the maximum dry density as specified by a Standard Proctor Test (ASTM D 689).
- B. The compacted subgrade shall be installed in accordance with the final slope and shall mirror finish grade in order to ensure an: even depth of material once placement has occurred.
- C. Place the material in 8" lifts and compact with a 10-ton vibratory compactor until an optimum compaction of 90 % of maximum dry density as specified by a Standard Proctor Test (ASTM D 689). Scarify the surface to facilitate bonding of the next lift and repeat until finish grade elevation is achieved.
- D. Watering/Dewatering: The Contract shall add water or dry the soil as necessary to achieve the optimum moisture content and optimum compaction.
- E. Grading
 - 1. Finish grading shall be accomplished using a laser device that allows accuracy to +/- 1/8 inch. A slope of 1/2 percent to 1 percent shall be placed on the infield surface in order to facilitate drainage.

2. The finished surface of the infield shall be smooth and free from any visible dips, humps, bumps or other blemishes which would hinder the removal of water through positive surface drainage.
3. The Contractor shall perform an as-built survey of the finished field showing all elevations and improvements.

F. Apply Acrylic Overlay – See Section 3.06

3.04 REHABILITATION OF HANDBALL COURTS

- A. Prior to any work clean the wall faces. Specifically, powerwash and clean off painted graffiti and clean out cracks and spalled areas.
- B. After properly drying follow the Contract Drawings to repair all cracks and spalls.
- C. Next apply Surecrete as per manufacturers specifications included at the end of this section. The Town shall select color pigment of product.
 1. A minimum of 2 coats is required (Base + Finish). Each coat shall be 3/16" in thickness.
 2. Smooth finish
 3. Seal
- D. Resurface asphalt base area as per Contract Drawings. Install Tensar GlasGrid CG100L over existing asphalt. Place 2" asphalt overlay. This work shall be paid under Item # 0301.4
- E. Apply acrylic overlay and lines as per Contract Drawings. Colors to be provided by Town. See Item 3.04 for details of applying overlay.
- F. Apply new expansion joint material: Sikaflex – 1a
- G. Lines

3.05 PICKLEBALL COURT – PLAYING SURFACE

- A. This work shall be limited to the playing surface of the pickleball courts.
- B. The finished surface of the pickleball courts shall be smooth and free from any visible dips, humps, bumps or other blemishes which would hinder the removal of water through positive surface drainage.
- C. Apply Acrylic Overlay – See Section 3.06
- D. Lines

3.06 PUTTING GREEN & PICNIC AREA – SURFACE

- A. This work shall be limited to the preparation Putting Green & Picnic Area surface.
- B. Install 3/8" pea gravel over filter fabric – See Detail
- C. Pre-cast concrete curb – See Detail for type.

3.07 ACRYLIC OVERLAY

The materials and execution methods described below are based on the "SportMaster" ColorPlus™ System in order to establish a basis of design, performance and quality. The Color Plus System consists of resurfacer layer, color coat and lines. Adjust materials and execution methods as required to conform to written installation procedures of other manufacturers.

- A. Protection: Protect adjacent surfaces not to receive coating during application.
- B. Surface Preparation - Allow the asphaltic concrete base to cure and the oils to dissipate to a degree acceptable to the manufacturer (a minimum of 14 days) prior to commencement of the surfacing procedure. Clean area to be surfaced of any loose or foreign particles (dirt, oil, and other contaminants) prior to commencement of work.
- C. Mix ingredients in a suitable container.
- D. Patch depressions and irregularities as follows:
 - 1. Apply tack coat to depressions to be patched and allow to dry.
 - 2. Fill depression with the Court Patch Binder and allow to cure.
 - 3. After patching, the surface shall not vary more than 1/8" in 10 feet measured in any direction.
- E. Application – See SportMasters Manufacturer's Installation Instructions at the end of this specification.
- F. Color Coat - See SportMasters Manufacturer's Installation Instructions at the end of this specification.
 - 1. Surface shall have a uniform appearance and be free of ridges and tool marks.
- G. Playing Lines: Lines will be applied under Specification Section 201. Allow a minimum of 4 hours after finish coat is placed before lines are painted.

3.08 FINE GRADING

- A. Areas requiring topsoil shall be fine graded to within 4 inches of finished grade to provide a minimum compacted thickness of 4 inches of topsoil at all locations.

All such areas, whether in cut or fill, shall be raked to a depth of one (1) inch, be parallel to finished grade as shown or required, and shall be free of all stones, roots, rubbish, and other deleterious material.

3.09 TOP SOILING

- A. Topsoil shall be furnished and spread in the required areas to a minimum depth of 4 inches.
- B. Stockpiled topsoil may be used if it is acceptable to the Town. In the event this topsoil is not satisfactory, or is inadequate to cover the required areas, the Contractor shall furnish the required amount of satisfactory topsoil from approved sources off the site.
- C. Tilling: After the area(s) to be top soiled have been brought to grade, compacted where necessary and immediately prior to the dumping and spreading of topsoil. The subgrade shall be loosened by disking or by scarifying to a depth of at least 2 inches (50 mm) to permit bonding of the topsoil to the subsoil.

- D. Topsoil shall not be delivered or placed in a muddy condition. The soil shall be uniformly compacted with a light hand roller to a final depth of not less than 4 inches. When finished, the surface shall conform to the finished grades shown or required and shall have a smooth pulverized surface at the time of seeding. Any irregularities shall be corrected before the fertilizer and seed are placed. Any subsequent settlement or displacement of the topsoil shall be restored to an acceptable condition at the Contractor's expense.

3.10 FERTILIZING

- A. The fertilizer shall be uniformly spread by a mechanical spreader at the rate of 25 pounds per 1,000 square feet.
- i. The fertilizer shall be incorporated into the upper 2 inches of topsoil immediately after spreading. Fertilizer shall be 100% organic: (15-0-10) shall be applied as per label directions. All fertilizer shall be phosphorus free.

3.11 SEEDING

- A. Seed shall be applied at a rate of not less than 5 pounds per 1,000 square feet, using a mechanical spreader.
- B. All seed furnished under this item shall be delivered in standard size, unopened bags of the vendor, showing the weight, mixture, vendor's name and guaranteed analysis.
- C. Seed shall be properly stored by the Contractor at the site of the contract and any seed damaged during storage shall be replaced by him.
- D. Seeding is to be done in dry or moderately dry soil and at times when the wind velocity does not exceed 5 mile per hour.
- E. After the finished grading is completed and just before seeding, the areas to be seeded shall be loosened to a depth of 1 inch and raked to true lines, free from all variations, bumps, ridges and depressions which will hold water.
- F. All sticks, stones, roots, or other objectionable materials, which might interfere with the formation of the fine seed bed, shall be removed from the soil.
- G. Upon completion of the seeding, the area shall be raked lightly and rolled with a light hand roller.
- H. The process of spraying grass seeds, water, fertilizer and mulch known as hydro-seeding or hydro-mulching may be utilized.
- I. Presoaking, the spraying of the materials, and watering after spraying shall be in strict accordance with the manufacturer's instructions.
- J. All materials, protection, maintenance, etc., shall be in conformance with this specification. The mulch may be a wood fiber material compatible with the spray equipment.

3.12 MULCHING, PROTECTION AND MAINTENANCE

- A. The Contractor shall protect and maintain seeded and areas of sod to assure a full even stand of grass.
- D. Immediately after seeding and rolling, the Contractor shall apply oat, wheat, or rye straw, free from noxious weeds, as a mulch to a loose depth of about one (1) inch.

This is established as a minimum requirement for seeded areas. Where required by weather and/or site conditions the Contractor shall provide additional or anchored mulch as necessary to maintain the seedlings. The mulching shall be in accordance with the Standard Specifications for mulching, as included within the New York Guidelines for Urban Erosion and Sediment Control.

- C. The Contractor shall perform all watering, mowing and reseeded as necessary for a minimum of 30 days, and until final acceptance of the Contract, to ensure the establishment of a uniform stand of specified grasses.
- D. Any portion of the seeded areas failing to produce a full uniform stand of grass from any cause shall be reseeded at full rate and re-fertilized at one-half rate and protected and maintained until such a full stand has been obtained.

3.13 **LAWN ESTABLISHMENT**

- A. Maintain the sod at heights between 1-1/2 and 2-1/2 inches. Include a minimum of 2 mowings.
- B. Water sod as required for the duration of the contract. Provide 3 gallons per sq yd per watering. Apply fungicides or use any other horticultural operation necessary for proper establishment and maintenance of sodded areas.
- C. Care for sodded areas until all Work of this Contract is completed and accepted.
- E. Replace sod in areas which show bare spots, deterioration, or is otherwise deemed unacceptable by the Engineer or Town.

3.11 **PLANTING**

- A. Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps and other extraneous materials harmful or toxic to plant growth.
- B. Mix specified soil amendments and fertilizers with topsoil at rates specified. Delay mixing of fertilizer if planting will not follow placing of planting soil within a few days.
- C. For pit and trench backfill, mix planting soil prior to backfilling and stockpile at site.
- D. Prepared Topsoil (topsoil backfill mixture) for plan pits.
 - 1. Prepared topsoil mixture for backfilling plant pits, beds and planters shall be mixed in a central location on the job site and transported to locations where soil mixture is to be used.

3.14 **RESTORATION SCHEDULE**

- A. It is the intent of this Item to require vegetative restoration on all disturbed areas of earth, in which are disturbed as a result of this Contract, immediately following site disturbance requiring such restoration. This vegetative cover may consist of permanent restoration as specified or alternative temporary cover in accordance with the New York Guidelines for Urban Erosion and Sediment Control. In the event temporary cover is provided, all requirements for permanent restoration will still apply.

3.15 STONE RETAINING WALL

- A. Just prior to setting stone, clean surfaces that support the work of this Section.
- B. Clean stone before setting. Do not use tools which can mark or damage exposed surfaces.
- C. Set stonework to a line and plumb, unless otherwise shown. Set stone in full mortar setting bed, and completely fill spaces between stones with mortar and spalls (except where spalls are restricted) laid in mortar.
- D. Bond stonework in both directions. In the case of solid stone walls, there shall be at least one through bond stone for each 10 sq ft of superficial wall area.
- E. Set and build in items required to be embedded in the stonework as the Work progresses. Fill space around built-in items with mortar.
- F. Select and fit stones as required to form openings, chases, and pockets. Top of walls shall be laid to an even surface, unless otherwise shown.
- G. Stone
 - 1. Set stone in a coursed broken range, with arrises field dressed with a stone mason's hammer, and with arrises at jambs and corners dressed true.
 - 2. Select stones for size and shape so that stonework can be laid up without the use of spalls in exposed faces of the Work.
 - 3. Size and dress stone so that no stone with a superficial area of less than 16 sq inches will be exposed in the finished Work, and so the mortar joints will not exceed 3/4 inch in width.
 - 4. Distribute the various sized stones throughout the Work in such a manner as to avoid a mechanical or patterned effect.
- H. After mortar has set "thumb-print" hard, rake out exposed joints 5/8 to 3/4 inch deep. Brush face of joints clean.
- J. Except where joints are to be pointed with sealant, wet the raked joints and fill full with pointing mortar. Pack and work mortar into voids. Neatly finish surface to flush tooled joint.
- K. Remove excess mortar on exposed surfaces of stonework as the Work progresses before the mortar has set.
- L. Clean soiled areas with stone cleaner or by other approved method. Use non-metallic tools. Rinse with clean water.

3.16 BRICK PAVERS

- A. Apply setting bed (sand or stone dust) over NYSDOT subbase to indicated thickness.
- B. Lay brick pavers according to indicated pattern. Avoid surface irregularities by checking with a straight edge at regular intervals.
 - 1. Cut brick with motor-driven saw equipment.

2. Use the largest size brick units possible. Avoid the use of small pieces of brick or large mortar areas.

C. Pack joints full with sand fill as per paver manufacturer's installation instructions.

 **3.17 GRASS PAVERS**

A. Grass pavers shall be installed as per manufacturer's specifications and procedures.

 **3.18 GRAVEL PATH**

A. The subgrade shall be excavated to the required depth and prepared by fine grading and compacted. The edge of the prepared base shall be of constant parallel width and straight or smooth curves.

B. The base material shall be placed to and compacted to the depth as per the detail provided on the Contract Drawings.

C. The native gravel shall then be placed over the base at the specified depth. The stone shall be leveled to as even a grade as possible.

PART 4: MEASUREMENT AND PAYMENT

4.01 DESCRIPTION

The cost for the work under this item shall be at the **Unit Price** or **Lump Sum** bid as shown on the **Itemized Proposal & Project Bid Sheets** and shall include the cost of all labor, laboratory testing, materials and equipment necessary to complete the work specified under this section and as listed below within the limits shown on the Contract Drawings and as directed by the Engineer or Town. The price bid for the work specified below (0906.1, 0906.2, 0906.3, 0906.4, 0906.5, 0906.6, 0906.7, 0906.8, 0906.9, 0906.10 & 0906.11) shall include the cost of all labor, equipment and materials specified herein to restore the site in accordance with the Contract Drawings and Specifications.

Item No.	
0906.1	Reconstruction of the Basketball Courts
0906.2	Rehabilitation of the Handball Courts
0906.3	Seeding
0906.4	Landscape and Plantings
0906.5	Tree Planting
0906.6	Stone Retaining Wall
0906.7	Brick Pavers
0906.8	Grass Pavers
0906.9	Gravel Path
0906.10	Pickleball Courts – Playing Surface
0906.11	Putting Green & Picnic Area – Surface



OVERLAY BAG MIXES

WALL SPRAY



WALL SPRAY

DESCRIPTION

Wall Spray is a cement-based overlay designed for both interior and exterior vertical surfaces. It offers a wide variety of finishes from a simple knock-down to a sophisticated faux Venetian Plaster. **Wall Spray** may be applied by compressed air spray equipment and/or by trowel. Restoration, repair, re-surfacing, architectural accenting, and surface protection of existing cladding are all realized through **Wall Spray**. Typical areas include retention walls, entry/accent walls, columns, gable ends, fireplace accents, and any other vertical surfaces or walls. **Wall Spray** is formulated to provide excellent bonding to new as well as existing concrete, concrete block, ICF, polystyrene foam, drywall, plaster, plywood, and even painted surfaces.

SURFACE PREPARATION

The principles for surface preparation for **Wall Spray** are aligned with other cement-based vertical overlays, the substrate must be:

- Clean:** The surface must be free of dust, dirt, oil, grease, curing agents, efflorescence, chemical contaminants, rust, algae, mildew and other foreign matter that may serve as a bond breaker or prevent proper adhesion. Best results may be achieved through the use of **SCR** (see TDS).
- Cured:** Any concrete surface must be sufficiently cured to have complete hydration, approximately 7 – 14 days depending on temperatures and humidity.
- Sound:** No system should be placed on flaking paint or spalling concrete.
- Profiled:** Proper profile for concrete surface should follow the standard established by the International Concrete Repair Institute (ICRI) Technical Guideline no. 03732 for Concrete



PACKAGING

40 lb. (18.1 kg) bag

MIXING RATIO

3.5 to 4 qts. (3.3—3.8 liter) water to 1 – 40 lb. (18.1 kg) bag of **Wall Spray**

(optional) .5 pound (227 g) **Color Pack** – 30 standard colors (see **Color Pack** TDS)

*note will not match color chart

COVERAGE

Depends upon application and substrate

1 – 40 lb. (18.1 kg) bag of **Wall Spray**

@ ¼" (6.35 mm) = 28-30 ft² (2.6—2.8 m²)

DENSITY

121 pounds/ft³ (1938 kg/m³)

COMPRESSIVE STRENGTH ASTM C-109

28 day 2870 PSI (19788 kPa)

FLEXURAL STRENGTH ASTM C-348

28 day 950 PSI (6550 kPa)

TENSILE STRENGTH ASTM C-190

28 day 140 PSI (965 kPa)

ABRASION RESISTANCE

28 days %loss –500 cycles – <.40%

MOSAIC SHEAR ANSI A-118.4

28 day 275 PSI (1896 kPa)

WATER PERMEABILITY ASTM D2247

FREZE/THAW 50 cycles - Passes

SHELF LIFE

Under normal conditions: when kept dry and moisture free, out of direct sunlight, the shelf life of an unopened bag is (12) months from the date of purchase. Storage must be under roof and off the floor. Rotate inventory to maintain

Mixing and handling

1. Add 3 ½ qts. (3.3 liter) water, to a 5 gal. (18.9 liter) pail.
2. Add **Color Pack** if desired.
3. Mix with a handheld concrete mixer, such as an Eibenstock model #EHR 20R or a ½" (12.7 mm) 450 – 600 rpm drill equipped with a cage mixing blade for a minimum of 15 seconds.
4. Slowly introduce **Wall Spray** into the pail with mixer running.
5. Scrape side of pail with a margin trowel to ensure all dry product is incorporated into the wet mix.
6. Continue to mix for a minimum of 1 minute after all ingredients are combined to achieve a lump-free consistency. Additional water may be added up to a total of 4 qt. (3.8 liter) water to 1 – 40 lb. (18.1 kg) bag.

Base Coat

All exterior **Wall Spray** applications are recommended to have a base coat. Base coats are most commonly sprayed on with compressed air spray equipment, but may also be applied with hawk and trowel.

Concrete, common substrates

1. Common setting for spray gun orifice is approximately ¼" (6.3mm).
2. Setting for air compressor should be approximately 8 ft³(.23m³) per minute at 40 psi (276 kPa) continuous.
3. Spray 100% coverage, leaving no bare spots, a minimum of 1/8-3/16" (3—5 mm) of material.
4. Depending upon desired finished texture, may or may not be troweled.

EFIS, foam, hard coat, or randomly cracked substrate (e.g. concrete block)

1. Minimum 4.5 oz. (127 g) standard fiberglass mesh is required.
2. Spray a minimum of 1/8-3/16" (3—5 mm) of material as a first pass.
3. Trowel the mesh into the wet base coat.
4. Spray a second pass to ensure mesh is completely encapsulated in base coat when troweled flat.

(Optional) Stencils and grout tape patterns

1. Stencils and tape patterns may be placed after scraping base coat, and prior to application of finish coat.
2. Stencils and tape patterns may be removed as soon as product dries sufficiently and prior to sealing.

Finish Coat

1. The base coat must dry sufficiently (minimum overnight). Longer dry times are required on concrete block to prevent joints from "ghosting" through the finish coat.
2. Scrape the surface of base coat and remove any loose material.
3. The finish coat applies as the base coat described above. Alterations of air pressure, spray gun orifice size, and trowel techniques will yield numerous pleasing finish coats.

Secondary coloring

Depending upon the application selected, **Eco-Stain** may provide aesthetic appeal to a project. Refer to **Eco-Stain** TDS.

Sealing

To complete a **Wall Spray** project sealing is required. While multi-colored, "designer finishes" may seal clear, for the simple single color projects, use a good quality wall paint.

Excellent choices for sealer include:

- A good quality wall paint
- **Super 20** – clear 30% solids, 600 g/L solvent
- **Super WB** – clear 30% solids water based
- **Super WB LL** – clear low luster water based

Refer to the appropriate spec sheet for details.

Note: never use a solvent based sealer on **Wall Spray** placed over a polystyrene foam substrate

SUITABILITY SAMPLE

Due to condition specific sites, always prepare an adequate number of test areas. Wear protection system and aesthetic suitability for products' intended use should be included. On site sample approval is especially critical on substantial, heavy traffic situation or custom coloration.

CLEAN-UP

Before **Wall Spray** dries; spills and tools can be cleaned up with water.

DISPOSAL

Contact your local government household hazardous waste coordinator for information on disposal of unused product.

LIMITATIONS

For use by trained professionals that have read the complete SDS. A completed **Wall Spray** project requires a sealer. The sealer selected may have limitations that affect the finished system. Refer to the appropriate sealer TDS for details.

WARRANTY

Warranty of this product, when used according to the directions, is limited to refund of purchase price, or replacement of product (if defective), at manufactures/seller's option. Sure-Crete Design Products shall not be liable for cost of labor or direct and/or incidental consequential damages.

CAUTIONS

KEEP OUT OF REACH OF CHILDREN. Inhalation: Avoid prolonged breathing of airborne dust, particularly present during mixing. Use NIOSH approved respirator for nuisance if threshold limit values are unsafe. **Skin Contact:** Skin contact may cause irritation. Remove contaminated clothing and wash affected skin with soap and water. Launder clothing before reuse. If symptoms persist, seek medical attention. **Eyes:** Wear safety eye protection when applying. Contact with eyes may cause irritation. Flush eyes with water for 15 minutes. If symptoms persist, seek medical attention.

SAFETY DATA SHEETS

The following are links to all available safety data sheets related to this product:

- [bag-mix-wall-spray-sds.pdf](#)



Acrylic Resurfacer

CMT - 3

Revised: 8/09

1. PRODUCT NAME:

Acrylic Resurfacer

2. MANUFACTURER:

ThorWorks Industries, Inc.
2520 S. Campbell St.
Sandusky, OH 44870
Phone: 800-326-1994
Fax: 419-626-5477
www.thorworks.com

Additional Plant Locations:

SealMaster has a nationwide network of manufacturing and distribution facilities.

Phone 1-800-395-7325 or visit www.sealmaster.net to find the location near you.

3. PRODUCT DESCRIPTION & BENEFITS:

SportMaster Acrylic Resurfacer is 100% acrylic emulsion resurfacer designed for on site mixing with silica sand. Acrylic Resurfacer reduces surface porosity allowing for application of an even, full depth color, playing surface.

4. USES:

SportMaster Acrylic Resurfacer is applied to asphalt or concrete surfaces in preparation for SportMaster color finish systems.

Color: Available in Black and Neutral.

5. SURFACE PREPARATION:

Pavement surface must be cleaned entirely of dust, dirt, debris and all loose materials. New asphalt must cure 30 days before application. Repair of pavement surface defects, depressions and cracks must be completed prior to application. All repairs must be flush and smooth to adjoining surfaces.

6. MIXING PROCEDURES:

• For Use As A Coating - Use the following mix design (based on 55 gallons of Acrylic Resurfacer for ease of calculation):

Acrylic Resurfacer.....55 Gallons
Silica Sand (50 - 60 mesh).....800 lbs.
Water.....33 Gallons

• For Use As A Patching Material - Acrylic Resurfacer may be modified with the following mix design. Patching Mix for applications up to 1/4" lifts:

Acrylic Resurfacer.....10 Gallons
Water.....5 Gallons
Sand.....200 lbs.
Cement.....1/2 Gallon
(Always mix cement thoroughly with a small amount of water before adding to patching mix)

NOT E: Silica Sand used in patching should be AFS fineness 30 to 40 mesh.

7. APPLICATION:

Apply Acrylic Resurfacer with a soft rubber squeegee. Apply successive coats in cross directions. Scrape all rough spots and ridges before applying the next coat. Apply one or two coats, depending on surface porosity and condition. Two coats are recommended on new or uncoated asphalt.

8. IMPORTANT:

Stir material thoroughly before using. Temperature must be a minimum of 50° F. and rising before application. Do not apply when rain is imminent or forecast. Keep from freezing. Close container when not in use.

9. DRYING TIME:

30 to 60 minutes under optimum drying conditions.

10. COVERAGE:

Yield calculations are based on undiluted gallons of SportMaster Acrylic Resurfacer and will vary according to surface texture and porosity within the limits below:

.07 to .09 gallons per square yard per coat.

11. CAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Do not take internally. If swallowed, call a physician immediately. In case of contact with eyes, flush immediately with water for 15 minutes and call a physician. When not in use, keep containers tightly closed and upright to prevent leakage.

12. WARRANTY:

The statements made on this technical bulletin are believed to be true and accurate, and are intended to provide a guide for approved construction practices. Manufacturer does not make, nor does it authorize any agent or representative to make any warranty, express or implied, concerning this material as workmanship, weather, construction, equipment utilized

Acrylic Resurfacer
CMT-3

SealMaster
August 2009
(Supersedes CMT-3 (7/04), CMT-3 (4/05))

SPORT SURFACING

Chemical Characteristics

	% Weight (minimum)
Acrylic Emulsion	44.0
Hiding Pigment	2.0
Mineral Inert Fillers	5.0
Film Formers, Additives	.2
Water	45.0

Product Data

Type	Acrylic Emulsion
Pounds per Gallon @ 77° F.	8.5 ± .5
% Non Volatile Material	27.5 ± 5.0
Odor	Slight Ammonia
Flammability	Non-Flammable
Flash Point	None
Storage Life	One Year

Acrylic Resurfacer

and other variables affecting results are all beyond our control. Manufacturer warrants only that the material conforms to product specifications and any liability to the buyer or user of this product is limited to the replacement value of the product only. In no event shall Manufacturer be liable for any injury, loss or damage, either direct or incidental, special or consequential, however arising, in connection with material or equipment furnished or work performed. Manufacturer shall not, in any manner, be liable for any defects, variations or change in condition in the substructure over which its products are installed.

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ThorWorks Industries, Inc.
P.O. Box 2277
Sandusky, OH 44870

Phone: 1-800-326-1994
FAX: 1-419-626-5477

www.sportmaster.net





Specifications for applying
**SportMaster Color Coating Systems
over asphalt tennis court surfaces**

CMT - 24

Revised: 7/09

PRODUCT NAME:

SportMaster Color Coating Systems over asphalt tennis court surfaces

MANUFACTURER:

ThorWorks Industries, Inc.
2520 S. Campbell St.
Sandusky, OH 44870
Phone: 800-326-1994
Fax: 419-626-5477
www.thorworks.com

Additional Plant Locations:
SealMaster has a nationwide network of manufacturing and distribution facilities.

Phone 1-800-395-7325 or visit www.sealmaster.net to find the location near you.

1. SCOPE:

1.1
The following specifications pertain to the application of SportMaster Color Coating Systems over asphalt tennis court surfaces. Refer to Product Technical Data sheets for specific mixing and application instructions.

2. SURFACE PREPARATION:

2.1
New Asphalt surfaces must cure 14 to 30 days prior to application. The surface must be cleaned entirely of dust, dirt, debris, and all loose materials.

2.2

Fill all cracks with SportMaster Crack Magic, Acrylic Crack Patch, Acrylic Patch Binder or other suitable crack filler.

2.3

Level depressions or "bird baths" (1/8 inch or deeper) with SportMaster Acrylic Patch Binder or Acrylic Resurfacer patching mix.

2.4

Apply one or two coats of SportMaster Acrylic Resurfacer as required by surface roughness and porosity to provide a smooth underlayment for application of the SportMaster Color System.

3. APPLICATION OF SPORTMASTER COLOR SYSTEM:

3.1

Over properly prepared asphalt surface apply a minimum of two coats of SportMaster Color Concentrate or ColorPlus System in accordance with manufacturer's mixing and application instructions.

4. LINE MARKINGS:

4.1

Line markings shall be laid out according to United States Tennis Association specifications.

4.2

After masking tape has been laid apply SportMaster Stripe Rite line primer to seal voids between masking tape and court surface to prevent "bleed under" when SportMaster Line Paint is applied.

4.3

Apply a minimum of one coat of SportMaster Line Paint.

5. GENERAL:

5.1

All work shall be performed in a workmanlike manner. All containers and debris shall be removed from job when completed.

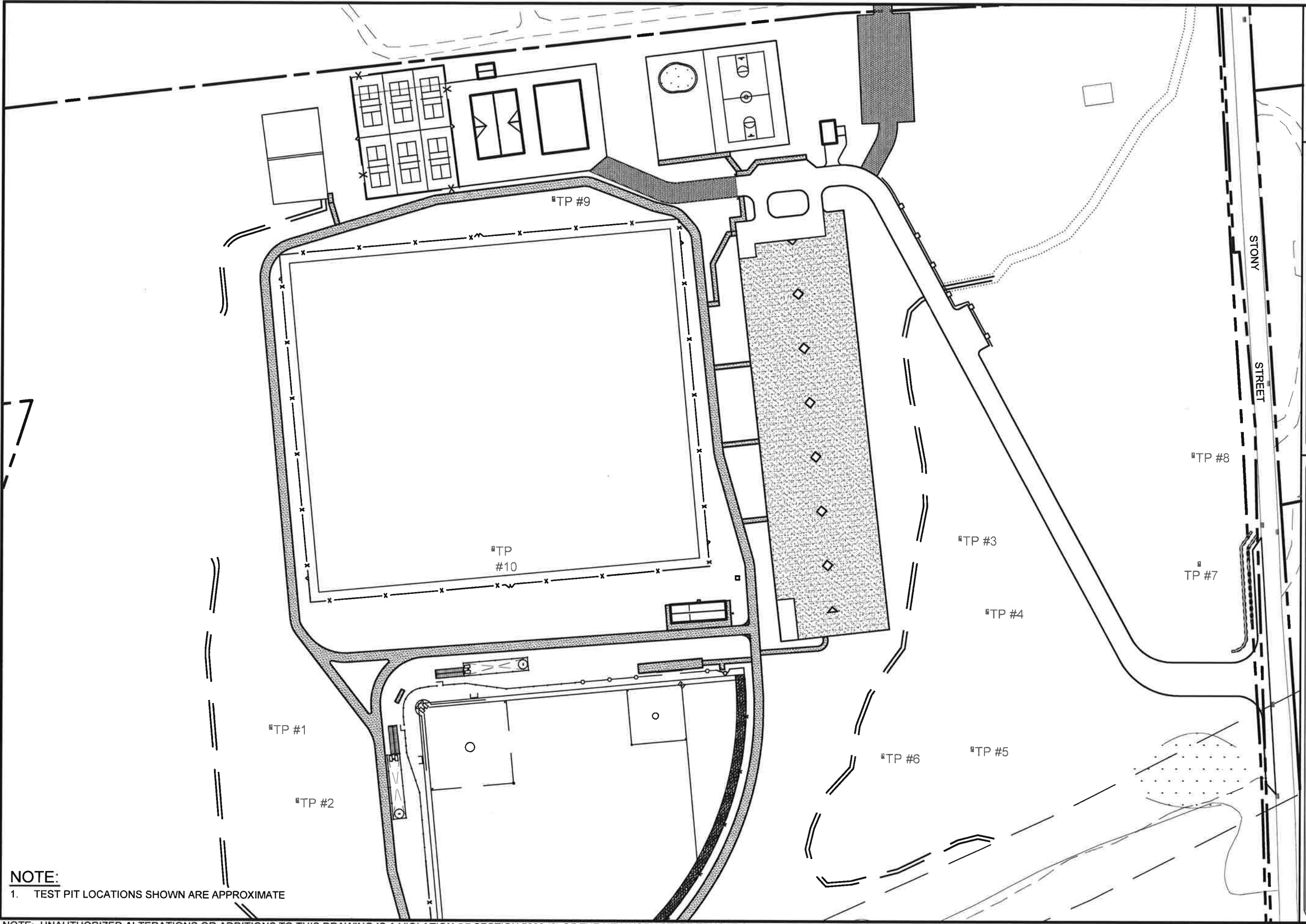
SportMaster Color Coating Systems
over asphalt tennis court surfaces
CMT-24

SealMaster
JUN 2009
Supersedes: CMT-24 (7/04), CMT-24 (6/09)

SPORT SURFACING

END OF SECTION

SECTION 0906
GRANITE KNOLLS SPORTS & RECREATION COMPLEX
0906-20



DATE: 5-1-17

Site Design Consultants
 Civil Engineers • Land Planners
 251 F Underhill Avenue Yorktown Heights, NY 10598
 (914) 962-4488 - Fax (914) 962-7386
 www.sitedesignconsultants.com

SOIL TESTING PLAN
 PREPARED FOR
GRANITE KNOLLS SPORTS COMPLEX
 Town Of Yorktown
 Westchester County, New York

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NOTE:
 1. TEST PIT LOCATIONS SHOWN ARE APPROXIMATE

NOTE: UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209 (2) OF THE NEW YORK STATE EDUCATION LAW.

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

DEPTH	HOLE NO. <u>1</u>	DEPTH	HOLE NO. <u>2</u>	DEPTH	HOLE NO. <u>3</u>	DEPTH	HOLE NO. <u>4</u>
G.L.	Topsoil	G.L.	Topsoil	G.L.	Topsoil	G.L.	Trace Topsoil
2"		4"		6"		6"	
12"		12"		12"		12"	
18"	Brown Silty Sandy Loam	18"		18"		18"	
24"		20"		20"		24"	
28"		28"		30"	Brown Sandy Loam, Seeps at 18", mottle at 24", standing water at 30"	28"	
36"		30"	light brown sandy loam, plastic, seeps and mottling at 24", standing water at 66"	36"		36"	Brown Sandy Loam mottling and Seep at 20", water at 50"
42"	med brown sandy clay, Mottled and seeps at 24", standing water @ 60"	42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	
	Total Depth = 5.5'		Total Depth = 5.5'		Total Depth = 5.0'		Total Depth = 6'

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED

INDICATE LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTERED

TESTS MADE BY Thomas Kerrigan, witnessed by Mary Galasso, NYC DEP

varies

varies

DATE

1/19/2017

Sketch:

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

DEPTH	HOLE NO. <u>5</u>	DEPTH	HOLE NO. <u>6</u>	DEPTH	HOLE NO. <u>7</u>	DEPTH	HOLE NO. <u>8</u>
G.L.	Topsoil	G.L.	Topsoil	G.L.	Topsoil	G.L.	Topsoil
6"		4"		8"		4"	
12"		12"		12"		12"	
18"		18"		18"		18"	
24"		24"		24"		24"	
28"		28"		28"		28"	
36"		36"		36"	Brown Sandy Loam mottling at 16", seeping at 24", water at 54"	36"	
42"	Brown Sandy Loam, mottle at 20", seeps at 24", water at 55"	42"	Brown Sandy Loam,	42"		42"	
48"		48"		48"		48"	Brown Sandy Loam, Seeps at 24", standing water at 70"
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		64"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		80"	
90"		90"		90"		90"	
96"		96"		96"		96"	
	Total Depth = <u>6.5'</u>		Total Depth = _____		Total Depth = _____		Total Depth = _____

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED varies
 INDICATE LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTERED varies
 TESTS MADE BY Thomas Kerrigan, witnessed by Mary Galasso, NYC DEP DATE 1/19/2017

Sketch:

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

DEPTH	HOLE NO. <u>9</u>	DEPTH- HOLE NO. <u>10</u>	DEPTH HOLE NO. _____	DEPTH HOLE NO. _____
G.L.	Topsoil	G.L. Topsoil	G.L. _____	G.L. _____
6"	_____	4" _____	8" _____	4" _____
12"	_____	12" _____	12" _____	12" _____
18"	_____	18" _____	18" _____	18" _____
24"	Brown Sandy Loam,	24" Brown Sandy Loam,	24" _____	24" _____
28"	standing water at 48"	28" standing water at 48"	28" _____	28" _____
36"	_____	36" _____	36" _____	36" _____
42"	_____	42" _____	42" _____	42" _____
48"	_____	48" _____	48" _____	48" _____
54"	_____	54" _____	54" _____	54" _____
60"	_____	60" _____	60" _____	60" _____
66"	_____	66" _____	64" _____	66" _____
72"	_____	72" _____	72" _____	72" _____
78"	_____	78" _____	78" _____	78" _____
84"	_____	84" _____	84" _____	80" _____
90"	_____	90" _____	90" _____	90" _____
96"	_____	96" _____	96" _____	96" _____
	Total Depth = <u>6.5'</u>	Total Depth = _____	Total Depth = _____	Total Depth = _____

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED

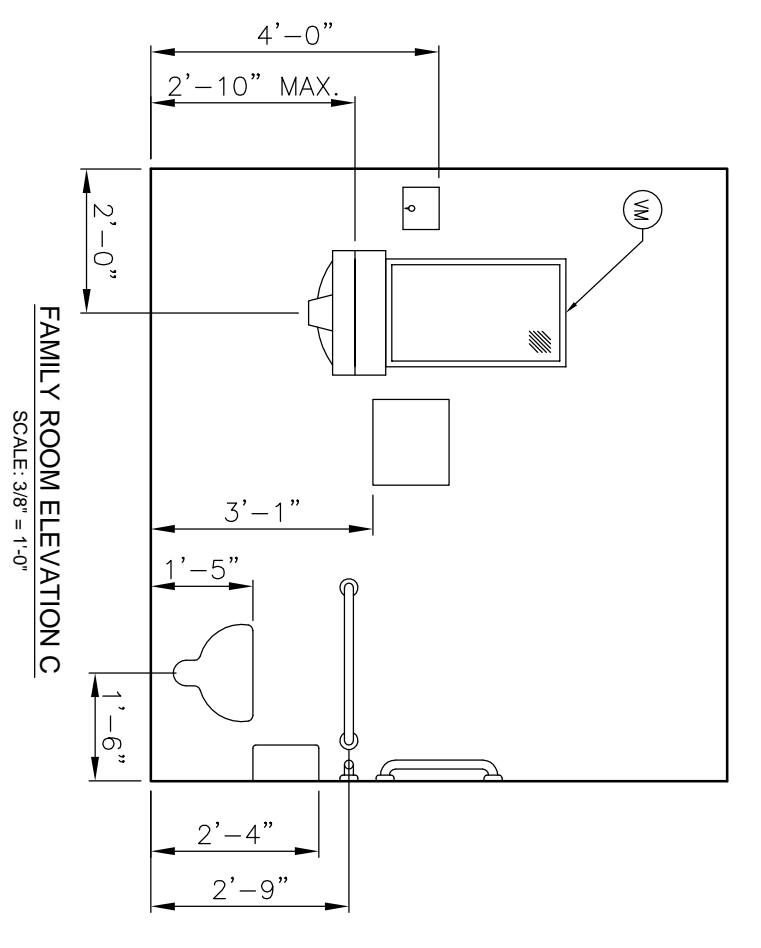
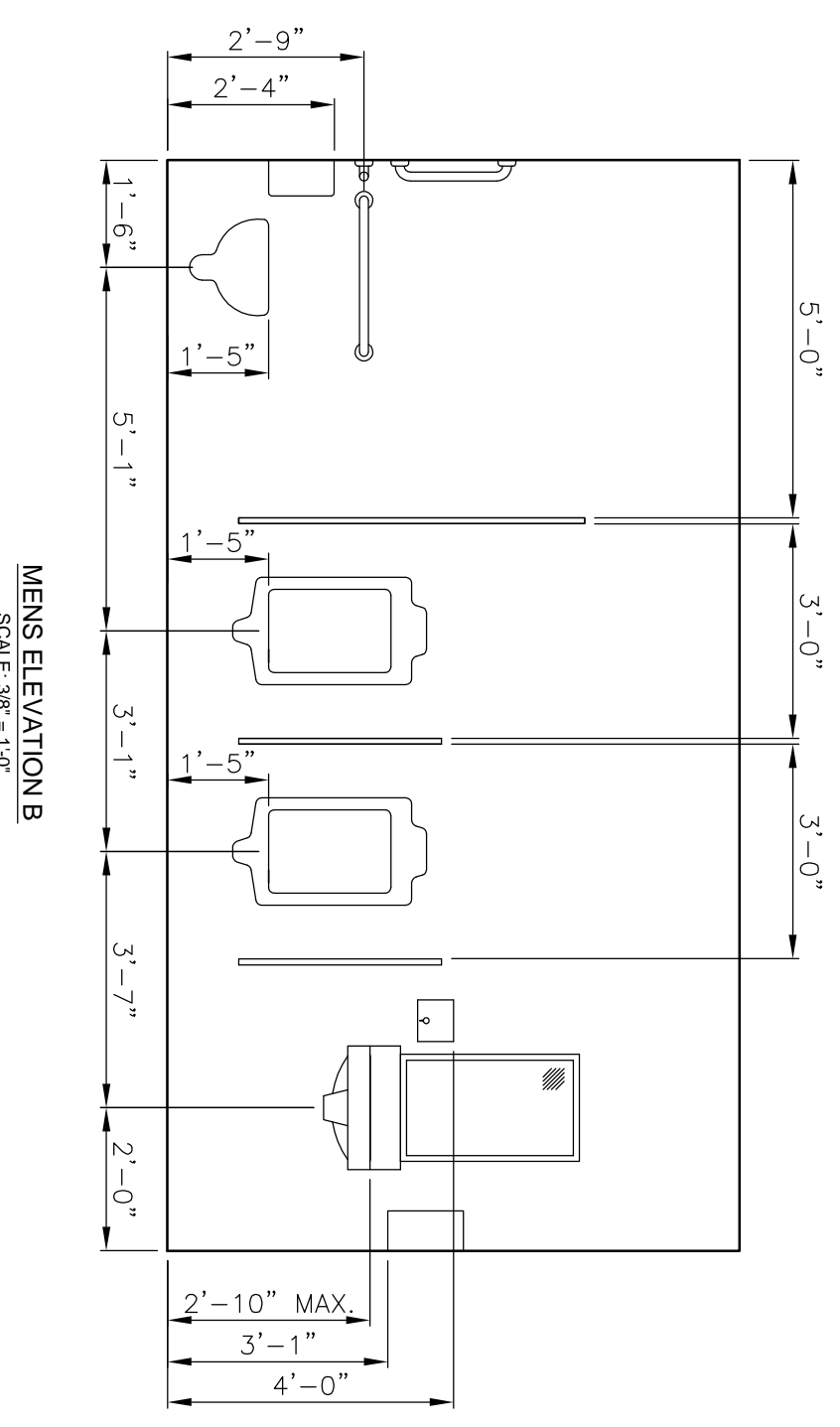
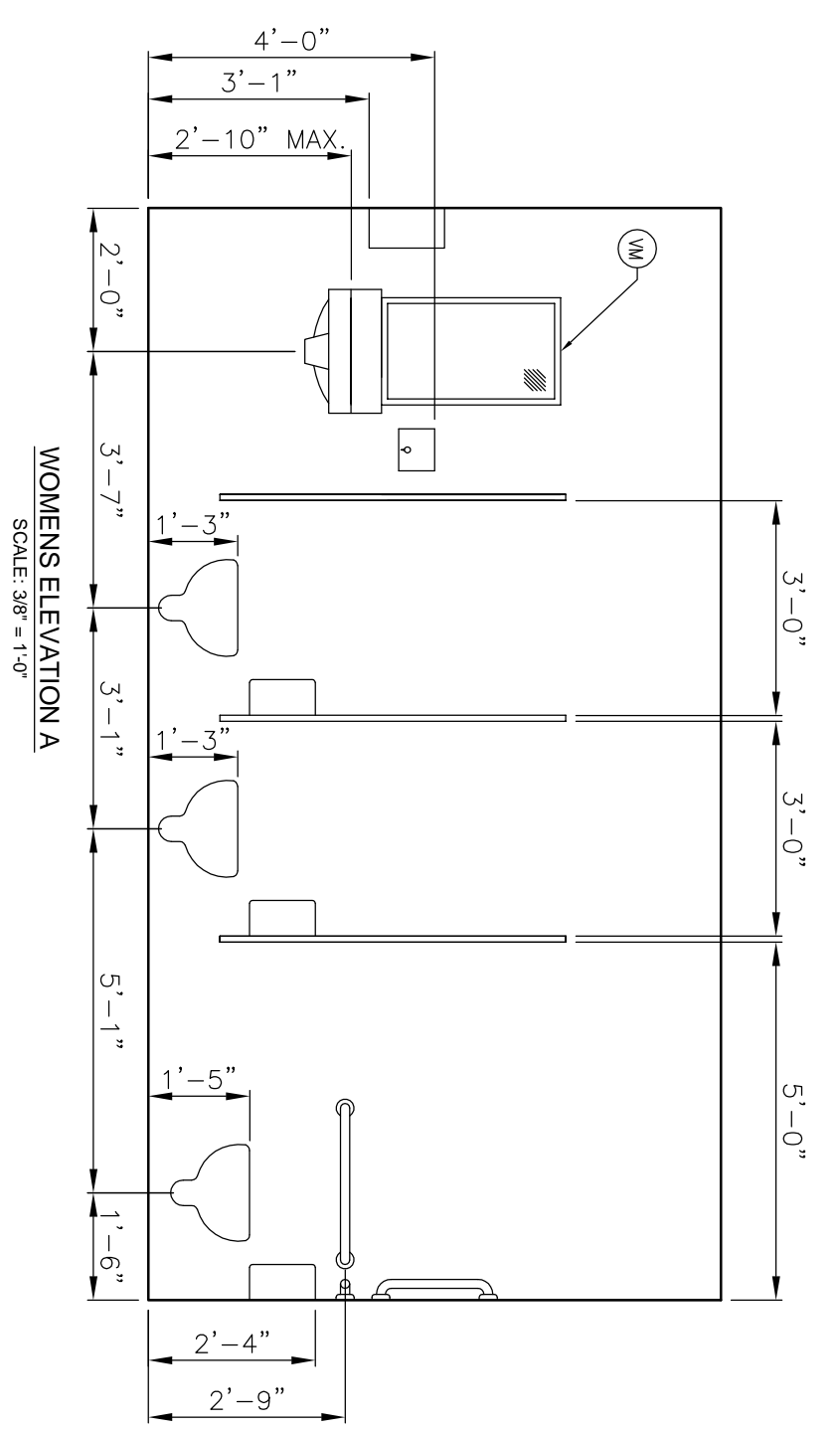
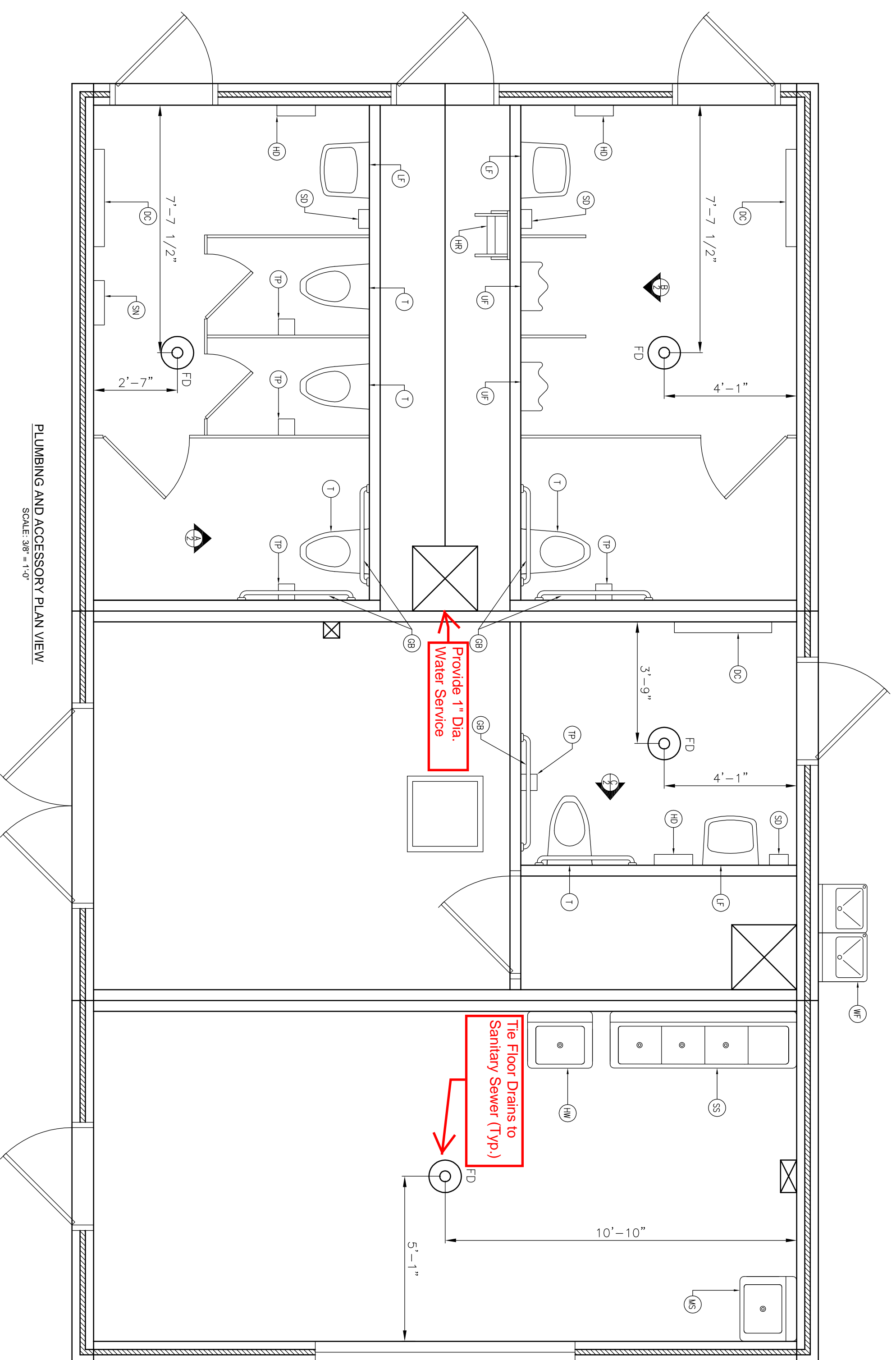
INDICATE LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTERED

TESTS MADE BY Tony Cioffi

varies

varies

DATE _____



DURAREST ACCESSORIES SCHEDULE

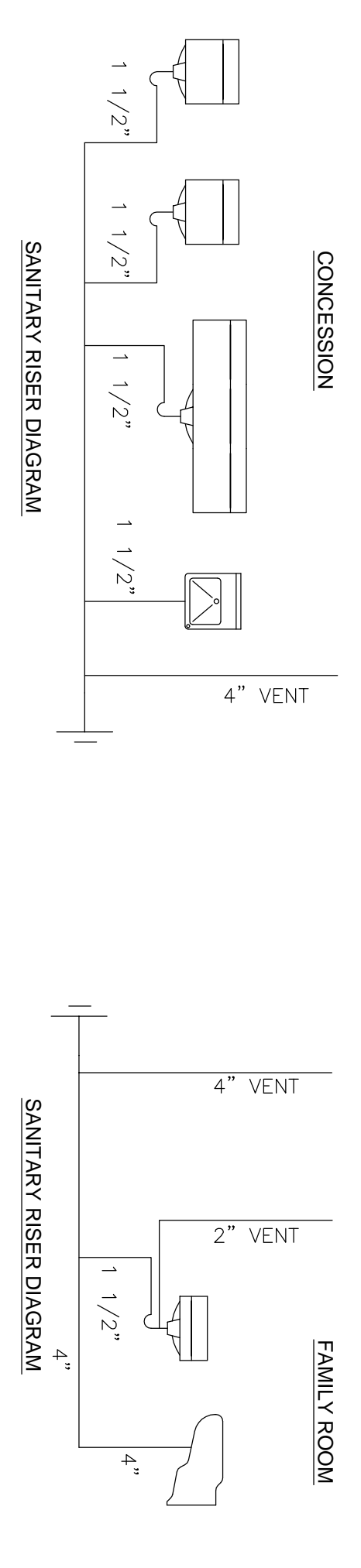
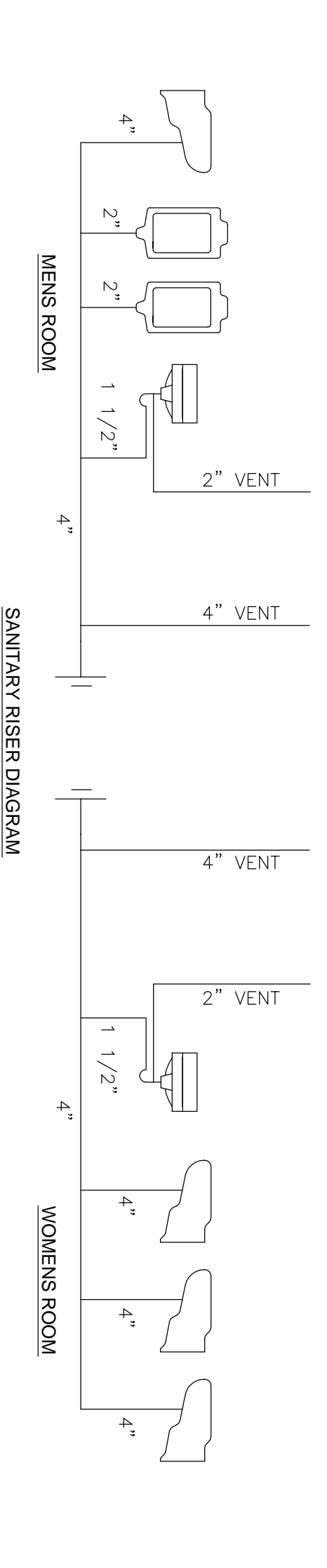
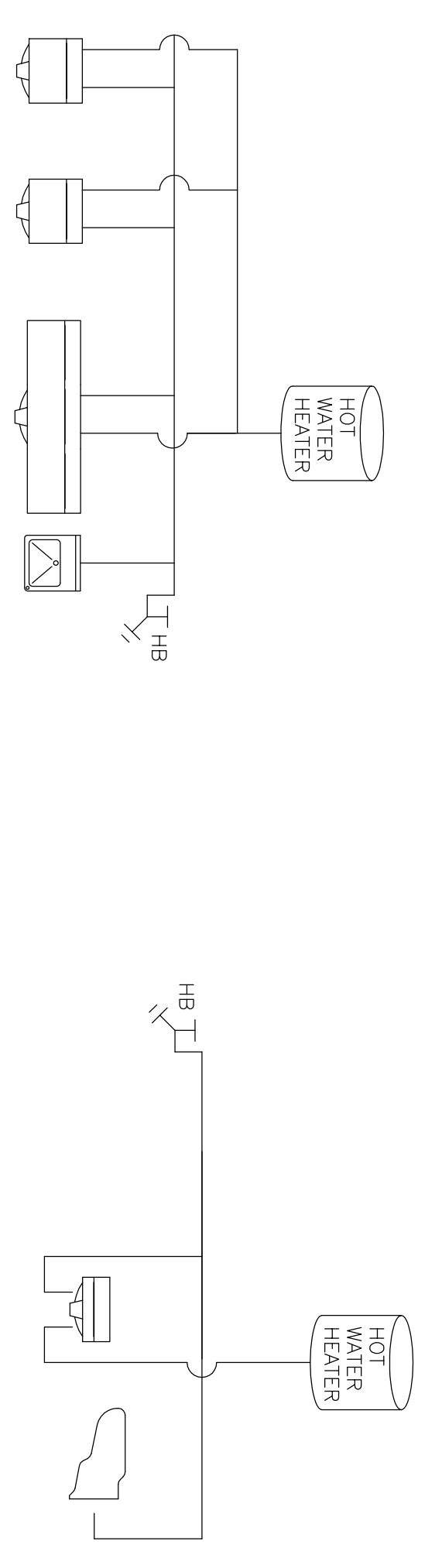
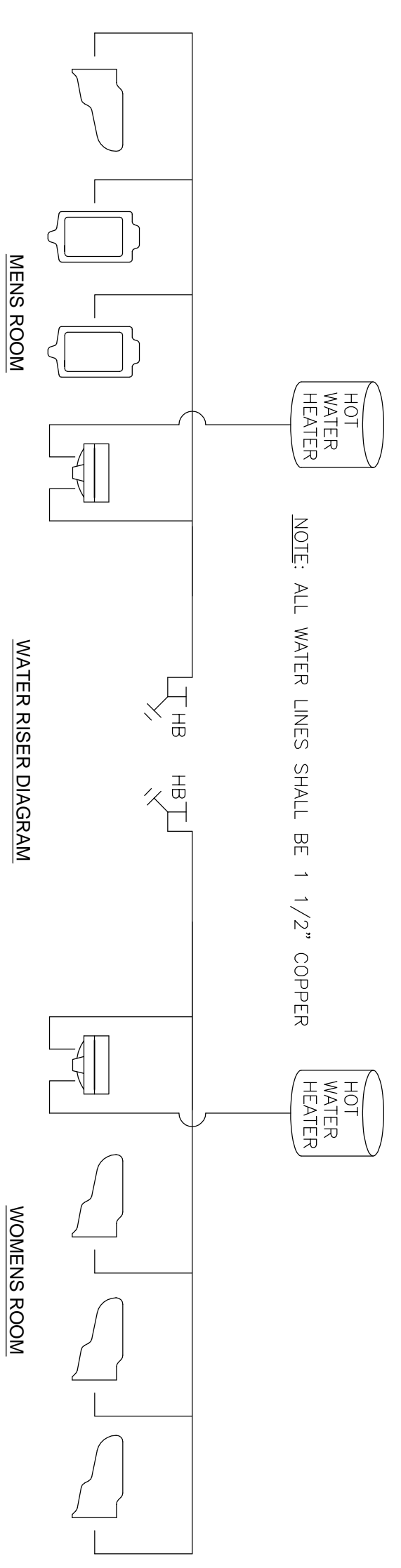
LABEL	DESCRIPTION	QTY.
GB	BOHRICK SERIES B-6806 GRAB BARS (1 @ 36", 1 @ 42", 1 @ 18" VERT)	3
BP	BAI WEST REVOLUTION 80300 (BLACK TRANSLUCENT)	5
SD	BOHRICK SERIES B-4112 CONTURA SOAP DISPENSER	3
WM	BOHRICK SERIES B-1135 WANDL RESISTANT MIRRORS	3
HO	ALUMINUM AX-CAN HANG DRYERS 40 DABER CANNING TABLE	3
OC	BOHRICK B-270 SANITARY WIPER DISPENSER	1
SM	MONSTER 4888 HORN RED	1
PH	SEPARATION PRODUCTS SOLID PLASTIC PARTITIONS	1
ROCKWOOD	FR687 RESTROOM SIGN	1
ROCKWOOD	FR688 RESTROOM SIGN	1
ROCKWOOD	FR689 RESTROOM SIGN	1

DURAREST FIXTURES SCHEDULE

LABEL	DESCRIPTION	QTY.
KH/T	KINGSTON BOWL ELONGATED TOILET 1.6 GPF ADA APPROVED KOHLER MODEL # 1152-116	5
BP	BAI WEST REVOLUTION 80300 (BLACK TRANSLUCENT) WIDE CLOSET CARRIERS 410 SERIES MODEL 152-116 ES-S FLUSHMETER, WIDE CLOSET CARRIERS 410 SERIES	5
UF	GREENWICH WALL HUNG LAVATORY, W/ OVERFLOW, ADA APPROVED KOHLER P-TUBE W/ 2" ANGLE VALVE AND SUPPLY COVERS TRIFLEX INC. MODEL NO. 1554, 1554 BRASS TUBULAIR P-TUBE 1 1/2" SIZE, 20 OUNCE MEGALIFE PRODUCTS MODEL NO. 10	3
UF	BARON SUPERIOR SANITARY SINK, ADA APPROVED KOHLER MODEL # 1152-116 ES-S FLUSHMETER, WIDE UNIVERSAL CARRIERS SERIES 400	2
SS	AMERICO C-2-J-1818-RL-3 COMPARTMENT SINK W/ 1 DRAIN BOARD	1
HM	40 SINK AREA WITH SINKS E6-10 & E6-20 (ONE 20 GALL. & ONE 10 GALLON)	2
EP	SOULY CHIEF 832-4288 FLOOR DRAIN	4
WF	ELAY ERGONOMIC DRINKING FOUNTAIN	1

1/4" HOLE AIR WITH VACUUM BREAKER
SHUT OFF VALVE TO DRAIN AND WINTERIZE BUILDING

NOTES: ALL FIXTURES SHALL BE WALL MOUNTED & INSTALLED W/ CAREER SYSTEM WITH SPRING THROUGH THE WALL INTO THE CHASE AREA, FILLING DRAIN, WASTE & VENT PIPING TO BE INSTALLED THROUGH THE WALL INTO THE CHASE AREA FOR CONNECTION ON SITE BY OTHERS. THE PIPING SHALL BE SLOPED TOWARD THE HOSE BIB FOR WATERING &/OR DRAIN DOWN OF THE CHASE AREA FOR CONNECTION ON SITE BY OTHERS. THE PIPING SHALL BE SLOPED TOWARD THE HOSE BIB FOR WATERING &/OR DRAIN DOWN OF THE CHASE AREA FOR CONNECTION ON SITE BY OTHERS. THE PIPING SHALL BE SLOPED TOWARD THE HOSE BIB FOR WATERING &/OR DRAIN DOWN OF THE CHASE AREA FOR CONNECTION ON SITE BY OTHERS. THE PIPING SHALL BE SLOPED TOWARD THE HOSE BIB FOR WATERING &/OR DRAIN DOWN OF THE CHASE AREA FOR CONNECTION ON SITE BY OTHERS.



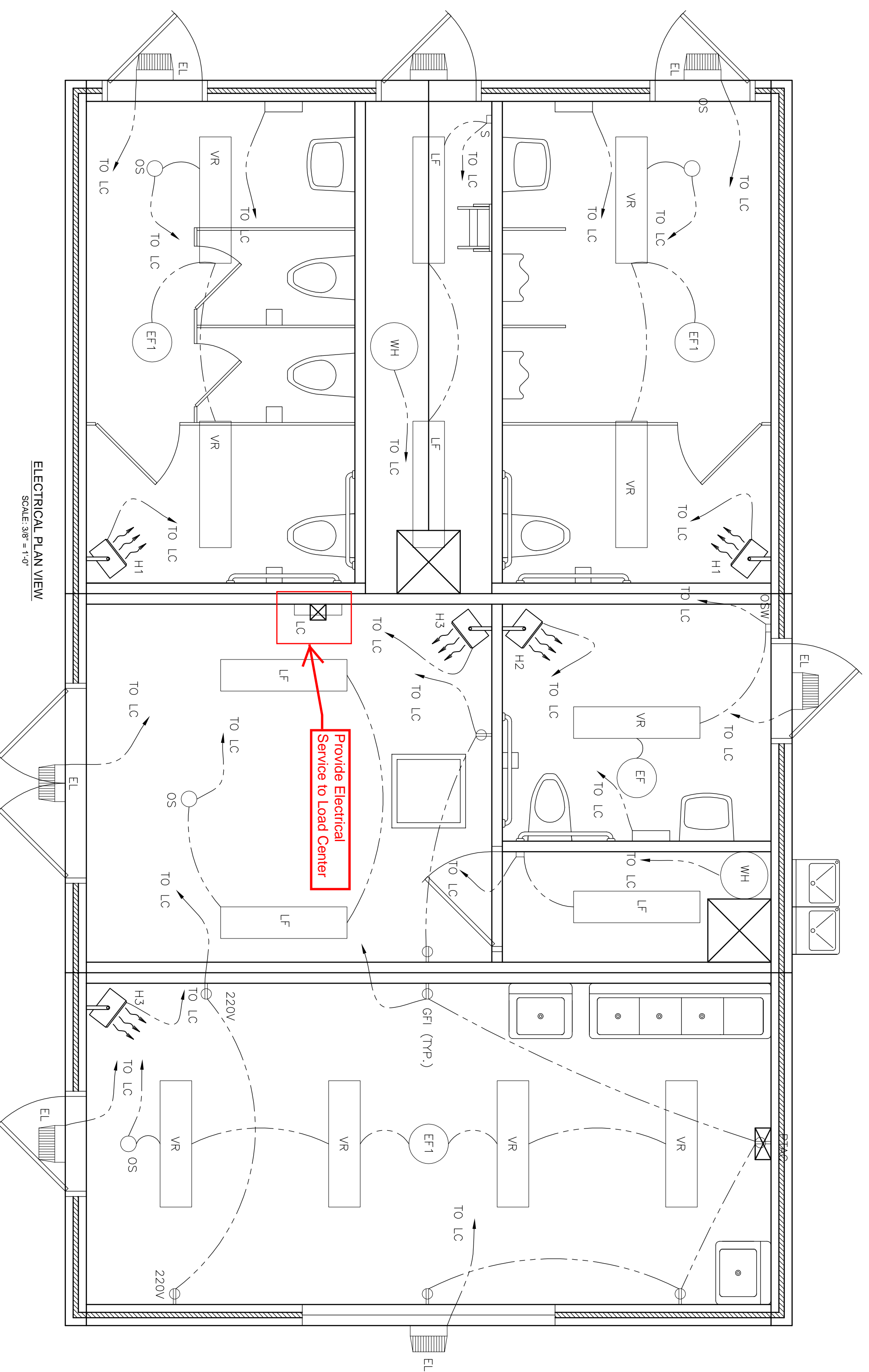
Oldcastle Precast®
200 KEVSTONE DRIVE TELFORD, PA 18869
PHONE: 215-291-9881 FAX: 215-453-1871

WARINANCO PARK
23-0'x41'-0" RESTROOM
UNION COUNTY
NEW JERSEY

ADDENDUM #3

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES COORD.
10/31/13	TE	SV	DT	EB	5094930
DRAWING NUMBER	REVISION				SHEET
S034930-02	2				2 OF 3
	REV. DATE				
	7/31/14				

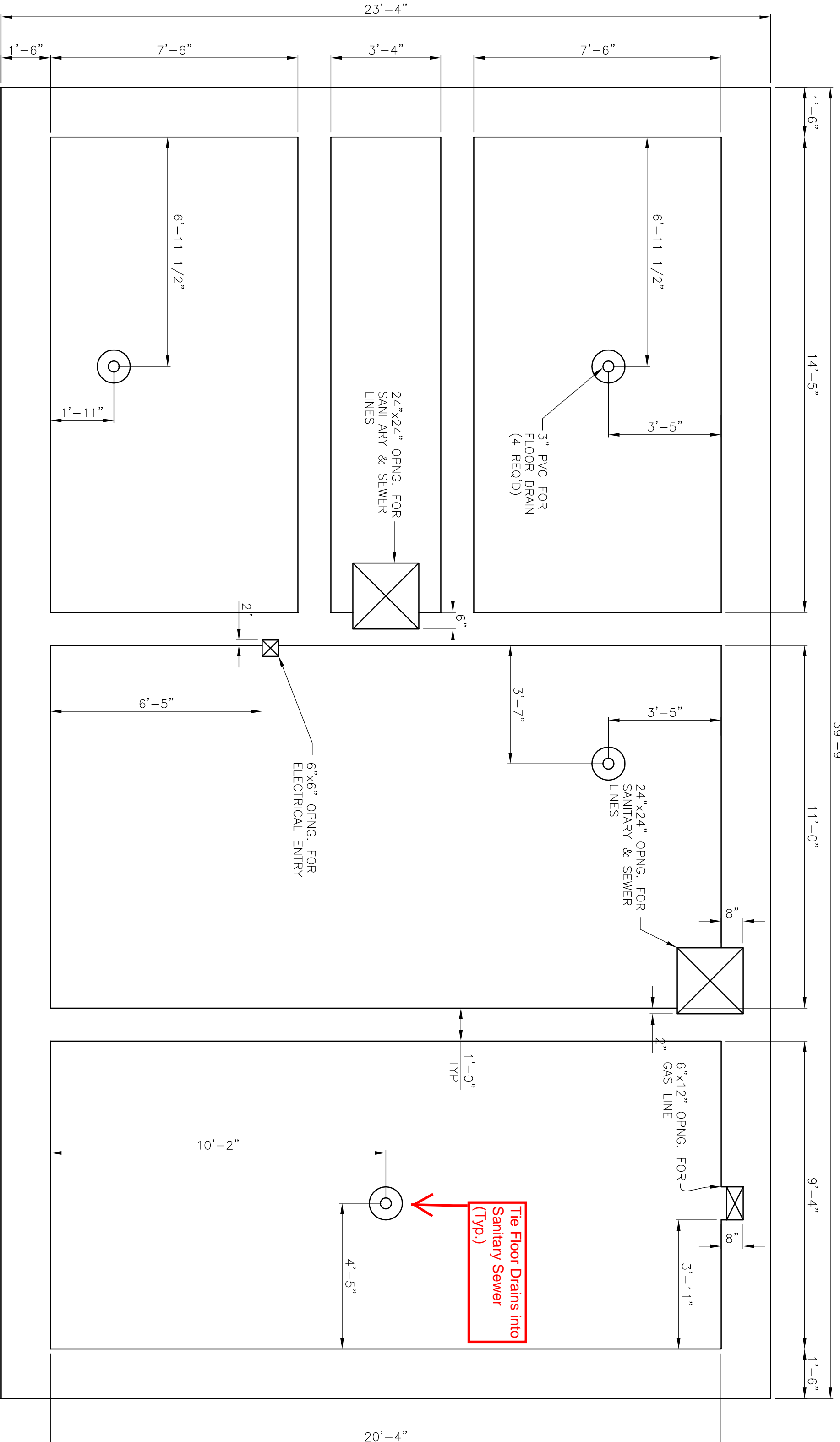
CUSTOMER



ELECTRICAL PLAN VIEW
SCALE: 3/8" = 1'-0"

DURAREST ELECTRICAL SCHEDULE		
LABEL	DESCRIPTION	QTY.
LC	SQUARE D QO140M200 200 AMP, 120/240 V, SINGLE PHASE, 3 WIRE MCB LOAD CENTER	1
VR	LUMINAIRE CLEF-4-2FC32TB-120-CP-WHT-TX/SD VANDAL RESISTANT INTERIOR LIGHT FIXTURE (RESTROOMS)	9
LF	MERCURY LIGHTING MODEL NO. M401-232-OCT-ELB-JNI NON-VANDAL RESISTANT CEILING MOUNTED, DUAL BULB FLUORESCENT LIGHT FIXTURE	5
OS	SENSORSWITCH OMR-PDT OCCUPANCY SENSOR	4
OSW	SENSORSWITCH WSD-PDT-V WALL SWITCH SENSOR	1
GFI	LEVITON 7899-I GFCI RECEPTACLE	6
220V	LEVITON 220V RECEPTACLE	2
S	LEVITON CS120-2I SINGLE POLE LIGHT SWITCH	2
EL	PERMALUX NR6304 PC EXTERIOR LIGHT WITH PHOTOCELL	7
EF	NUTONE QTREN-80 EXHAUST FAN	1
EF1	NUTONE QT200 EXHAUST FAN	3
H1	QMARK LFK204 HEATER w/ THERMOSTAT	2
H2	QMARK LFK304 HEATER w/ THERMOSTAT	1
H3	QMARK MUH05-21 HEATER w/ THERMOSTAT	2

NOTES: ALL EQUIPMENT AND CONDUIT SHALL BE SURFACE MOUNTED. THE LOAD CENTER WILL BE LOCATED IN THE CHASE AREA. ALL BRANCH CONDUIT AND WIRING SHALL BE RUN TO THE LOAD CENTER. THE CONNECTION OF ELECTRICAL UTILITIES TO THE LOAD CENTER IS BY OTHERS. A 12 X12 OPENING WILL BE PROVIDED FOR ENTRANCE OF ELECTRICAL UTILITIES INTO THE CHASE AREA. ELECTRICAL COMPONENTS SHALL BE PLACED 7'-3" ABOVE FINISHED FLOOR LEVEL.



RECOMMENDED FOUNDATION PLAN VIEW
SCALE: 3/8" = 1'-0"

Addendum #3



200 KEYSTONE DRIVE TELFORD, PA 18869
PHONE: 215-291-9881 FAX: 215-453-1871

WARINANCO PARK
23-0'x41'-0" RESTROOM
UNION COUNTY
NEW JERSEY

CUSTOMER

DATE	SALES	TE	DESIGN	ENGINEER	CHECKED	SALES/ORDER
10/31/13	TE	SV	DT	EB	EB	5094930
DRAWING NUMBER						REVISION
S034930-03						2
						7/31/14
						3 OF 3