



**DVIRKA  
AND  
BARTILUCCI**  
CONSULTING ENGINEERS

A DIVISION OF D&B ENGINEERS AND ARCHITECTS, P.C.

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March 31, 2014

Matthew Hubicki, Project Manager  
Division of Environmental Remediation, Bureau C  
New York State Department of Environmental Conservation  
625 Broadway, 11th Floor  
Albany, NY 12233-7014

Re: New York State Superfund Standby Contract  
Work Assignment No. D007620-5.1  
Glenmere Lake Property, Site No. 336071  
D&B No. 3150-05

Dear Mr. Hubicki:

Enclosed for your review, please find an electronic copy of the 100% Design Submittal for the proposed remedial program at the Glenmere Lake Property Site, dated March 2014. As you are aware, the remedial design program planned for the subject property includes the demolition and removal of existing buildings and piles of debris, excavation and off-site transportation and disposal of contaminated soil, wetlands sediment and lake sediment, maintenance/protection of the Northern Cricket Frog's habitat during all phases of remedial work, and post-remedial restoration of disturbed areas of upland, wetland and aquatic environments within the subject property.

The enclosed submittal consists of the following documents prepared by Dvirka and Bartilucci Consulting Engineers (D&B):

- Attachment 1 – Contract Drawings
- Attachment 2 – Bid Sheet
- Attachment 3 – Supplementary Conditions
- Attachment 4 – Standard Specifications
- Attachment 5 – Supplementary Specifications
- Attachment 6 – Measurement for Payment
- Attachment 7 – Limited Site Data Summary Report
- Attachment 8 – Engineering Cost Estimate

This 100% Design Submittal is based on the work assignment scope of work, D&B's 30% Design Submittal, dated March 21, 2013, the 90% Design Submittal, dated November 1, 2013 and the Supplemental 90% Design Submittal, dated December 6, 2013. D&B has

Matthew Hubicki, Project Manager  
Division of Environmental Remediation, Bureau C  
New York State Department of Environmental Conservation  
March 31, 2014

also incorporated the Department's comments on the 90% submittals provided in the letter dated February 4, 2014 and e-mail correspondence dated November 20 and December 20, 2013, and discussions from conference calls held on November 19, 2013 and March 11, 2014.

As requested, this 100% Design Submittal is being provided as a "pre-final" submittal, allowing the Department to conduct a final review of the complete design submittal and provide any last comments on the construction documents prior to finalizing the documents for bidding. The final design will be signed and sealed by a licensed Professional Engineer registered to practice in New York State and provided to the Department for bidding purposes following the Department's approval of this submittal.

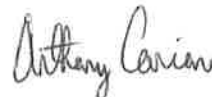
Please note that the Limited Site Data Summary Report (Attachment 7) includes the NYSDEC/United States Army Corps of Engineers (USACE) Joint Application that must be filed for this project. The application has been revised based on the Department's February 4, 2014 comment letter on the draft application.

Work windows have been established to accommodate the Cricket Frog's life cycle. Upland work (building demolition and soil excavation outside of wetland areas) will be completed in the Summer (June 1 to August 15), and wetland/lake work will be completed in the Winter (December 1 to March 15). At the Department's request, the design requires that the Contractor be prepared to start with either the Summer or Winter phases of work, depending on the time of year when the contract is awarded and the Notice to Proceed is issued. General sequences of construction for the project for either a Summer-start or Winter-start are provided on Drawing 2 of the Contract Drawings (Attachment 1).

Regardless of the sequence of construction, D&B has estimated the timeframe to substantial completion to be 425 days from the Department's issuance of the Notice to Proceed to the Contractor, and the timeframe to final completion to be 455 days from Notice to Proceed. D&B has calculated that the liquidated damages for exceeding these estimated timeframes would be \$1,355 for each day after substantial completion and \$654 for each day after final completion.

If you have any questions and/or comments, please do not hesitate to contact me at (516) 364-9890, Ext. 3091.

Very truly yours,



Anthony Caniano  
Project Manager

AMC(t)/nc  
Attachments

cc: J. Trad (NYSDEC)  
J. Candiloro (NYSDEC)  
C. Gosier (NYSDEC)  
R. Walka (D&B)  
M. Wright (D&B)

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**ATTACHMENT 1**  
**CONTRACT DRAWINGS**

**NEW YORK STATE DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION**

**GLENMERE LAKE PROPERTY**

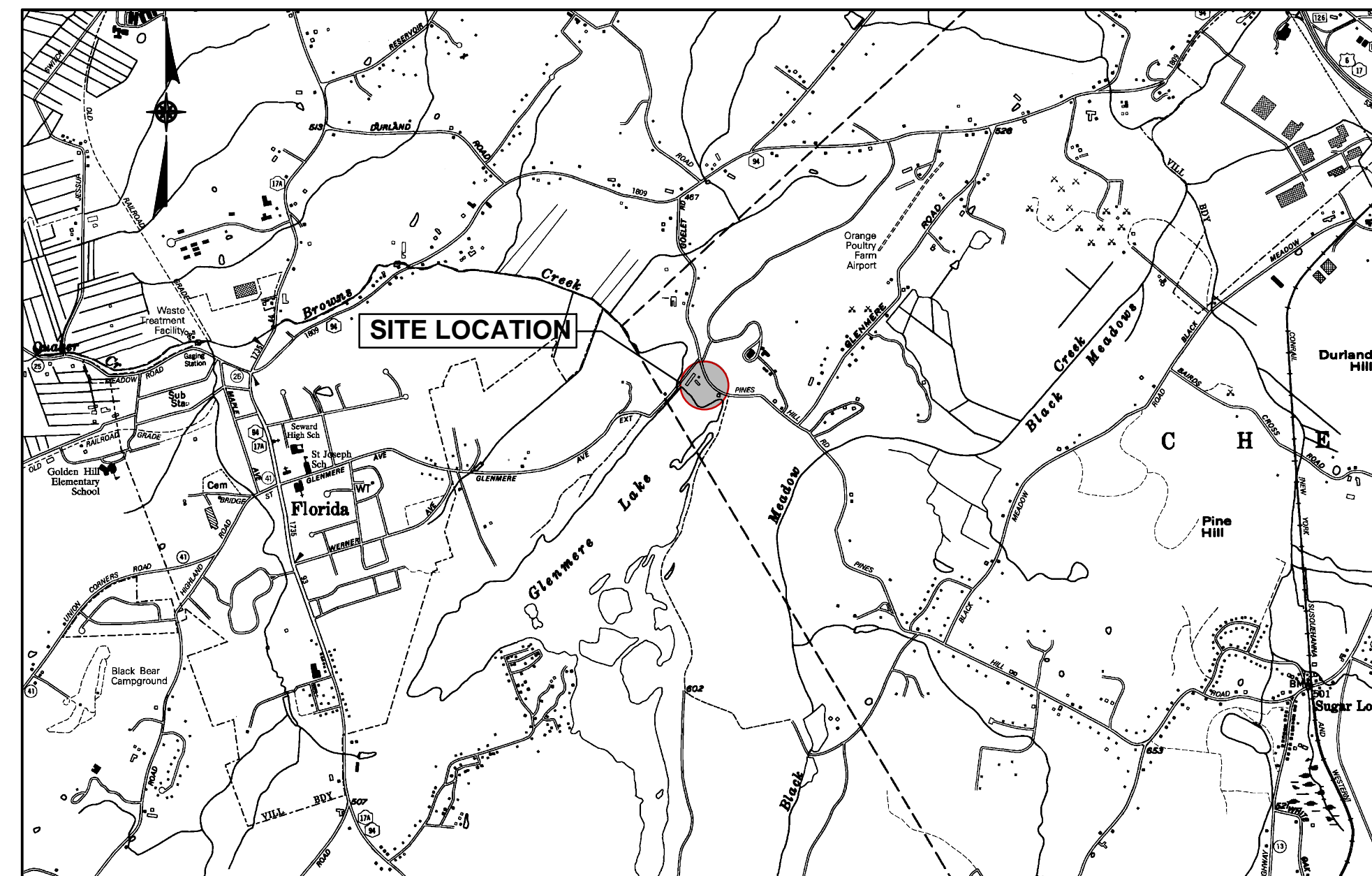
TOWN OF CHESTER, ORANGE COUNTY, NEW YORK

**BUILDING DEMOLITION, SITE REMEDIATION  
AND SITE RESTORATION**

GENERAL CONSTRUCTION CONTRACT NO. \_\_\_\_\_

**MARCH 2014**

**SITE NO. 336071**



**LOCATION MAP**

N.T.S.

**LIST OF DRAWINGS**

<u>DWG. NO.</u>	<u>TITLE</u>
-	COVER SHEET
1	GENERAL NOTES, SYMBOLS AND ABBREVIATIONS
2	EXISTING CONDITIONS SURVEY
3	UPLAND AREAS - SITE PREPARATION PLAN
4	DEMOLITION PLAN
5	UPLAND AREAS - REMEDIATION PLAN
6	WATER AREAS - SITE PREPARATION PLAN
7	WATER AREAS - REMEDIATION PLAN
8	SITE RESTORATION PLAN
9	SEDIMENT CONTROL DETAILS
10	DETAILS I
11	DETAILS II



**ABBREVIATIONS**

**SYMBOLS**

**GENERAL NOTES**

ADD'L	ADDITIONAL	HDPE	HIGH DENSITY POLYETHYLENE
AFF	ABOVE FINISHED FLOOR	H.P.	HIGH POINT
ALUM	ALUMINUM	ID	INSIDE DIAMETER
AMSL	ABOVE MEAN SEA LEVEL	INF	INFLUENT
@	AT	INT	INTERIOR
&	AND	INV. EL./I.E.	INVERT ELEVATION
B. BOT	BOTTOM	IJ	ISOLATION JOINT
BLDG.	BUILDING	L	LIBER/LENGTH
BM	BEAM	LBS. #	POUNDS
BP	BASE PLATE	LF	LINEAR FEET
CB	CATCH BASIN	LP	LOW POINT
C.I.	CAST IRON	MAX	MAXIMUM
CJ	CONSTRUCTION JOINT	MFTR	MANUFACTURER
CL	CLEARANCE	MIN	MINIMUM
CL	CENTERLINE	MH	MANHOLE
CMP	CORRUGATED METAL PIPE	MO	MASONRY OPENING
CMU	CONCRETE MASONRY UNIT	N/F	NOW OR FORMERLY
COL	COLUMN	NO/#	NUMBER
CONC	CONCRETE	NSF	NATIONAL SCIENCE FOUNDATION
CONN	CONNECTION	NTS	NOT TO SCALE
CONT	CONTINUE, CONTINUOUS	NYS	NEW YORK STATE
CU	COPPER	NYSDOT	NEW YORK STATE DEPARTMENT OF TRANSPORTATION
D	DRAIN	OC	ON CENTER
DET	DETAIL	OD	OUTER DIAMETER
D.I./D.I.P.	DUCTILE IRON/D.I. PIPE	OPNG	OPENING
DIS	DISCHARGE	OVR	OVERFLOW
DIA./Ø	DIAMETER	PL	PLATE/PROPERTY LINE
DWG(S)	DRAWING(S)	PRESS.	PRESSURE
DWLS	DOWELS	PSI	POUNDS PER SQUARE INCH
EXIST.	EXISTING	PVC	POLYVINYL CHLORIDE PIPE
EA	EACH	R	RADIUS
EE	EACH END	RCP	REINFORCED CONCRETE PIPE
EF	EACH FACE	REC	RECIRCULATION
EL, ELEV	ELEVATION	REINF	REINFORCE, REINFORCING
EQ	EQUAL	REQ'D	REQUIRED
EQUIP	EQUIPMENT	ROW	RIGHT OF WAY
ES	EACH SIDE	SCH	SCHEDULE
ETC	ETCETERA	SDR	STANDARD DIMENSION RATIO
EW	EACH WAY	SPECS	SPECIFICATIONS
EJ	EXPANSION JOINT	SQ.	SQUARE
EXP	EXPANSION	SQ. FT.	SQUARE FEET
EXT	EXTERIOR	STN. STL./S.S.	STAINLESS STEEL
FAC	FACULTATIVE	STD	STANDARD
FACU	FACULTATIVE UPLAND	STRUCT	STRUCTURAL
FACW	FACULTATIVE WETLAND	SUC	SUCTION
FBO	FURNISHED BY OTHERS	T	TOP
FND	FOUNDATION	T&B	TOP AND BOTTOM
F.F./FIN. FL.	FINISHED FLOOR	TOS	TOP OF STEEL
FIN.	FINISHED	TOW	TOP OF WALL
FL	FLOOR	TYP	TYPICAL
FRP	FIBERGLASS REINFORCED PLASTIC	UG	UNDERGROUND
FTG	FOOTING	VERT, V	VERTICAL
GALV	GALVANIZED	W/	WITH
GC	GENERAL CONTRACTOR	WS	WATER SERVICE
GS	GALVANIZED STEEL	WWF	WELDED WIRE FABRIC

	INLAND BOUNDARY OF WETLANDS
	OVERHEAD ELECTRIC
	LIMITS OF CONTRACT
	LIMITS OF EXCAVATION
	EXISTING CHAIN LINK FENCE
	CONTRACTOR'S TEMPORARY STAGING AREA
	UTILITY POLE
	SECTION NO./ DETAIL LETTER
	DRAWING NO. ON WHICH SECTION / DETAIL IS SHOWN
	DRAWING NO. ON WHICH SECTION / DETAIL IS TAKEN
	EXISTING ELEVATION CONTOUR
	EXISTING SPOT ELEVATION
	PROPOSED ELEVATION CONTOUR
	PROPOSED SPOT ELEVATION
	EXISTING PIEZOMETER
	GRAVEL ACCESS ROAD/PARKING AREA
	STABILIZED CONSTRUCTION ENTRANCE
	TOPSOIL/SEED
	WETLAND RESTORATION AREA - ZONE A
	WETLAND RESTORATION AREA - ZONE B
	WETLAND RESTORATION AREA - ZONE C
	WETLAND RESTORATION AREA - ZONE D
	ASPHALT PAVEMENT
	LAKE BOTTOM - FILL ONLY AREA
	STREAM/DITCH C (CENTERLINE)
	TREE LINE
	CATCH BASIN FIELD INLET
	DRIFT FENCE
	TURBIDITY CURTAIN
	PROPERTY LINE
	EXTENT OF DEMOLITION AND REMOVAL

1. THE "DEPARTMENT" OR "NYSDEC" SHALL BE DEFINED AS THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.
2. THE CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH ANY MUNICIPALITY, UTILITY, OR PROPERTY OWNER/TENANT HAVING JURISDICTION WITHIN THE LIMITS OF THIS PROJECT, WHERE NECESSARY.
3. ANY UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND HAVE BEEN OBTAINED FROM AVAILABLE SOURCES. THE EXISTENCE AND LOCATION OF ANY UTILITIES INDICATED ON THE PLANS ARE NOT GUARANTEED AND SHALL BE INVESTIGATED AND VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING ANY WORK. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANY NO LATER THAN 48 HOURS PRIOR TO ANY EXCAVATION THAT MAY AFFECT THAT UTILITY. EXCAVATION IN THE VICINITY OF UNDERGROUND UTILITIES SHALL BE DUG BY HAND. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES.
4. AS PART OF MOBILIZATION, THE CONTRACTOR SHALL COORDINATE THE PROPOSED EXCAVATION WORK WITH THE ENGINEER, THE DEPARTMENT AND THE OWNERS OF THE UTILITIES INVOLVED.
5. BACKFILL AT ANY EXCAVATIONS SHALL BE PLACED IN 12" (MAX) LIFTS AND SHALL ACHIEVE A COMPACTION NOT LESS THAN 95 PERCENT OF STANDARD PROCTOR MAXIMUM DENSITY. THE DEPARTMENT RESERVES THE RIGHT TO REQUIRE THAT FIELD TESTS BE PERFORMED BY AN APPROVED LABORATORY TO ASSURE THIS COMPACTION RATE AT VARYING DEPTHS. THE CONTRACTOR SHALL HAVE THE APPROVED LABORATORY REPRESENTATIVE ON-SITE WHEN DIRECTED. THE CONTRACTOR SHALL BEAR ALL COSTS FOR TESTING AND ANY DELAYS THAT RESULT FROM SUCH TESTING.
6. EXCAVATIONS SHALL BE CONDUCTED IN COMPLIANCE WITH ALL NEW YORK STATE AND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS, AND OTHER AUTHORITIES HAVING JURISDICTION.
7. THE BURNING OF ANY MATERIALS WITHIN THE CONTRACT LIMITS WILL NOT BE PERMITTED.
8. ALL EXISTING SIGNS IN THE CONTRACT AREA ARE TO REMAIN INTACT. SIGNS DAMAGED SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY SIGNS THAT REQUIRE RESETTING SHALL BE PLACED IN A FINAL POSITION DETERMINED BY THE DEPARTMENT. NO SEPARATE PAYMENT SHALL BE MADE FOR THIS WORK. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR SIGNS DAMAGED BY HIS/HER OPERATIONS.
9. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT AND THE ENGINEER A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO THE START OF CONSTRUCTION. IN ADDITION, IF WORK SHOULD BE STOPPED AND RESTARTED FOR ANY REASON, THE CONTRACTOR SHALL GIVE THE DEPARTMENT A MINIMUM SEVENTY-TWO (72) HOURS NOTICE.
10. THE CONTRACTOR SHALL PERFORM DAILY CLEANUP OPERATIONS WHICH INCLUDE SWEEPING OF THE ROADWAYS, REMOVAL OF DEBRIS (CUPS, PAPER BAGS, CANS, ETC.), REMOVAL OF EXCESS CONSTRUCTION MATERIALS, ETC., ALL TO THE SATISFACTION OF THE DEPARTMENT.
11. THE CONTRACTOR SHALL OBTAIN, AND HAVE ON THE JOB SITE AT ALL TIMES, ALL PERMITS AS REQUIRED BY ANY PERMITTING AGENCY. THE CONTRACTOR SHALL BEAR ALL COSTS OF OBTAINING, MAINTAINING AND OPERATING IN ACCORDANCE WITH THESE PERMITS.
12. ALL FIELD TRAILERS, AND STOCKPILE AND MATERIAL STORAGE LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF WORK.
13. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN TRAFFIC ON ALL ROADWAYS WHERE WORK IS IN PROGRESS. ALL ROADWAYS SHALL REMAIN OPEN AND ACCESSIBLE TO ALL, EXCEPT AS OTHERWISE SPECIFIED OR APPROVED.
14. AS PART OF SUBSTANTIAL COMPLETION OF THE PROJECT, ALL STORM DRAINS SHALL BE CLEANED AND INSPECTED.

15. WORK AT THE SITE SHALL BE CONDUCTED IN THE WORK TIME FRAMES SPECIFIED IN THE CONTRACT DOCUMENTS. SITE PREPARATION, DEMOLITION AND REMEDIATION WORK IN THE UPLAND AREAS SHALL BE PERFORMED BETWEEN JUNE 1 AND AUGUST 15. SITE PREPARATION AND REMEDIATION WORK IN THE WATER AREAS SHALL BE PERFORMED BETWEEN DECEMBER 1 AND MARCH 15.
16. DUE TO THE ALLOWABLE WORK WINDOWS FOR THIS PROJECT, THERE MAY BE PERIODS OF TIME WHEN NO WORK IS BEING COMPLETED AT THE SITE. ANY TIME THE CONTRACTOR WILL NOT BE WORKING AT THE SITE FOR 30 CONSECUTIVE CALENDAR DAYS OR MORE, THE CONTRACTOR SHALL FORMALLY SHUT DOWN WORK ACTIVITIES AND SECURE THE SITE IN ACCORDANCE WITH THE REQUIREMENTS OF THE TECHNICAL SPECIFICATIONS.
17. THE CONTRACTOR'S ATTENTION IS DRAWN TO THE FACT THAT THE AREA OF WORK IS A HABITAT FOR A NEW YORK STATE ENDANGERED SPECIES, SPECIFICALLY, THE NORTHERN CRICKET FROG. AS A RESULT, SPECIAL REQUIREMENTS HAVE BEEN INCORPORATED INTO THIS CONTRACT TO PROTECT THE NORTHERN CRICKET FROG AND ITS HABITAT. THE DEPARTMENT HAS HIRED A SUBCONTRACTOR TO ASSIST THE CONTRACTOR IN THE PROTECTION OF THE NORTHERN CRICKET FROG AND WILL BE RESPONSIBLE FOR REMOVING FROGS FROM THE AREA OF WORK. THIS REQUIRES THE SUBCONTRACTOR TO PERFORM "SWEEPS" OF THE AREA AT SPECIFIC FREQUENCIES TO CHECK THE SUITABILITY OF CONTROL STRUCTURES AND TO REMOVE FROGS FROM THE AREA OF WORK. FOLLOWING THE CONTRACTOR'S ERECTION OF THE FROG EXCLUSION ZONE DRIFT FENCE, THE SUBCONTRACTOR SHALL BE PERMITTED TWO (2) DAYS TO CLEAR FROGS FROM THE AREA OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH AND ABIDING BY THE SUBCONTRACTOR'S RECOMMENDATIONS FOR THE DURATION OF THE WORK. THE CONTRACTOR SHALL NOT CLAIM ANY DELAYS RESULTING FROM THE SUBCONTRACTOR PERFORMING ITS WORK. THE INTENT OF THESE PRECAUTIONS AND THE CONTRACTOR'S DILIGENCE IS TO NOT CAUSE ANY HARM TO THE NORTHERN CRICKET FROG.

**SCHEDULE NOTES**

DUE TO THE PRESENCE OF THE NORTHERN CRICKET FROG ON THE PROPERTY, THE DEPARTMENT HAS STIPULATED THAT THE UPLAND REMEDIATION MUST TAKE PLACE BETWEEN JUNE 1 AND AUGUST 15 AND THAT THE REMEDIATION IN THE WETLANDS AND LAKE MUST TAKE PLACE BETWEEN DECEMBER 1 AND MARCH 15. RESTORATION WORK MAY TAKE PLACE OUTSIDE OF THESE TIMEFRAMES, PENDING APPROVAL AND COORDINATION WITH THE DEPARTMENT AND THE ENGINEER.

DEPENDING UPON THE ACTUAL DATE OF NOTICE TO PROCEED (NTP), THE PHASING OF THE PROJECT COULD FOLLOW ONE OF THE TWO FOLLOWING GENERAL SEQUENCES OF CONSTRUCTION:

- NOTICE TO PROCEED (FALL)
1. SUBMITTALS
  2. MOBILIZATION
  3. SITE PREPARATION
  4. WETLAND/LAKE REMEDIATION (DEC. 1 - MAR. 15)
  5. WETLAND/LAKE RESTORATION (MAR. 1 - MAY 31)
  6. SITE PREPARATION
  7. DEMOLITION AND UPLAND REMEDIATION (JUN. 1 - AUG. 15)
  8. UPLAND RESTORATION (AUG. 16 - DEC. 15)
  9. DEMOBILIZATION
- NOTICE TO PROCEED (SPRING)
1. SUBMITTALS
  2. MOBILIZATION
  3. SITE PREPARATION
  4. DEMOLITION AND UPLAND REMEDIATION (JUN. 1 - AUG. 15)
  5. UPLAND STABILIZATION (AUG. 16 - SEPT. 1)
  6. SITE PREPARATION
  7. WETLAND/LAKE REMEDIATION (DEC. 1 - MAR. 15)
  8. WETLAND/LAKE RESTORATION AND UPLAND RESTORATION (MAR. 1 - MAY 31)
  9. DEMOBILIZATION

CONTRACTOR'S BID SHALL INCLUDE ALL COSTS NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS FOLLOWING EITHER OF THE GENERAL SEQUENCES OF CONSTRUCTION OUTLINED ABOVE.

THE ABOVE GENERAL SEQUENCES OF CONSTRUCTION ARE PROVIDED AS A GUIDE TO THE CONTRACTOR. THE CONTRACTOR MUST COMPLY WITH THE TIMEFRAMES STIPULATED BY THE DEPARTMENT AND THE CONTRACT DOCUMENTS WITH RESPECT TO THE NORTHERN CRICKET FROG WORK WINDOWS AND THE TIMEFRAMES WHEN SITE RESTORATION/PLANTING CAN TAKE PLACE. THE CONTRACTOR IS RESPONSIBLE FOR HIS/HER MEANS AND METHODS AND PREPARATION AND MAINTENANCE OF AN APPROVABLE PROJECT SCHEDULE AS REQUIRED BY THE CONTRACT DOCUMENTS.

**100% DESIGN SUBMITTAL**

NO.	DATE	REVISION	INT.

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW.
PROJECT ENGINEER: <b>BMV</b>
DRAWN BY: <b>LVG</b>
DESIGNED BY: <b>MRD</b>
CHECKED BY: <b>MRD</b>

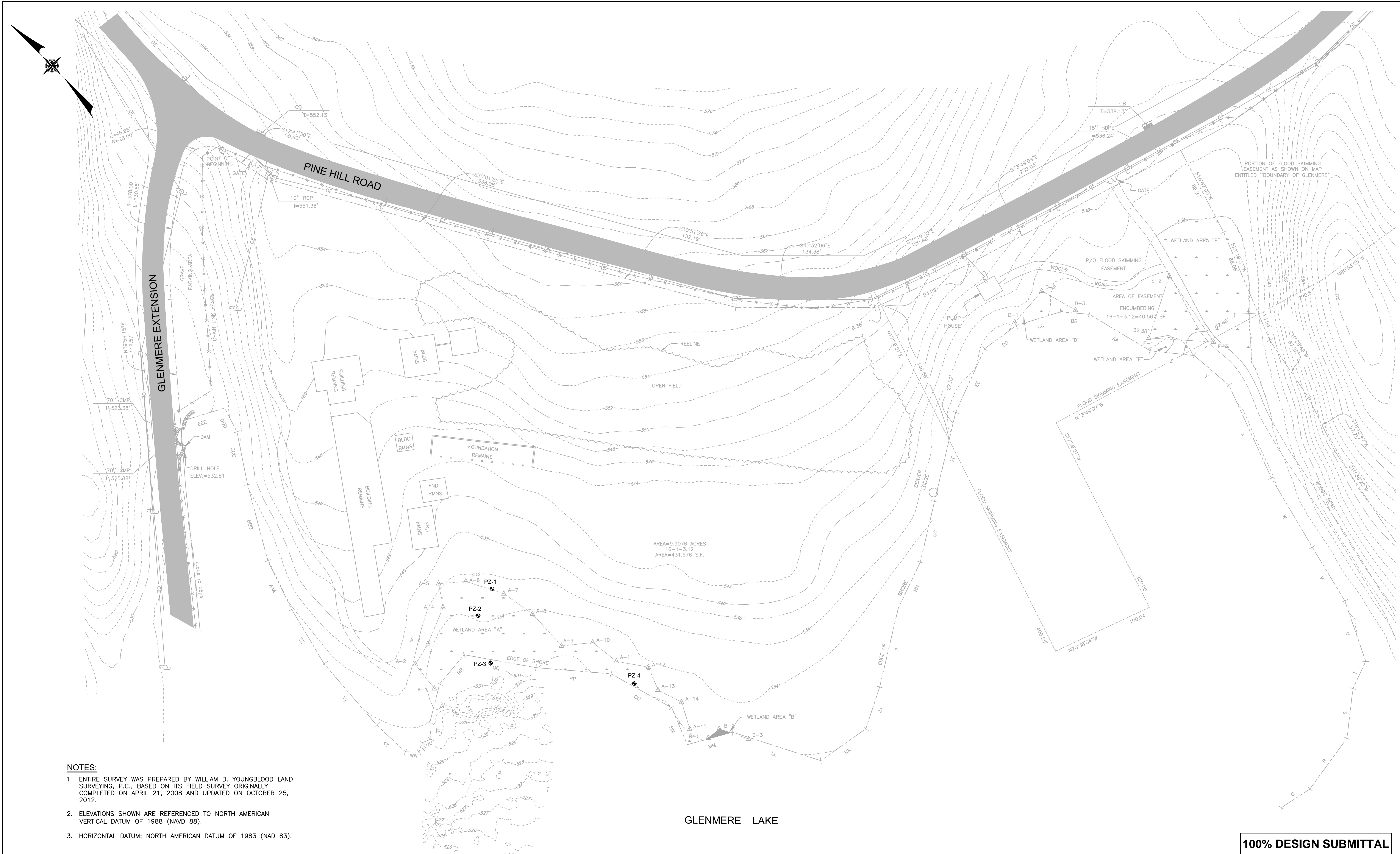
**DVIRKA AND BARTILUCCI**  
CONSULTING ENGINEERS  
A DIVISION OF D&B ENGINEERS AND ARCHITECTS, P.C.

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
ORANGE COUNTY NEW YORK

**GLENMERE LAKE PROPERTY**

**GENERAL NOTES**  
**SYMBOLS AND ABBREVIATIONS**

PROJECT NO. <b>3150-05</b>	DRAWING NO. <b>1</b>
DATE <b>MARCH 2014</b>	
SCALE <b>AS NOTED</b>	



- NOTES:**
1. ENTIRE SURVEY WAS PREPARED BY WILLIAM D. YOUNGBLOOD LAND SURVEYING, P.C., BASED ON ITS FIELD SURVEY ORIGINALLY COMPLETED ON APRIL 21, 2008 AND UPDATED ON OCTOBER 25, 2012.
  2. ELEVATIONS SHOWN ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
  3. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD 83).

**100% DESIGN SUBMITTAL**

NO.	DATE	REVISION	INT.

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW.	
PROJECT ENGINEER: <b>BMV</b>	DRAWN BY: <b>LVG</b>
DESIGNED BY: <b>MRD</b>	CHECKED BY: <b>AMC</b>



**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
ORANGE COUNTY NEW YORK

**GLENMERE LAKE PROPERTY**

**EXISTING CONDITIONS SURVEY**

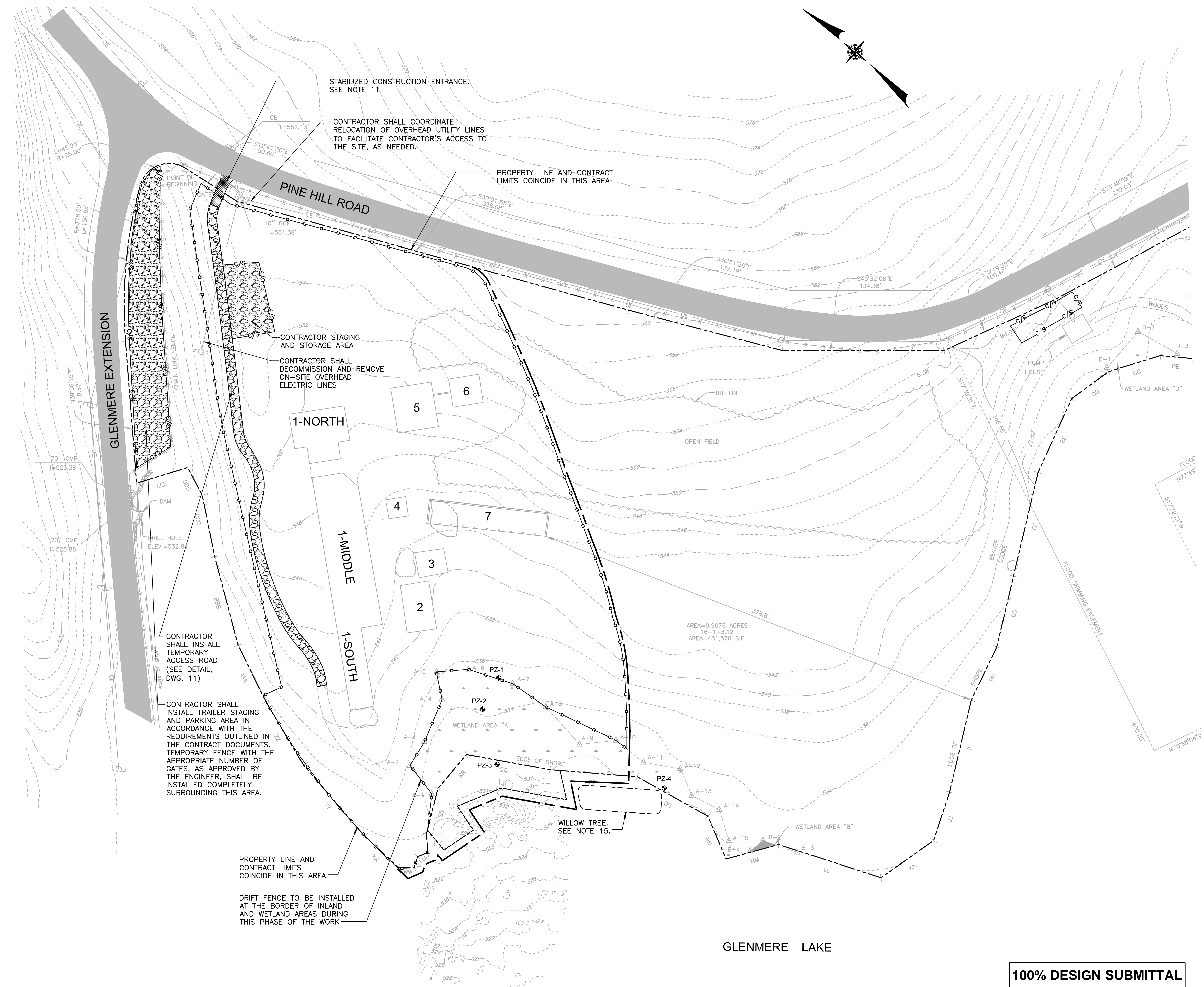
PROJECT NO. <b>3150-05</b>	<b>2</b>
DATE <b>MARCH 2014</b>	
SCALE: <b>1"=40'</b>	

F:\3150\DWG\3150-05-PL1.dwg, 2/3/2014 2:49:40 PM, kshelton



**NOTES:**

- ALL UPLAND WORK SHALL TAKE PLACE BETWEEN JUNE 1 AND AUGUST 15. NO WORK SHALL BE PERFORMED IN THE WATER AREAS DURING THIS PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS, LICENSES, ETC. AND PAY ALL ASSOCIATED FEES NECESSARY TO COMPLETE THE WORK. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, LAWS AND STATUTES, AS REQUIRED, AND THE CONTRACT DOCUMENTS.
- DO NOT SCALE ANY DRAWINGS. VERIFY THE FIGURES, DIMENSIONS, AND DESIGN INTENTION SHOWN ON THE DRAWINGS BEFORE INITIATING LAYOUT OF THE WORK AND REPORT ANY INACCURACIES, MISSING DIMENSIONAL REQUIREMENTS OR CONFLICTS TO THE ENGINEER IN WRITING PRIOR TO INITIATING ANY WORK.
- ALL EXISTING STRUCTURES OUTSIDE THE CONTRACT LIMITS SHALL BE PROTECTED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE SERVICES OF AN INDEPENDENT UTILITY MARKOUT SERVICE TO LOCATE AND MARKOUT THE LOCATION OF ALL UTILITIES AND ASSOCIATED STRUCTURES WITHIN THE VICINITY OF THE WORK. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO PROTECT AND REPAIR/REPLACE ANY DAMAGE TO UTILITIES SCHEDULED TO REMAIN AT THE COMPLETION OF THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE SERVICES OF A LICENSED NEW YORK STATE LAND SURVEYOR TO PERFORM AN INITIAL SITE SURVEY TO VERIFY THE INITIAL SITE CONDITIONS AND ESTABLISH THE REQUIRED GRADE GRID. REFER TO THE TECHNICAL SPECIFICATIONS.
- A MINIMUM OF FOUR TEMPORARY BENCHMARKS SHALL BE ESTABLISHED BY THE CONTRACTOR FOR USE DURING THE WORK.
- THE CONTRACTOR SHALL BE PROHIBITED FROM ACCESSING ANY PORTIONS OF THE SITE BEYOND THE CONTRACT LIMITS, UNLESS PERMISSION IS GRANTED, IN WRITING, FROM THE DEPARTMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING FROG EXCLUSION ZONE DRIFT FENCE AS SHOWN ON THE DRAWINGS (SEE DETAIL, DWG. 9). PRIOR TO PERFORMING ANY GROUND INTRUSIVE ACTIVITIES AT THE SITE. FROG EXCLUSION ZONE DRIFT FENCE SHALL BE MAINTAINED THROUGHOUT ALL CONSTRUCTION ACTIVITIES INCLUDING ALL SITE RESTORATION WORK. FAILURE TO REPAIR AND/OR REPLACE DAMAGED SECTIONS OF THE FROG EXCLUSION ZONE FENCE SHALL RESULT IN THE WORK BEING IMMEDIATELY STOPPED UNTIL IT IS RE-ESTABLISHED.
- CLEAR ALL TREES, BUSHES AND SHRUBS WITHIN THE CONTRACT LIMITS NECESSARY TO COMPLETE THE WORK, EXCEPT THOSE TREES MARKED BY THE DEPARTMENT TO BE PROTECTED. IF TREES SCHEDULED FOR PROTECTION ARE DAMAGED OR REMOVED BY THE CONTRACTOR, THEY SHALL BE REPLACED, IN-KIND, AT NO ADDITIONAL COST TO THE DEPARTMENT. THE CONTRACTOR SHALL NOT CLEAR MORE VEGETATION THAN NECESSARY TO PERFORM THE WORK. THE CONTRACTOR SHALL INDICATE THE PROPOSED LIMITS OF VEGETATION CLEARING TO THE DEPARTMENT FOR APPROVAL PRIOR TO THE CLEARING OF ANY VEGETATION. THE CONTRACTOR SHALL RETAIN UP TO FIVE REMOVED TREES FOR REPLACEMENT WITHIN THE AREA OF WORK SUBSEQUENT TO THE RESTORATION ACTIVITIES. THESE TREES SHALL BE CUT AT THE SURFACE AND RETAINED, AND THEIR STUMPS REMOVED FOR PROPER OFF-SITE DISPOSAL. THESE REPLACED TREES SHALL SERVE AS FROG HABITAT POST REMEDIATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING STABILIZED CONSTRUCTION ENTRANCE, EQUIPMENT DECONTAMINATION AREA, AND STAGING AND STORAGE AREAS (SEE DETAILS, DWGS. 9 AND 11) PRIOR TO PERFORMING ANY EXCAVATION WORK AT THE SITE, AND AS DIRECTED BY THE DEPARTMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROPER UPKEEP OF ALL THESE ITEMS FOR THE DURATION OF THE WORK. THE CONTRACTOR SHALL INSTALL A TEMPORARY FENCE TO COMPLETELY SURROUND THE TRAILER STAGING AND PARKING AREA, AS APPROVED BY THE ENGINEER, IN ACCORDANCE WITH THE SPECIFICATIONS.
- THE CONTRACTOR SHALL INSTALL TEMPORARY ACCESS ROAD IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED IN THE CONTRACT DOCUMENTS AND AS SPECIFIED (SEE DETAIL, DWG. 11).
- SEDIMENT, EROSION AND STORM WATER CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED STORM WATER POLLUTION PREVENTION PLAN.
- THE CONTRACTOR SHALL INSTALL OFFICE TRAILERS, TEMPORARY ELECTRIC/TELEPHONE/INTERNET, AND TEMPORARY PARKING IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND CONTRACTOR'S APPROVED WORK PLAN.
- THE CONTRACTOR SHALL PROTECT FALLEN WILLOW TREE ALONG LAKE SHORELINE AS INDICATED ON THIS DRAWING DURING THE DURATION OF ALL WORK.



GLENMERE LAKE

**100% DESIGN SUBMITTAL**

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: <b>BMV</b>	DRAWN BY: <b>LVG</b>
DESIGNED BY: <b>MRD</b>	CHECKED BY: <b>AMC</b>

**db** DVIRKA AND BARTILUCCI CONSULTING ENGINEERS  
A DIVISION OF D&B ENGINEERS AND ARCHITECTS, P.C.

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
ORANGE COUNTY NEW YORK  
**GLENMERE LAKE PROPERTY**

**UPLAND AREAS - SITE PREPARATION PLAN**

PROJECT NO. <b>3150-05</b>	DRAWING NO. <b>3</b>
DATE <b>MARCH 2014</b>	
SCALE <b>1"=40'</b>	

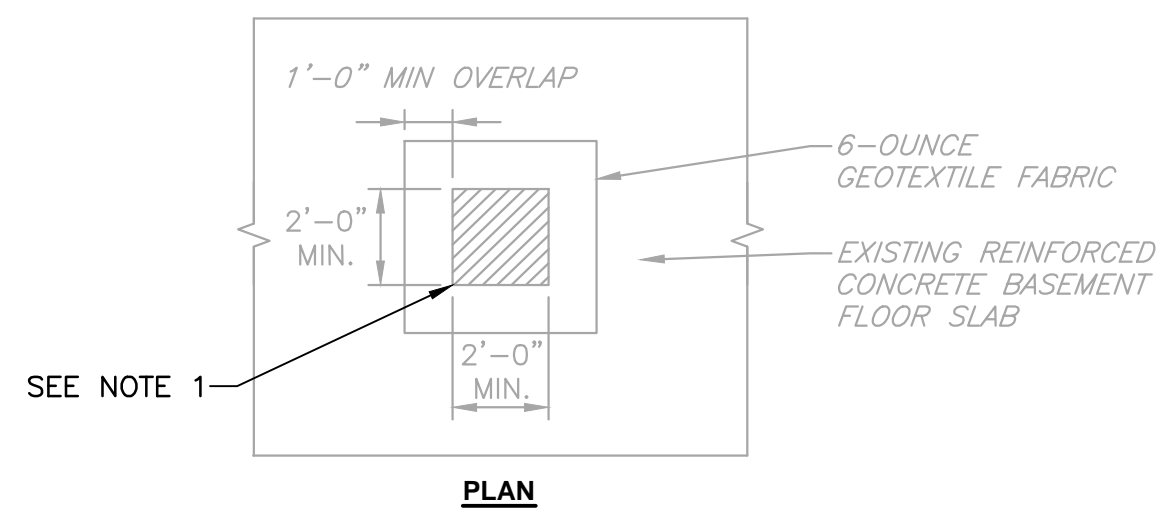
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**NOTES:**

1. ALL UPLAND DEMOLITION WORK SHALL TAKE PLACE BETWEEN JUNE 1 AND AUGUST 15. NO WORK SHALL BE PERFORMED IN THE WATER AREAS DURING THIS PERIOD.
2. SCOPE OF DEMOLITION AND REMOVALS INCLUDES THE DEMOLITION AND REMOVAL OF SEVERAL STRUCTURES AND FOUNDATIONS. IN ADDITION, ALL DEBRIS PILES WITHIN THE CONTRACT LIMITS SHALL BE REMOVED AND PROPERLY DISPOSED OFF-SITE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ALL WORK SHALL BE CONDUCTED IN CONFORMANCE WITH THE TECHNICAL SPECIFICATIONS AND ALL APPLICABLE CODES, LAWS AND STATUTES AS REQUIRED.
4. THE CONTRACTOR SHALL NOT ASSUME ANY MATERIALS OF VALUE WILL BE GENERATED DURING DEMOLITION AND REMOVAL ACTIVITIES AND SHALL NOT MAKE ANY CLAIMS AGAINST THE DEPARTMENT FOR ABSENCE OF ANY SUCH MATERIALS.
5. BUILDINGS 1-NORTH, 1-MIDDLE, 1-SOUTH, 5 AND 6 HAVE BEEN DETERMINED TO CONTAIN ASBESTOS-CONTAINING MATERIAL. THESE BUILDINGS SHALL BE REMOVED VIA CONTROLLED DEMOLITION PER THE REQUIREMENTS OF NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 56.11.5. REFER TO THE TECHNICAL SPECIFICATIONS FOR REQUIREMENTS. FOLLOWING THE CONTROLLED DEMOLITION, THE CONCRETE SLABS/FOUNDATION OF EACH BUILDING SHALL BE DECONTAMINATED IN ACCORDANCE WITH THE SPECIFICATIONS TO REMOVE ANY RESIDUAL ASBESTOS.
6. BUILDINGS 1-NORTH, 1-MIDDLE, 1-SOUTH, 4, 5 AND 6 HAVE BEEN DETERMINED TO CONTAIN LEAD-BASED PAINT. ALL WORK ASSOCIATED WITH THE REMOVAL OF THESE BUILDINGS SHALL BE IN COMPLIANCE WITH OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION REQUIREMENTS OUTLINED AT 29 CODE OF FEDERAL REGULATIONS 1926.62, LEAD EXPOSURE IN CONSTRUCTION. REFER TO THE TECHNICAL SPECIFICATIONS FOR REQUIREMENTS.
7. ASBESTOS-CONTAINING MATERIAL AND LEAD-BASED PAINT HAVE NOT BEEN IDENTIFIED IN BUILDINGS 2, 3 AND 7.
8. ALL ABOVE GRADE AND ON-GRADE STRUCTURES AND CONCRETE SLABS SHALL BE DEMOLISHED AND REMOVED. FOUNDATION WALLS SHALL BE DEMOLISHED AND REMOVED TO A DEPTH OF TWO FEET BELOW SURROUNDING GRADE. FOR BUILDING 1-NORTH, THE BASEMENT WALLS SHALL BE DEMOLISHED AND REMOVED TO A DEPTH OF TWO FEET BELOW SURROUNDING GRADE. ALL DEBRIS, EQUIPMENT, ETC. SHALL BE REMOVED FROM THE BASEMENT FOR OFF-SITE TRANSPORTATION AND DISPOSAL. THE REMAINING BASEMENT WALLS AND BASEMENT FLOOR SHALL REMAIN IN PLACE. THE CONTRACTOR SHALL INSTALL DRAINAGE OPENINGS IN THE BASEMENT FLOOR SLAB OF BUILDING 1-NORTH IN ACCORDANCE WITH DETAIL "A" THIS DRAWING.
9. THE CONTRACTOR'S SUBMITTALS, INCLUDING BUT NOT LIMITED TO THE CONTRACTOR'S ASBESTOS ABATEMENT WORK PLAN AND LEAD-BASED PAINT ACTIVITY SUBMITTALS, MUST BE APPROVED BY THE DEPARTMENT PRIOR TO ANY DEMOLITION AND REMOVALS.
10. THE CONTRACTOR SHALL SETUP AND INSTALL ASBESTOS AND LEAD-BASED PAINT WORK AREAS AND DECONTAMINATION FACILITIES IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PRIOR TO ANY DEMOLITION AND REMOVALS.
11. THE CONTRACTOR SHALL CONDUCT WASTE CHARACTERIZATION SAMPLING ON ALL BUILDING COMPONENTS REMOVED FROM STRUCTURES DETERMINED TO CONTAIN LEAD-BASED PAINT IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS. THE INTENDED DISPOSAL FACILITY'S REQUIREMENTS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. WASTE CHARACTERIZATION SAMPLING SHALL, AT A MINIMUM, FOLLOW THE LATEST VERSION OF ASTM E1908, STANDARD GUIDE FOR SAMPLE SELECTION FOR DEBRIS WASTE FROM BUILDING RENOVATION OR LEAD ABATEMENT PROJECT FOR TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) TESTING FOR LEACHABLE LEAD (Pb).
12. ALL BUILDING COMPONENTS REMOVED FROM THE BUILDINGS AND THE PILES OF DEBRIS THAT ARE DETERMINED TO CONTAIN ASBESTOS-CONTAINING MATERIAL SHALL BE DISPOSED OFF-SITE AS ASBESTOS WASTE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
13. BUILDINGS 1-NORTH, 1-MIDDLE, 1-SOUTH, 5 AND 6 CONTAIN BOTH ASBESTOS-CONTAINING MATERIAL AND LEAD-BASED PAINT. IF WASTE CHARACTERIZATION SAMPLING DETERMINES THAT BUILDING DEMOLITION WASTE IS CLASSIFIED AS HAZARDOUS WASTE (AS DEFINED BY 6 NYCRR PART 371), THE MATERIAL MUST BE DISPOSED OF OFF-SITE AT A FACILITY AUTHORIZED TO ACCEPT BOTH HAZARDOUS WASTE AND ASBESTOS WASTE.
14. THE CONTRACTOR SHALL CHARACTERIZE, REMOVE AND DISPOSE OF EXISTING DEBRIS AND SOIL STOCKPILES, IF PRESENT, IN ACCORDANCE WITH THE REQUIREMENTS OF THE TECHNICAL SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

**DETAIL A**

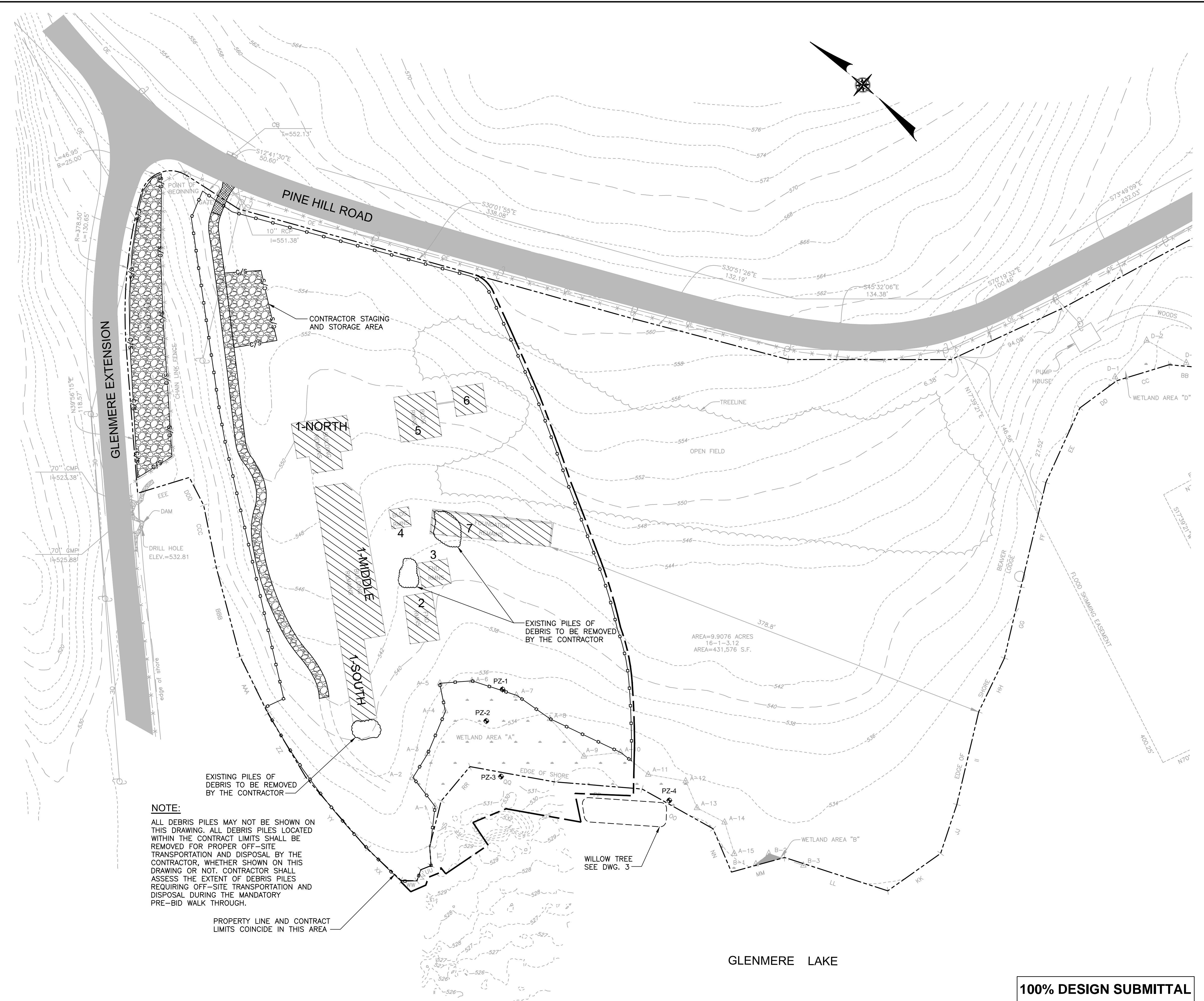


**DRAINAGE OPENING REQUIREMENTS DETAIL**

N.T.S.

**NOTE:**

1. THE CONTRACTOR SHALL INSTALL A MINIMUM OF ONE (1) DRAINAGE OPENING FOR EVERY 1,000 SQUARE FEET OF REINFORCED CONCRETE BASEMENT FLOOR SLAB OR A MINIMUM OF TWO (2) DRAINAGE OPENINGS PER BUILDING, WHICHEVER IS GREATER. THE CONTRACTOR SHALL REMOVE DEBRIS WITHIN THE FULL DEPTH OF OPENINGS AND BACKFILL OPENING WITH GRAVEL. THE CONTRACTOR SHALL PLACE A LAYER OF 6-OUNCE GEOTEXTILE ABOVE OPENINGS, INSTALLED FLUSH WITH SURROUNDING SLAB (MIN. 1'-0" OVERLAP), AND COVER WITH A 6-INCH LAYER OF COMPACTED CONCRETE SAND, NYS DOT ITEM 703-07, 1-FOOT BEYOND THE EXTENT OF THE GEOTEXTILE.



**NOTE:**  
ALL DEBRIS PILES MAY NOT BE SHOWN ON THIS DRAWING. ALL DEBRIS PILES LOCATED WITHIN THE CONTRACT LIMITS SHALL BE REMOVED FOR PROPER OFF-SITE TRANSPORTATION AND DISPOSAL BY THE CONTRACTOR, WHETHER SHOWN ON THIS DRAWING OR NOT. CONTRACTOR SHALL ASSESS THE EXTENT OF DEBRIS PILES REQUIRING OFF-SITE TRANSPORTATION AND DISPOSAL DURING THE MANDATORY PRE-BID WALK THROUGH.

PROPERTY LINE AND CONTRACT LIMITS COINCIDE IN THIS AREA

GLENMERE LAKE

**100% DESIGN SUBMITTAL**

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: <b>BMV</b>	DRAWN BY: <b>LVG</b>
DESIGNED BY: <b>MRD</b>	CHECKED BY: <b>AMC</b>

**db** DVIRKA AND BARTILUCCI CONSULTING ENGINEERS  
A DIVISION OF D&B ENGINEERS AND ARCHITECTS, P.C.

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
ORANGE COUNTY NEW YORK  
**GLENMERE LAKE PROPERTY**

**DEMOLITION PLAN**

PROJECT NO. <b>3150-05</b>	DRAWING NO. <b>4</b>
DATE <b>MARCH 2014</b>	
SCALE <b>1"=40'</b>	

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**SCOPE OF WORK**

THIS SCOPE OF WORK PROVIDES A GENERAL OVERVIEW OF THE REMEDIAL WORK TO BE PERFORMED IN THE UPLAND AREAS BY THE CONTRACTOR. THIS SCOPE OF WORK DOES NOT RELIEVE CONTRACTOR FROM PROVIDING A DETAILED CONSTRUCTION SCHEDULE TO THE ENGINEER FOR APPROVAL, AS REQUIRED BY THE TECHNICAL SPECIFICATIONS. IT ALSO DOES NOT RELIEVE THE CONTRACTOR OF PERFORMING ALL THE WORK AS SHOWN ON THE PLANS AND INCLUDED IN THE TECHNICAL SPECIFICATIONS.

\* REMEDIATION WORK IN THE UPLAND AREAS SHALL BE PERFORMED BETWEEN JUNE 1 AND AUGUST 15.

\* THE CONTRACTOR SHALL SURVEY THE EXISTING SURFACES PRIOR TO EXCAVATION, FINAL SURFACES OF THE EXCAVATION PRIOR TO FILLING, CONFIRMATION-SAMPLE LOCATIONS AND THE FINAL SURFACES OF GENERAL FILL/TOPSOIL FOR "AS-BUILT" CONDITIONS, CONFORMING TO THE REQUIREMENTS PROVIDED IN THE TECHNICAL SPECIFICATIONS.

\* THE CONTRACTOR SHALL UTILIZE THE PROVIDED SURVEY COORDINATES TO LOCATE AND MARK THE EXCAVATION LIMITS PRIOR TO PERFORMING THE WORK. THE HORIZONTAL COORDINATE SYSTEM IS AS SPECIFIED ON DWG. 2.

\* EXCAVATION SHALL BE MADE TO THE HORIZONTAL AND VERTICAL LIMITS AS SHOWN HEREIN, OR AS DIRECTED BY THE DEPARTMENT, AND TO SUCH WIDTHS AS SHALL PROVIDE SUITABLE ROOM FOR ALL REQUIRED BRACING, SHORING, SLOPING AND SUPPORTING. WHERE SHOWN, HORIZONTAL COORDINATES SHALL BE USED TO LOCATE THE LIMITS OF EXCAVATION. HORIZONTAL LIMITS OF EXCAVATION REPRESENT THE LIMITS OF THE REQUIRED EXCAVATION AT THE BOTTOM OF THE EXCAVATION AREA.

\* EXCAVATIONS SHALL BE OPEN EXCAVATIONS, SHEETED AND BRACED WHERE NECESSARY TO PREVENT POSSIBLE INJURY TO PERSONNEL, EQUIPMENT AND STRUCTURES. THE CONTRACTOR SHALL SHEET AND BRACE EXCAVATIONS WHERE SLOPING IS NOT POSSIBLE EITHER BECAUSE OF SPACE RESTRICTIONS OR STABILITY. ALL SHEETING, WALERS, SHORING AND BRACING SHALL BE DESIGNED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NEW YORK. THE DEPARTMENT WILL NOT REIMBURSE THE CONTRACTOR FOR REMOVAL, HANDLING, DISPOSAL AND BACKFILL AND COMPACTION OF ANY OVER EXCAVATED MATERIALS.

\* THE CONTRACTOR SHALL HAVE THE MEANS TO DEMONSTRATE THE ADEQUACY OF THE REACHED DEPTHS TO THE LIMITS SHOWN ON THIS DRAWING TO THE ENGINEER. THE ENGINEER SHALL DIRECT ADDITIONAL EXCAVATION AS NECESSARY TO REACH SPECIFIED DEPTHS.

\* THE CONTRACTOR SHALL COLLECT AND ANALYZE WASTE CHARACTERIZATION SAMPLES REQUIRED FOR DISPOSAL. REFER TO THE TECHNICAL SPECIFICATIONS FOR ADDITIONAL WASTE CHARACTERIZATION REQUIREMENTS.

\* THE CONTRACTOR SHALL COLLECT CONFIRMATION SAMPLES FROM THE EXCAVATION AREAS AT THE SIDEWALL AND BASE OF THE EXCAVATION AREAS AS REQUIRED BY THE TECHNICAL SPECIFICATIONS. BACKFILL OF EXCAVATIONS SHALL NOT TAKE PLACE UNTIL CONFIRMATION SAMPLE RESULTS HAVE BEEN APPROVED FOR THE AREA IN QUESTION BY THE DEPARTMENT.

\* THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOADING AND OFF-SITE TRANSPORTATION AND DISPOSAL OF EXCAVATED MATERIAL AT AN APPROVED FACILITY(IES). REFER TO THE TECHNICAL SPECIFICATIONS FOR ADDITIONAL WASTE TRANSPORTATION AND DISPOSAL REQUIREMENTS.

\* THIS DRAWING IS ONLY INTENDED TO SHOW EXCAVATION LIMITS OF AREAS TO BE REMEDIATED. REFER TO DRAWING 4 FOR DEMOLITION PROCEDURES AND REQUIREMENTS.

\* IT IS NOT EXPECTED THAT GROUNDWATER WILL BE ENCOUNTERED DURING THE REMEDIAL ACTIVITIES. IF GROUNDWATER IS ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT TO DETERMINE A COURSE OF ACTION.

\* BEDROCK MAY BE ENCOUNTERED DURING EXCAVATION. BEDROCK REMOVAL WILL NOT BE REQUIRED AS PART OF THIS PROJECT. IF BEDROCK IS ENCOUNTERED, THE TOP OF BEDROCK SHALL BE CONSIDERED THE BOTTOM OF EXCAVATION EVEN IF THIS DRAWING INDICATES EXCAVATION TO GREATER DEPTHS IS REQUIRED. ALL SOIL MUST BE CLEARED TO THE TOP OF ANY BEDROCK FOR PROPER OFF-SITE DISPOSAL.

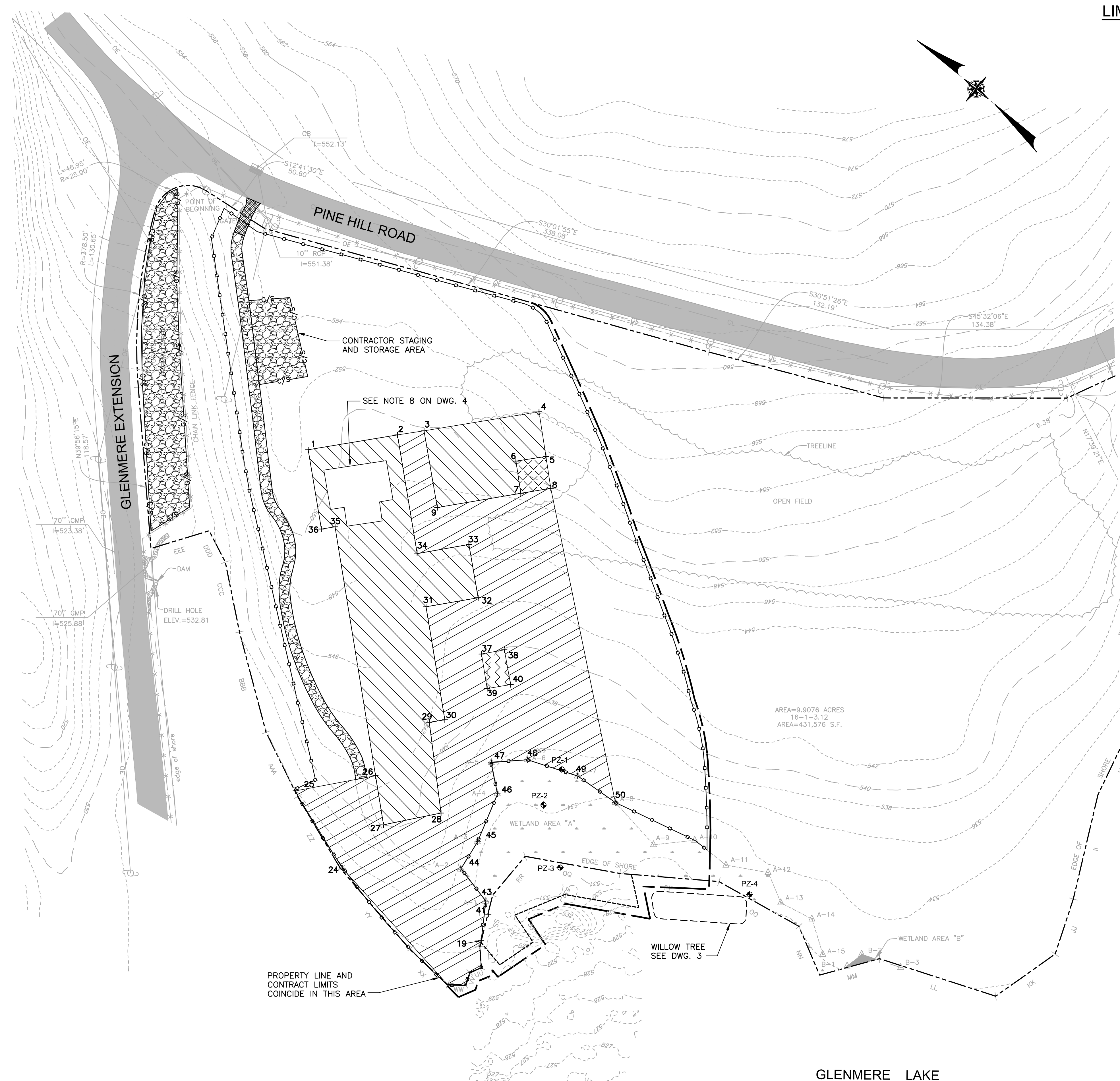
\* THE CONTRACTOR SHALL EMPLOY ALL MEANS NECESSARY TO PREVENT ANY AREAS OUTSIDE THESE EXCAVATION LIMITS FROM BEING CONTAMINATED DURING THESE REMEDIATION ACTIVITIES. IN THE EVENT ANY AREAS OUTSIDE THESE EXCAVATION LIMITS BECOME CONTAMINATED DUE TO THE ACTIVITIES OR THE FAULT OF THE CONTRACTOR, THE CONTRACTOR SHALL REMOVE THE CONTAMINATED AREAS AND PERFORM CONFIRMATION SOIL SAMPLING TO THE SATISFACTION OF THE DEPARTMENT AT THE CONTRACTOR'S EXPENSE.

\* THE CONTRACTOR SHALL PROTECT ALL PIEZOMETERS TO THE BEST OF HIS EFFORTS DURING THE EXCAVATION ACTIVITIES. THE CONTRACTOR SHALL RE-ESTABLISH OR REPLACE IN-KIND ANY PIEZOMETER DAMAGED OR REMOVED DURING THE EXCAVATION ACTIVITIES. PIEZOMETERS SHALL BE PLACED IN THEIR EXISTING LOCATIONS, AS APPROVED BY THE ENGINEER. THE FINAL LOCATIONS OF THE PIEZOMETERS MUST BE SURVEYED FOR HORIZONTAL AND VERTICAL COORDINATES REGARDLESS OF WHETHER THEY WERE ADEQUATELY PROTECTED, RE-ESTABLISHED OR REPLACED.

\* UPON COMPLETION OF REMEDIATION IN UPLAND AREAS, THE CONTRACTOR SHALL PROVIDE RESOURCES TO PROTECT, SECURE AND MAINTAIN THE SITE UNTIL UPLAND DISTURBED AREAS CAN BE RESTORED. IF THE PROJECT SEQUENCING PROHIBITS FINAL RESTORATION OF THE UPLAND AREAS FOLLOWING THE DEPARTMENT'S APPROVAL OF THE EXCAVATION LIMITS AND THE CONFIRMATION SOIL SAMPLE RESULTS, THE CONTRACTOR SHALL BACKFILL THE AREAS TO WITHIN 6 INCHES BELOW FINAL GRADE, TEMPORARILY SEED, STABILIZE AND INSTALL EROSION CONTROL MATERIALS (SEE DWG. 9) IN THE AREA IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS PRIOR TO AUGUST 15.

**LIMITS OF EXCAVATION COORDINATES**

Point	Northing	Easting
1	912207.329	539321.327
2	912169.321	539375.621
3	912157.847	539391.626
4	912108.800	539461.561
5	912081.883	539442.236
6	912094.851	539424.174
7	912075.478	539410.265
8	912062.722	539428.478
9	912110.890	539359.268
19	911861.742	539160.017
21	911850.249	539137.786
22	911845.976	539129.038
23	911855.701	539119.553
24	911970.975	539124.578
25	912035.214	539139.805
26	912002.165	539189.333
27	911972.422	539168.363
28	911949.052	539204.496
29	912002.541	539244.867
30	911995.909	539254.365
31	912064.702	539302.406
32	912042.710	539334.300
33	912075.348	539356.805
34	912097.415	539325.283
35	912153.227	539295.841
36	912159.022	539287.552
37	912011.581	539307.255
38	912002.000	539321.331
39	911990.577	539292.461
40	911980.616	539306.775
41	911871.871	539177.396
43	911909.977	539182.799
44	911909.621	539186.099
45	911915.320	539208.903
46	911930.249	539243.898
47	911949.637	539256.804
48	911932.632	539277.073
49	911898.489	539295.000
50	911865.195	539301.092



**LEGEND:**

	APPROXIMATE LIMITS OF EXCAVATION TO 0.5 FOOT DEPTH
	APPROXIMATE LIMITS OF EXCAVATION TO 2 FOOT DEPTH
	APPROXIMATE LIMITS OF EXCAVATION TO 5 FOOT DEPTH
	APPROXIMATE LIMITS OF EXCAVATION TO 8 FOOT DEPTH

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PROJECT ENGINEER: <b>BMV</b>
DESIGNED BY: <b>MRD</b>
DRAWN BY: <b>LVG</b>
CHECKED BY: <b>AMC</b>

**db** DVIRKA AND BARTILUCCI CONSULTING ENGINEERS  
A DIVISION OF D&B ENGINEERS AND ARCHITECTS, P.C.

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
ORANGE COUNTY NEW YORK  
**GLENMERE LAKE PROPERTY**

**UPLAND AREAS - REMEDIATION PLAN**

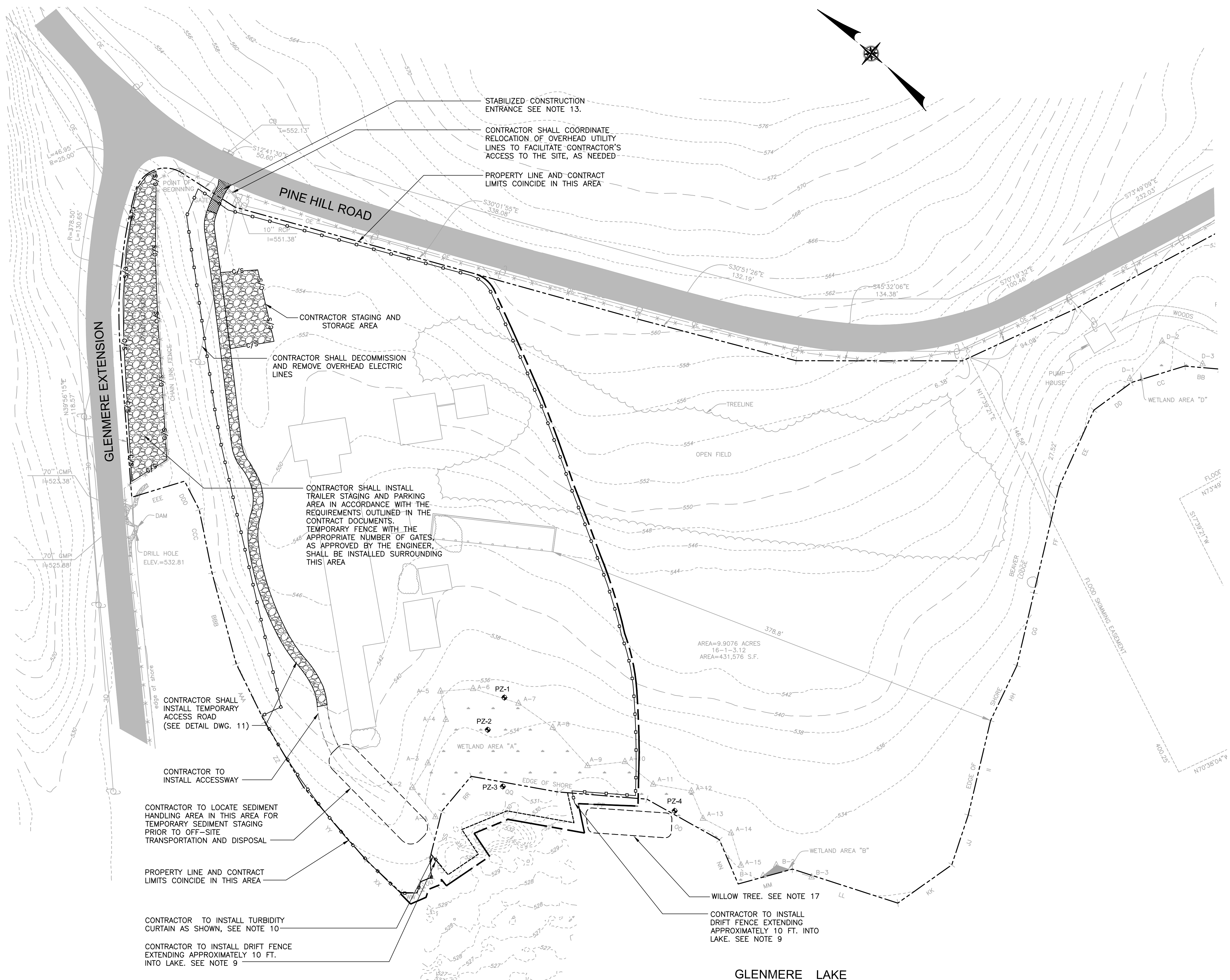
PROJECT NO. <b>3150-05</b>	DRAWING NO. <b>5</b>
DATE <b>MARCH 2014</b>	SCALE <b>1"=40'</b>

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**NOTES:**

- ALL WATER WORK SHALL TAKE PLACE BETWEEN DECEMBER 1 AND MARCH 15. NO INLAND WORK SHALL BE PERFORMED DURING THIS PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS, LICENSES, ETC. AND PAY ALL ASSOCIATED FEES NECESSARY TO COMPLETE THE WORK. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, LAWS AND STATUTES, AS REQUIRED, AND THE CONTRACT DOCUMENTS.
- DO NOT SCALE ANY DRAWINGS. VERIFY THE FIGURES, DIMENSIONS, AND DESIGN INTENTION SHOWN ON THE DRAWINGS BEFORE INITIATING LAYOUT OF THE WORK AND REPORT ANY INACCURACIES, MISSING DIMENSIONAL REQUIREMENTS OR CONFLICTS TO THE ENGINEER IN WRITING PRIOR TO INITIATING ANY WORK.
- ALL EXISTING STRUCTURES OUTSIDE THE CONTRACT LIMITS SHALL BE PROTECTED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE SERVICES OF AN INDEPENDENT UTILITY MARKOUT SERVICE TO LOCATE AND MARKOUT THE LOCATION OF ALL UTILITIES AND ASSOCIATED STRUCTURES WITHIN THE VICINITY OF THE WORK. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO PROTECT AND REPAIR/REPLACE ANY DAMAGE TO UTILITIES SCHEDULED TO REMAIN AT THE COMPLETION OF THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE SERVICES OF A LICENSED NEW YORK STATE LAND SURVEYOR TO PERFORM AN INITIAL SITE SURVEY TO VERIFY THE INITIAL SITE CONDITIONS AND ESTABLISH THE REQUIRED GRADE GRID. REFER TO THE TECHNICAL SPECIFICATIONS.
- A MINIMUM OF FOUR TEMPORARY BENCHMARKS SHALL BE ESTABLISHED BY THE CONTRACTOR FOR USE DURING THE WORK.
- THE CONTRACTOR SHALL BE PROHIBITED FROM ACCESSING ANY PORTIONS OF THE SITE BEYOND THE CONTRACT LIMITS, UNLESS PERMISSION IS GRANTED, IN WRITING, FROM THE DEPARTMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING THE FROG EXCLUSION ZONE DRIFT FENCE AS SHOWN ON THIS DRAWING, PRIOR TO PERFORMING ANY WORK IN THE WATER AREAS. AT EACH POINT OF TERMINATION SHOWN ON THIS DRAWING, THE CONTRACTOR SHALL EXTEND THE FENCE 10 FEET INTO THE LAKE, AS SHOWN, ALLOWING SUITABLE ROOM TO INSTALL THE TURBIDITY CURTAIN AND PERFORM THE EXCAVATION WORK SHOWN ON DWG. 7. THE FROG EXCLUSION ZONE DRIFT FENCE SHALL BE INSTALLED (SEE DETAIL, DWG. 9) AND MAINTAINED THROUGHOUT ALL CONSTRUCTION ACTIVITIES. FAILURE TO REPAIR AND/OR REPLACE DAMAGED SECTIONS OF THE FROG EXCLUSION ZONE FENCE SHALL RESULT IN THE WORK BEING IMMEDIATELY STOPPED UNTIL IT IS RE-ESTABLISHED.
- THE CONTRACTOR SHALL INSTALL A TURBIDITY CURTAIN IN THE AREA SHOWN ON THIS DRAWING AS DETAILED ON DWG. 9 AND IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
- THE CONTRACTOR SHALL UTILIZE THE AREA SHOWN ON THIS DRAWING FOR THE HANDLING OF SEDIMENT EXCAVATED FROM THE WETLANDS AND LAKE AREAS UNLESS OTHERWISE APPROVED BY THE DEPARTMENT. THE DIMENSIONS OF THE AREA SHALL NOT EXCEED 25 FEET BY 100 FEET AS SHOWN THIS DRAWING, UNLESS OTHERWISE APPROVED BY THE DEPARTMENT. THE CONTRACTOR SHALL CONSTRUCT THIS AREA TO PROTECT UNDERLYING SOIL FROM IMPACT. THE CONTRACTOR SHALL PREVENT ANY STORM WATER OR ANY DRAIN WATER GENERATED DURING THE SEDIMENT EXCAVATION ACTIVITIES FROM MIGRATING FROM THIS AREA. ALL WATER MUST BE COLLECTED FROM THIS AREA FOR PROPER TREATMENT AND DISCHARGE OR OFF-SITE DISPOSAL IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT A DETAIL INDICATING THE CONSTRUCTION OF THIS AREA FOR THE ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AN ACCESSWAY LEADING FROM THE TEMPORARY ACCESS ROAD TO THE SEDIMENT HANDLING AREA. THE ACCESSWAY SHALL BE CONSTRUCTED IN A MANNER TO PROTECT SUBSURFACE SOIL FROM ANY SPILLS AND OTHER SUCH INCIDENTS DURING USE.
- CLEAR ALL TREES, BUSHES AND SHRUBS WITHIN THE CONTRACT LIMITS NECESSARY TO COMPLETE THE WORK, EXCEPT THOSE TREES MARKED BY THE DEPARTMENT TO BE PROTECTED. IF TREES SCHEDULED FOR PROTECTION ARE DAMAGED OR REMOVED BY THE CONTRACTOR, THEY SHALL BE REPLACED, IN-KIND, AT NO ADDITIONAL COST TO THE DEPARTMENT. THE CONTRACTOR SHALL NOT CLEAR MORE VEGETATION THAN NECESSARY TO PERFORM THE WORK. THE CONTRACTOR SHALL INDICATE THE PROPOSED LIMITS OF VEGETATION CLEARING TO THE DEPARTMENT FOR APPROVAL PRIOR TO THE CLEARING OF ANY VEGETATION. THE CONTRACTOR SHALL RETAIN UP TO FIVE REMOVED TREES FOR REPLACEMENT WITHIN THE AREA OF WORK SUBSEQUENT TO THE RESTORATION ACTIVITIES. THESE TREES SHALL BE CUT AT THE SURFACE AND RETAINED, AND THEIR STUMPS REMOVED FOR PROPER OFF-SITE DISPOSAL. THESE REPLACED TREES SHALL SERVE AS FROG HABITAT POST REMEDIATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING STABILIZED CONSTRUCTION ENTRANCE, EQUIPMENT DECONTAMINATION AREA, AND STAGING AND STORAGE AREAS (SEE DETAILS, DWGS. 9 AND 11) PRIOR TO PERFORMING ANY EXCAVATION WORK AT THE SITE, AND AS DIRECTED BY THE DEPARTMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROPER UPKEEP OF ALL THESE ITEMS FOR THE DURATION OF THE WORK. THE CONTRACTOR SHALL INSTALL A TEMPORARY FENCE TO COMPLETELY SURROUND THE TRAILER STAGING AND PARKING AREA, AS APPROVED BY THE ENGINEER, IN ACCORDANCE WITH THE SPECIFICATIONS.
- THE CONTRACTOR SHALL INSTALL TEMPORARY ACCESS ROAD IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED IN THE CONTRACT DOCUMENTS AND AS SPECIFIED (SEE DETAIL, DWG. 11).
- SEDIMENT, EROSION AND STORM WATER CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED STORM WATER POLLUTION PREVENTION PLAN.
- THE CONTRACTOR SHALL INSTALL OFFICE TRAILERS, TEMPORARY ELECTRIC/TELEPHONE/ INTERNET, AND TEMPORARY PARKING IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND CONTRACTOR'S APPROVED WORK PLAN.
- THE CONTRACTOR SHALL PROTECT FALLEN WILLOW TREE ALONG LAKE SHORELINE AS INDICATED ON THIS DRAWING DURING THE DURATION OF ALL WORK.



GLENMERE LAKE

**100% DESIGN SUBMITTAL**

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**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
ORANGE COUNTY NEW YORK  
**GLENMERE LAKE PROPERTY**

**WATER AREAS - SITE PREPARATION PLAN**

PROJECT NO. <b>3150-05</b>	DRAWING NO. <b>6</b>
DATE <b>MARCH 2014</b>	
SCALE <b>1"=40'</b>	

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# SCOPE OF WORK

THIS SCOPE OF WORK PROVIDES A GENERAL OVERVIEW OF THE REMEDIAL WORK TO BE PERFORMED IN THE WATER AREAS BY THE CONTRACTOR. THIS SCOPE OF WORK DOES NOT RELIEVE CONTRACTOR FROM PROVIDING A DETAILED CONSTRUCTION SCHEDULE TO THE ENGINEER FOR APPROVAL, AS REQUIRED BY THE TECHNICAL SPECIFICATIONS. IT ALSO DOES NOT RELIEVE THE CONTRACTOR OF PERFORMING ALL THE WORK AS SHOWN ON THE PLANS AND INCLUDED IN THE TECHNICAL SPECIFICATIONS.

\* REMEDIATION WORK IN THE WATER AREAS SHALL BE PERFORMED BETWEEN DECEMBER 1 AND MARCH 15.

\* THE CONTRACTOR SHALL SURVEY THE EXISTING SURFACES PRIOR TO EXCAVATION, FINAL SURFACES OF THE EXCAVATION PRIOR TO FILLING, CONFIRMATION SAMPLE LOCATIONS AND THE FINAL SURFACES OF GENERAL FILL/TOPSOIL FOR "AS-BUILT" CONDITIONS, CONFORMING TO THE REQUIREMENTS PROVIDED IN THE TECHNICAL SPECIFICATIONS.

\* THE CONTRACTOR SHALL UTILIZE THE PROVIDED SURVEY COORDINATES TO LOCATE AND MARK THE EXCAVATION LIMITS PRIOR TO PERFORMING THE WORK. THE HORIZONTAL COORDINATE SYSTEM IS AS SPECIFIED ON DWG. 2.

\* EXCAVATION SHALL BE MADE TO THE HORIZONTAL AND VERTICAL LIMITS AS SHOWN HEREIN, OR AS DIRECTED BY THE DEPARTMENT, AND TO SUCH WIDTHS AS SHALL PROVIDE SUITABLE ROOM FOR ALL REQUIRED BRACING, SHORING, SLOPING AND SUPPORTING. WHERE SHOWN, HORIZONTAL COORDINATES SHALL BE USED TO LOCATE THE LIMITS OF EXCAVATION. HORIZONTAL LIMITS OF EXCAVATION REPRESENT THE LIMITS OF THE REQUIRED EXCAVATION AT THE BOTTOM OF THE EXCAVATION AREA.

\* EXCAVATIONS SHALL BE OPEN EXCAVATIONS, SHEETED AND BRACED WHERE NECESSARY TO PREVENT POSSIBLE INJURY TO PERSONNEL AND EQUIPMENT. THE CONTRACTOR SHALL SHEET AND BRACE EXCAVATIONS WHERE SLOPING IS NOT POSSIBLE EITHER BECAUSE OF SPACE RESTRICTIONS OR STABILITY. ALL SHEETING, WALERS, SHORING AND BRACING SHALL BE DESIGNED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NEW YORK. THE DEPARTMENT WILL NOT REIMBURSE THE CONTRACTOR FOR REMOVAL, HANDLING, DISPOSAL AND BACKFILL AND COMPACTION OF ANY OVER EXCAVATED MATERIALS.

\* THE CONTRACTOR SHALL DEMONSTRATE THE ADEQUACY OF THE REACHED DEPTHS TO THE LIMITS SHOWN ON THIS DRAWING TO THE ENGINEER. THE ENGINEER SHALL DIRECT ADDITIONAL EXCAVATION NECESSARY TO REACH SPECIFIED DEPTHS.

\* THE CONTRACTOR SHALL COLLECT AND ANALYZE WASTE CHARACTERIZATION SAMPLES REQUIRED FOR DISPOSAL. REFER TO THE TECHNICAL SPECIFICATIONS FOR ADDITIONAL WASTE CHARACTERIZATION REQUIREMENTS.

\* THE CONTRACTOR SHALL COLLECT CONFIRMATION SAMPLES FROM THE EXCAVATION AREAS AT THE SIDEWALL AND BASE OF THE EXCAVATION AREAS AS REQUIRED BY THE TECHNICAL SPECIFICATIONS. BACKFILL OF EXCAVATIONS SHALL NOT TAKE PLACE UNTIL CONFIRMATION SAMPLE RESULTS HAVE BEEN APPROVED FOR THE AREA IN QUESTION BY THE DEPARTMENT.

\* THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOADING AND OFF-SITE TRANSPORTATION AND DISPOSAL OF EXCAVATED MATERIAL AT AN APPROVED FACILITY(IES). REFER TO THE TECHNICAL SPECIFICATIONS FOR ADDITIONAL WASTE TRANSPORTATION AND DISPOSAL REQUIREMENTS. THE CONTRACTOR SHALL COLLECT AND PROPERLY DISPOSE OFF-SITE ANY LEAKED LIQUIDS IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.

\* ALL EXCAVATION WITHIN THE LAKE AND WETLANDS SHALL COMPLY WITH ALL APPLICABLE REGULATIONS, THE TECHNICAL SPECIFICATIONS AND THE CONTRACTOR APPROVED SUBMITTALS.

\* BEDROCK MAY BE ENCOUNTERED DURING EXCAVATION. BEDROCK REMOVAL WILL NOT BE REQUIRED AS PART OF THIS PROJECT. IF BEDROCK IS ENCOUNTERED, THE TOP OF BEDROCK SHALL BE CONSIDERED THE BOTTOM OF EXCAVATION EVEN IF THIS DRAWING INDICATES EXCAVATION TO GREATER DEPTHS IS REQUIRED. ALL SOIL MUST BE CLEARED TO THE TOP OF ANY BEDROCK FOR PROPER OFF-SITE DISPOSAL.

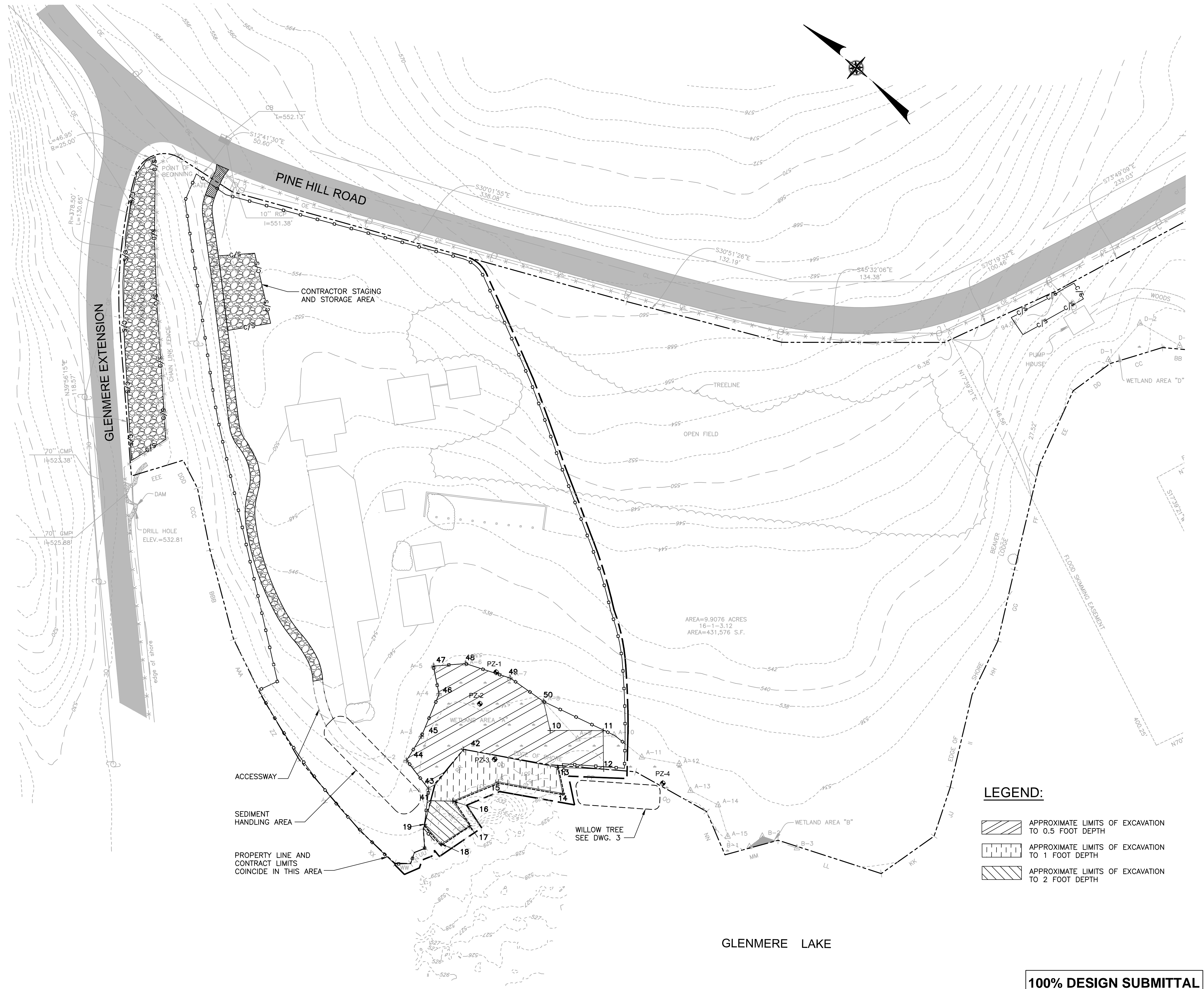
\* THE CONTRACTOR SHALL EMPLOY ALL MEANS NECESSARY TO PREVENT REMEDIATED AREAS OR ANY OTHER AREAS OUTSIDE THESE EXCAVATION LIMITS FROM BEING CONTAMINATED DURING THE SEDIMENT REMOVAL ACTIVITIES OR FROM ANY DRAIN WATER RELEASED FROM THE SEDIMENT. IN THE EVENT PREVIOUSLY REMEDIATED OR ANY OTHER AREAS BECOME CONTAMINATED DUE TO THESE ACTIVITIES OR THE FAULT OF THE CONTRACTOR, THE CONTRACTOR SHALL REMOVE THE CONTAMINATED AREAS AND PERFORM CONFIRMATION SOIL SAMPLING TO THE SATISFACTION OF THE DEPARTMENT AT THE CONTRACTOR'S EXPENSE.

\* THE CONTRACTOR SHALL PROTECT ALL PIEZOMETERS TO THE BEST OF HIS EFFORTS DURING THE EXCAVATION ACTIVITIES. THE CONTRACTOR SHALL RE-ESTABLISH OR REPLACE IN-KIND ANY PIEZOMETER DAMAGED OR REMOVED DURING THE EXCAVATION ACTIVITIES. PIEZOMETERS SHALL BE PLACED IN THEIR EXISTING LOCATIONS, AS APPROVED BY THE ENGINEER. THE FINAL LOCATIONS OF THE PIEZOMETERS MUST BE SURVEYED FOR HORIZONTAL AND VERTICAL COORDINATES REGARDLESS OF WHETHER THEY WERE ADEQUATELY PROTECTED, RE-ESTABLISHED OR REPLACED.

\* UPON COMPLETION OF REMEDIATION IN WATER AREAS, THE CONTRACTOR SHALL PROVIDE RESOURCES TO PROTECT, SECURE AND MAINTAIN THE WATER AREAS UNTIL THE START OF SITE RESTORATION WORK. FOLLOWING THE DEPARTMENT'S APPROVAL OF THE EXCAVATION LIMITS AND THE CONFIRMATION SOIL SAMPLE RESULTS, THE CONTRACTOR SHALL BACKFILL THE AREAS AND STABILIZE THE AREA WITH EROSION CONTROL MATERIALS (SEE DWG. 9) IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS PRIOR TO FEBRUARY 15.

## LIMIT OF EXCAVATION COORDINATES

Point	Northing	Easting
10	911844.378	539288.294
11	911813.646	539319.365
12	911790.657	539297.499
13	911818.480	539271.307
14	911800.152	539259.310
15	911844.020	539228.004
16	911859.066	539190.035
17	911834.790	539185.694
18	911840.499	539158.536
19	911861.742	539160.017
41	911871.571	539177.396
42	911883.655	539226.303
43	911879.577	539182.799
44	911909.621	539186.099
45	911915.320	539208.903
46	911930.249	539243.898
47	911949.637	539256.804
48	911932.632	539277.073
49	911898.489	539295.000
50	911865.195	539301.092



**LEGEND:**

- APPROXIMATE LIMITS OF EXCAVATION TO 0.5 FOOT DEPTH
- APPROXIMATE LIMITS OF EXCAVATION TO 1 FOOT DEPTH
- APPROXIMATE LIMITS OF EXCAVATION TO 2 FOOT DEPTH

**100% DESIGN SUBMITTAL**

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: **BMV** DRAWN BY: **LVG**

DESIGNED BY: **MRD** CHECKED BY: **AMC**

**db** DVIRKA AND BARTILUCCI CONSULTING ENGINEERS  
A DIVISION OF D&B ENGINEERS AND ARCHITECTS, P.C.

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
ORANGE COUNTY NEW YORK

**GLENMERE LAKE PROPERTY**

**WATER AREAS - REMEDIATION PLAN**

PROJECT NO: **3150-05**  
DATE: **MARCH 2014**  
SCALE: **1"=40'**

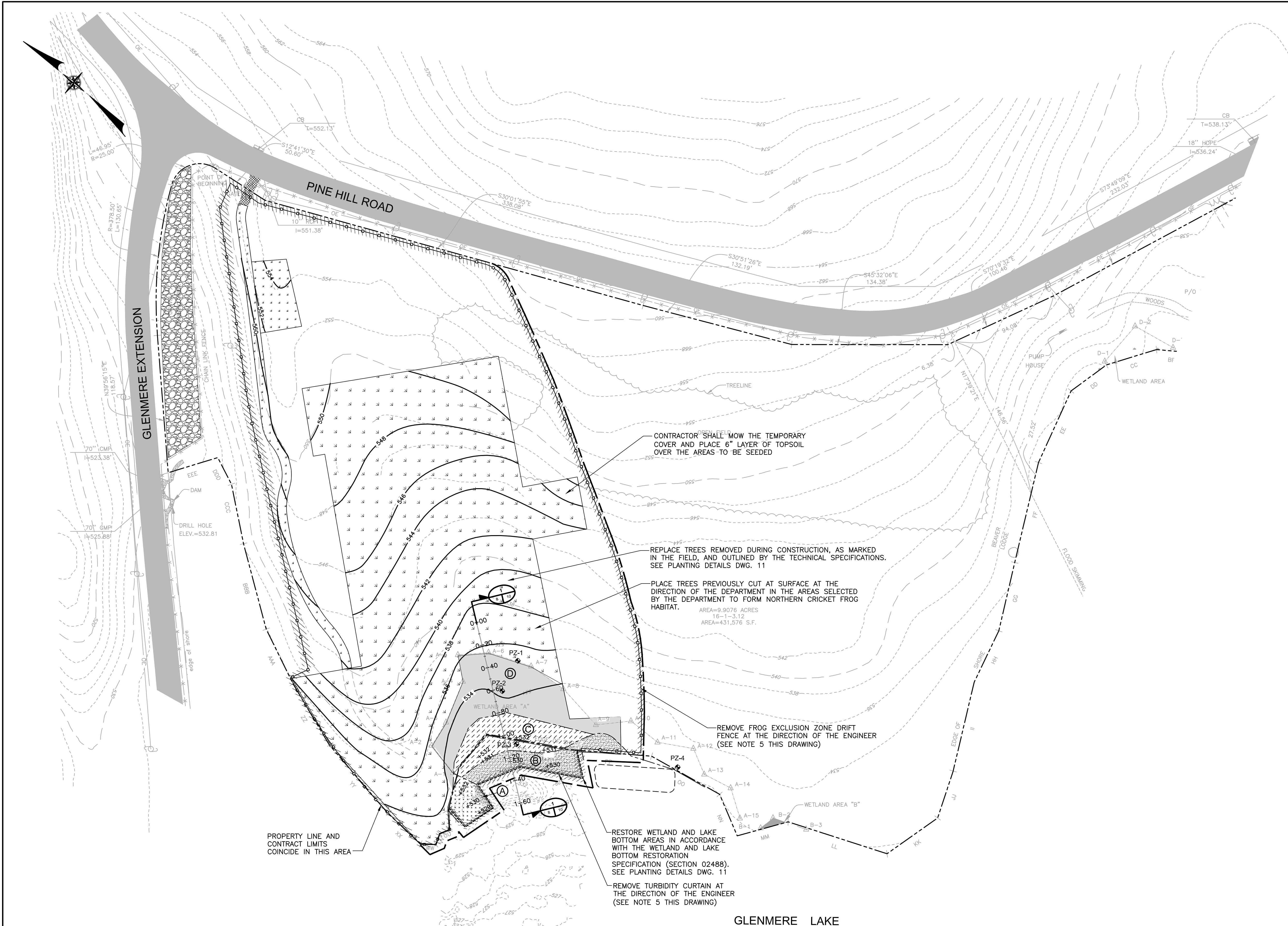
DRAWING NO: **7**

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**NOTES:**

1. ALL SEEDING AND PLANTING WORK WHICH SHALL BE DONE AS PART OF SITE RESTORATION IN THE UPLAND AND WATER AREAS SHALL BE PERFORMED WITHIN THE PLANTING AND SEEDING WINDOWS SPECIFIED IN THE CONTRACT DOCUMENTS.
2. SITE RESTORATION IN A GIVEN AREA SHALL NOT BE INITIATED UNTIL THE DEPARTMENT HAS APPROVED THE HORIZONTAL AND VERTICAL EXTENT OF EXCAVATION AND ALL CONFIRMATION SAMPLE RESULTS ASSOCIATED WITH THAT AREA.
3. AS PART OF SITE RESTORATION, THE ON-SITE GRAVEL ACCESS ROAD AND STAGING AREA AS WELL AS THE EQUIPMENT DECONTAMINATION AREA, SHALL BE EXCAVATED AND TRANSPORTED OFF-SITE FOR PROPER DISPOSAL.
4. THE OFF-SITE GRAVEL TRAILER STAGING AND PARKING AREA MAY BE LEFT IN PLACE. HOWEVER, THE TEMPORARY FENCE AND TRAILERS ASSOCIATED WITH THE OFF-SITE TRAILER STAGING AREA SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
5. THE FROG EXCLUSION ZONE DRIFT FENCE, STABILIZED CONSTRUCTION ENTRANCE AND TURBIDITY CURTAIN SHALL REMAIN IN-PLACE AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL NOTIFIED BY THE DEPARTMENT IN WRITING THAT THESE MEASURES CAN BE REMOVED, AT WHICH TIME THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THESE ITEMS IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
6. THE CONTRACTOR SHALL PROTECT ALL PIEZOMETERS TO THE BEST OF HIS EFFORTS DURING THE RESTORATION ACTIVITIES. THE CONTRACTOR SHALL RE-ESTABLISH OR REPLACE IN-KIND ANY PIEZOMETER DAMAGED OR REMOVED DURING THE RESTORATION ACTIVITIES. PIEZOMETERS SHALL BE PLACED IN THEIR EXISTING LOCATIONS, AS APPROVED BY THE ENGINEER. THE FINAL LOCATIONS OF THE PIEZOMETERS MUST BE SURVEYED FOR HORIZONTAL AND VERTICAL COORDINATES REGARDLESS OF WHETHER THEY WERE ADEQUATELY PROTECTED, RE-ESTABLISHED OR REPLACED.
7. THE CONTRACTOR SHALL PROVIDE FOR 2 DAYS IN THE FIELD OF SUFFICIENT LABOR, EQUIPMENT AND MATERIAL TO TRANSPLANT WETLANDS VEGETATION FROM NEARBY AREAS TO THE WETLANDS RESTORATION AREA AT THE DIRECTION OF THE DEPARTMENT.



CONTRACTOR SHALL MOW THE TEMPORARY COVER AND PLACE 6" LAYER OF TOPSOIL OVER THE AREAS TO BE SEED

REPLACE TREES REMOVED DURING CONSTRUCTION, AS MARKED IN THE FIELD, AND OUTLINED BY THE TECHNICAL SPECIFICATIONS. SEE PLANTING DETAILS DWG. 11

PLACE TREES PREVIOUSLY CUT AT SURFACE AT THE DIRECTION OF THE DEPARTMENT IN THE AREAS SELECTED BY THE DEPARTMENT TO FORM NORTHERN CRICKET FROG HABITAT.  
 AREA=9.9076 ACRES  
 16-1-3.12  
 AREA=431,576 S.F.

REMOVE FROG EXCLUSION ZONE DRIFT FENCE AT THE DIRECTION OF THE ENGINEER (SEE NOTE 5 THIS DRAWING)

RESTORE WETLAND AND LAKE BOTTOM AREAS IN ACCORDANCE WITH THE WETLAND AND LAKE BOTTOM RESTORATION SPECIFICATION (SECTION 02488). SEE PLANTING DETAILS DWG. 11

REMOVE TURBIDITY CURTAIN AT THE DIRECTION OF THE ENGINEER (SEE NOTE 5 THIS DRAWING)

**PLAN**  
SCALE: 1"=40'

**100% DESIGN SUBMITTAL**

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: <b>BMV</b>	DRAWN BY: <b>LVG</b>
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**db** DVIRKA AND BARTILUCCI CONSULTING ENGINEERS  
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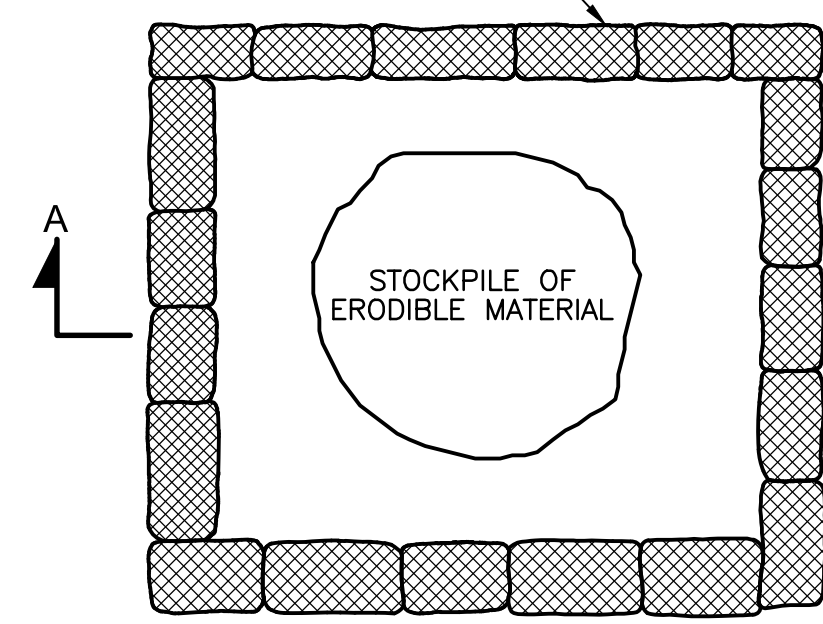
**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
ORANGE COUNTY NEW YORK  
**GLENMERE LAKE PROPERTY**

**SITE RESTORATION PLAN**

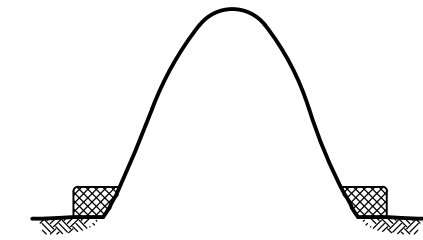
PROJECT NO. <b>3150-05</b>	DRAWING NO. <b>8</b>
DATE <b>MARCH 2014</b>	
SCALE <b>AS SHOWN</b>	

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HAY BALES OR SILT FENCE (TYP.) PER 2005 NEW YORK STATE STANDARDS ARE SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL



PLAN

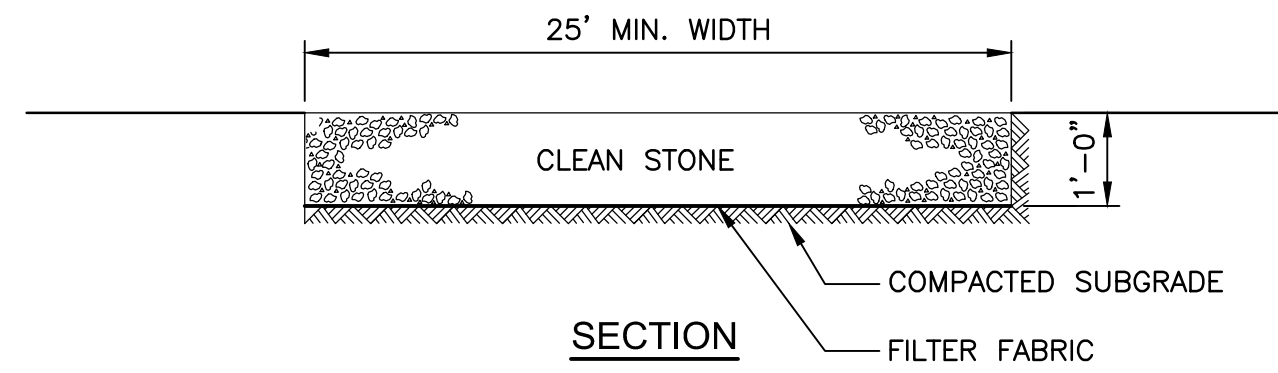


SECTION A-A

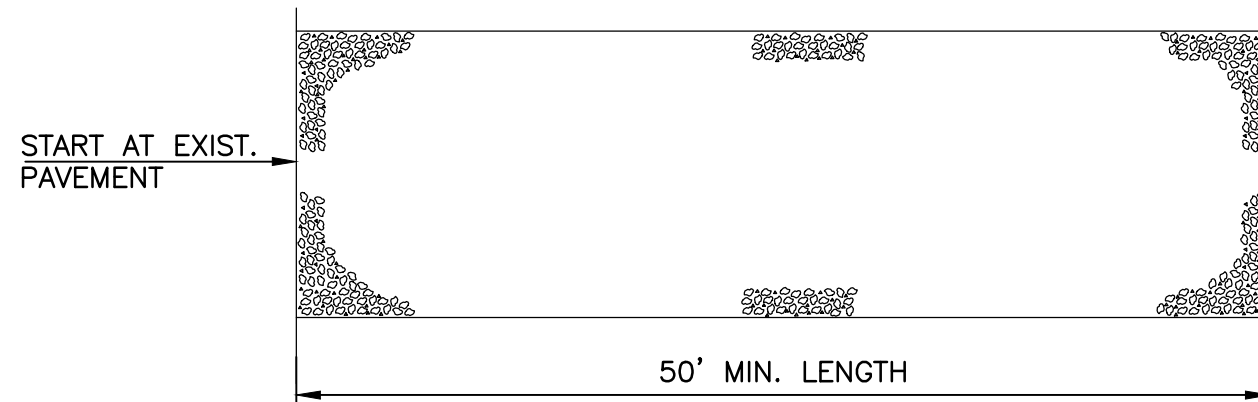
NOTE:  
FOR STOCKPILING ERODIBLE MATERIAL FOR EXTENDED PERIODS, THE AREA SHALL BE SEEDED AND MULCHED. TOP AND BOTTOM LINER SHALL BE PROVIDED FOR STOCKPILING CONTAMINATED MATERIALS. REFER TO THE SPECIFICATIONS.

**SEDIMENT CONTROL DETAIL FOR STOCKPILING OF ERODIBLE MATERIAL**

N.T.S.



SECTION



PLAN

**STABILIZED CONSTRUCTION ENTRANCE**

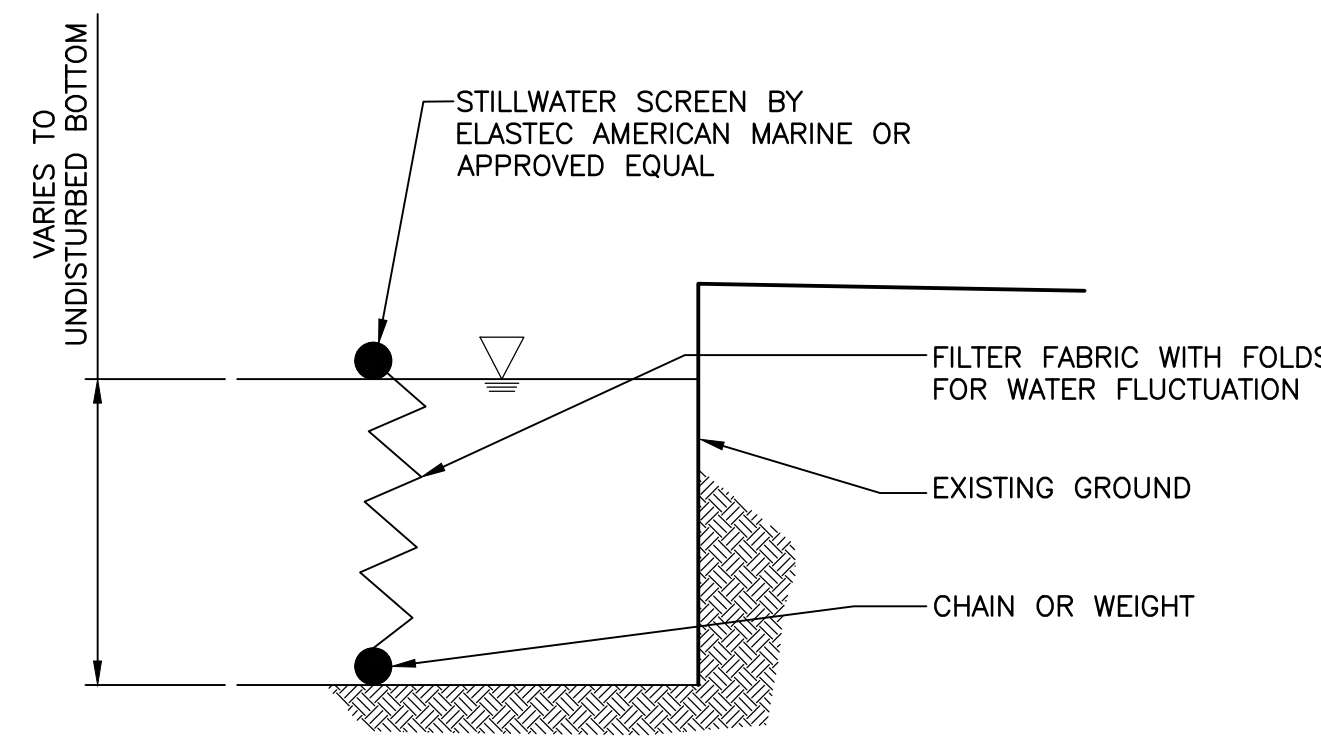
N.T.S.

**INSTALLATION NOTES- STABILIZED CONSTRUCTION ENTRANCE**

- STONE SIZE - USE 3" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT. PROVIDE INDEPENDENT LABORATORY GRADATION ANALYSIS PRIOR TO INSTALLATION.
- LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET.
- THICKNESS - NOT LESS THAN TWELVE (12) INCHES AFTER COMPACTION.
- WIDTH - 25 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCUR.
- FILTER FABRIC - SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY SHALL BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO THE PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL EVENT.
- UPON COMPLETION OF CONSTRUCTION ACTIVITIES, THE AREA USED FOR THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE RESTORED IN ACCORDANCE WITH THE SITE RESTORATION PLAN TO THE LINES, GRADES AND DIMENSIONS OF THE EXISTING CONDITIONS (AS THEY EXISTED PRIOR TO INSTALLATION OF THE STABILIZED CONSTRUCTION ENTRANCE).

**SOIL EROSION AND SEDIMENT CONTROL NOTES:**

- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
- SOIL EROSION AND SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH THE NEW YORK STATE DEPARTMENT OF CONSERVATION'S 2005 NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL HEREIN REFERRED TO AS THE "STATE STANDARDS".
- ANY DISTURBED AREAS THAT WILL NOT RECEIVE PERMANENT RESTORATION WITHIN TEN (10) DAYS AFTER FINAL GRADING, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY COVER. THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE STATE STANDARDS.
- PERMANENT VEGETATION SHALL BE INSTALLED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH SHALL BE USED AS NECESSARY FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.
- ANY SEDIMENT TRAPS PROPOSED BY THE CONTRACTOR SHALL BE STONE OUTLET SEDIMENT TRAP: ST-J, AS DETAILED BY THE STATE STANDARDS.
- IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E., STEEP SLOPES AND ROADWAY EMBANKMENTS) SHALL RECEIVE A TEMPORARY COVER OF STRAW MULCH OR A SUITABLE EQUIVALENT AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE STATE STANDARDS.
- IN ACCORDANCE WITH THE STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION, ANY SOIL HAVING A pH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A pH OF 5 OR MORE PRIOR TO SEEDBED PREPARATION.
- THE DEPARTMENT AND THE ENGINEER SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.



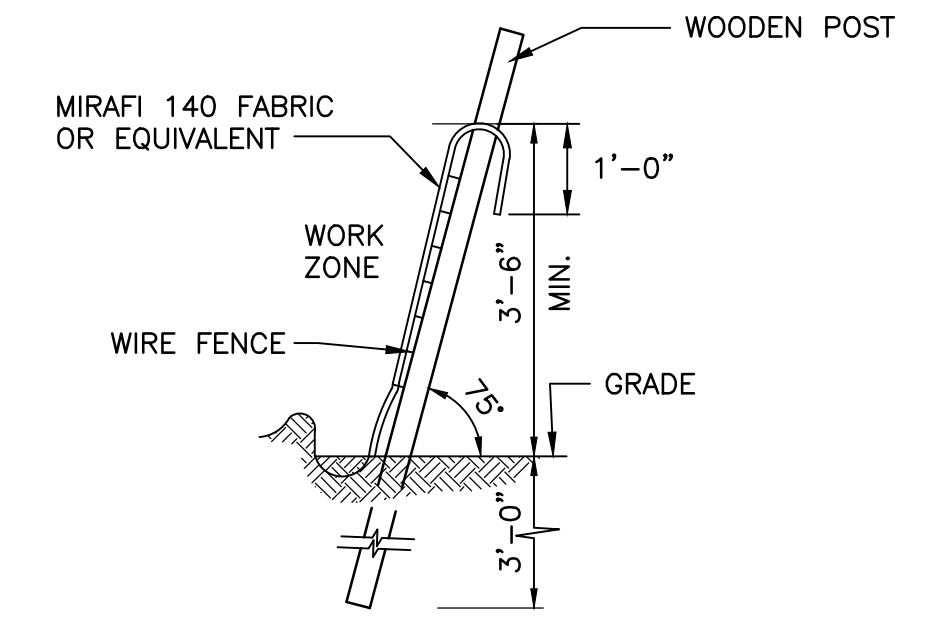
SECTION

**TURBIDITY CURTAIN**

N.T.S.

**NOTE:**

CONTRACTOR SHALL ATTACH SCREEN AND WEIGHTS/CHAINS TO STAKES, POSTS OR SECURE TURBIDITY CURTAIN BY OTHER APPROVED METHODS SO THAT THE CURTAIN FOLLOWS THE LINE OF PROPOSED SEDIMENT REMOVAL.

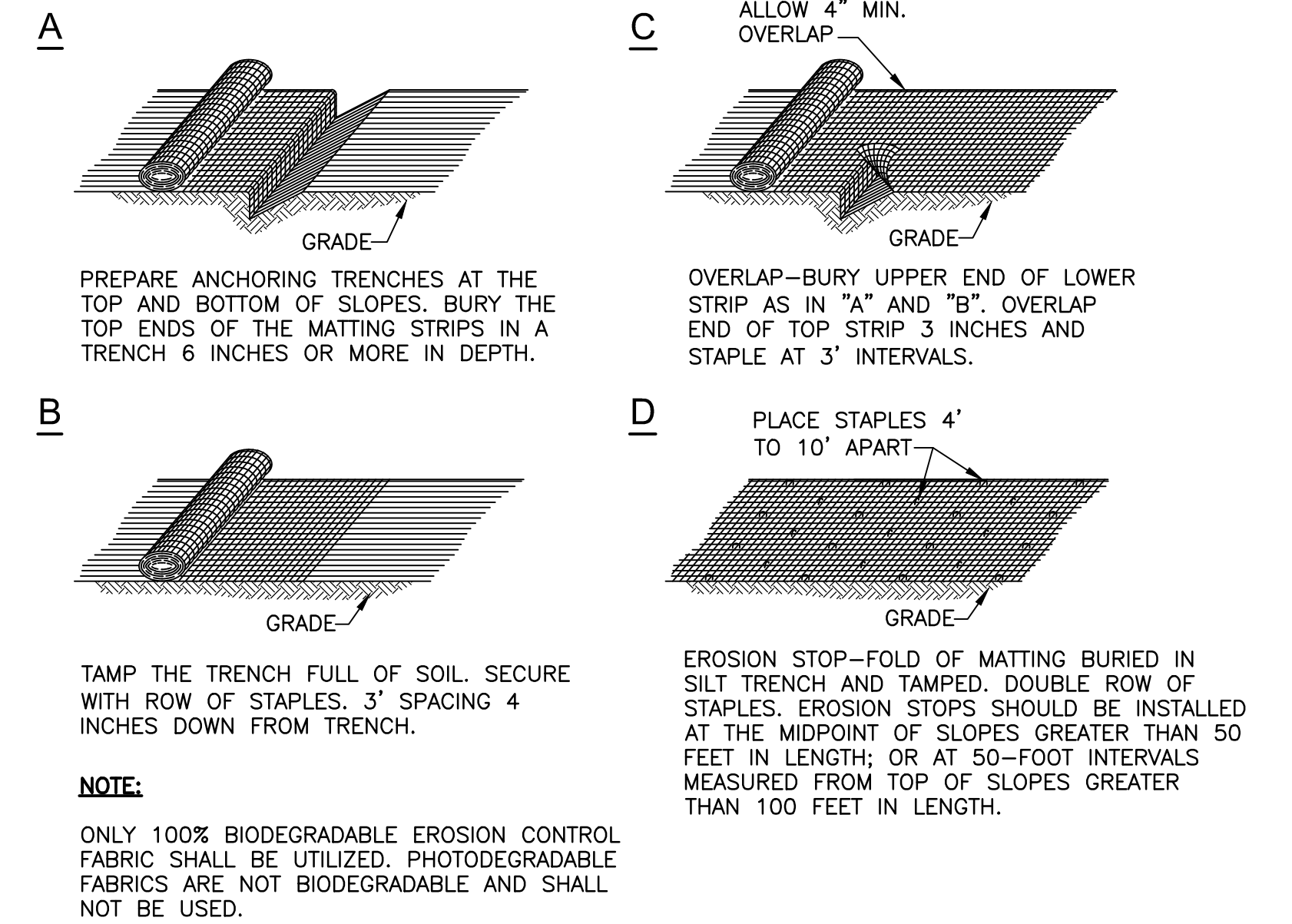


**TYPICAL FROG EXCLUSION ZONE DRIFT FENCE DETAIL**

N.T.S.

**NOTE:**

- THE BOTTOM END OF THE FROG EXCLUSION ZONE DRIFT FENCE SHALL BE BURIED IN A 6-INCH DEEP TRENCH AND THE TRENCH BACKFILLED.



**EROSION PROTECTION WITH SOIL STABILIZATION MATTING**

N.T.S.

- THE CONTRACTOR SHALL PROVIDE A DETAILED SEQUENCE OF CONSTRUCTION OPERATIONS FOR REVIEW AND SUBMITTAL TO THE ENGINEER.
- THE CONTRACTOR SHALL MEET ENGINEER ON-SITE TO DEFINE THOSE AREAS WHICH WILL REQUIRE SOIL EROSION AND SEDIMENT CONTROL FACILITIES, DISCUSS THEIR CONSTRUCTION AND THEREAFTER PROVIDE DETAILED PLANS FOR REVIEW OF SUCH FACILITIES BY THE DEPARTMENT AND THE ENGINEER.
- ANY SEDIMENT FILTERS PROPOSED BY THE CONTRACTOR SHALL BE INSTALLED IN ACCORDANCE WITH THE STATE STANDARDS AND THE DETAILS OF DESIGN AND CONSTRUCTION SHALL BE PREPARED AND SUBMITTED BY THE CONTRACTOR TO THE ENGINEER, AND ALL OTHER PERTINENT AGENCIES FOR REVIEW.
- THE PROJECT IS ANTICIPATED TO BE COMPLETED WITHIN THE TIME ALLOTMENT AS SPECIFICALLY DESCRIBED IN THE CONTRACT DOCUMENTS.
- SOIL STABILIZATION METHODS SHALL BE UNDERTAKEN COINCIDENTALLY WITH ALL MAJOR SITE IMPROVEMENTS AND CONTINUE DURING THE ENTIRE CONSTRUCTION ACTIVITY PERIOD.
- THE CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES DAILY AND AS NECESSARY DURING STORM EVENTS TO MAINTAIN PROPER FUNCTION. EROSION CONTROL MEASURES SHALL BE REPAIRED OR REPLACED IMMEDIATELY AS REQUIRED.

**100% DESIGN SUBMITTAL**

NO.	DATE	REVISION	INT.

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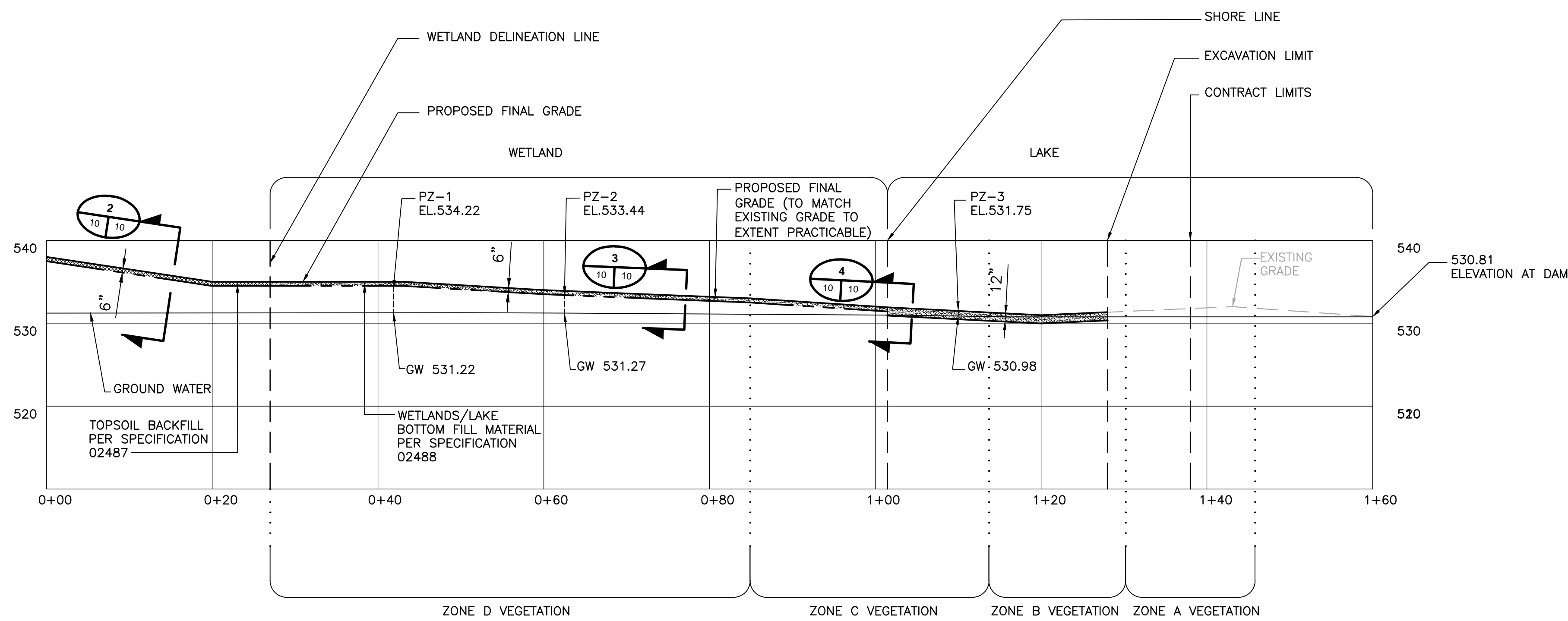
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ORANGE COUNTY NEW YORK  
**GLENMERE LAKE PROPERTY**

**SEDIMENT CONTROL DETAILS**

PROJECT NO. <b>3150-05</b>	DRAWING NO. <b>9</b>
DATE <b>MARCH 2014</b>	SCALE <b>AS NOTED</b>

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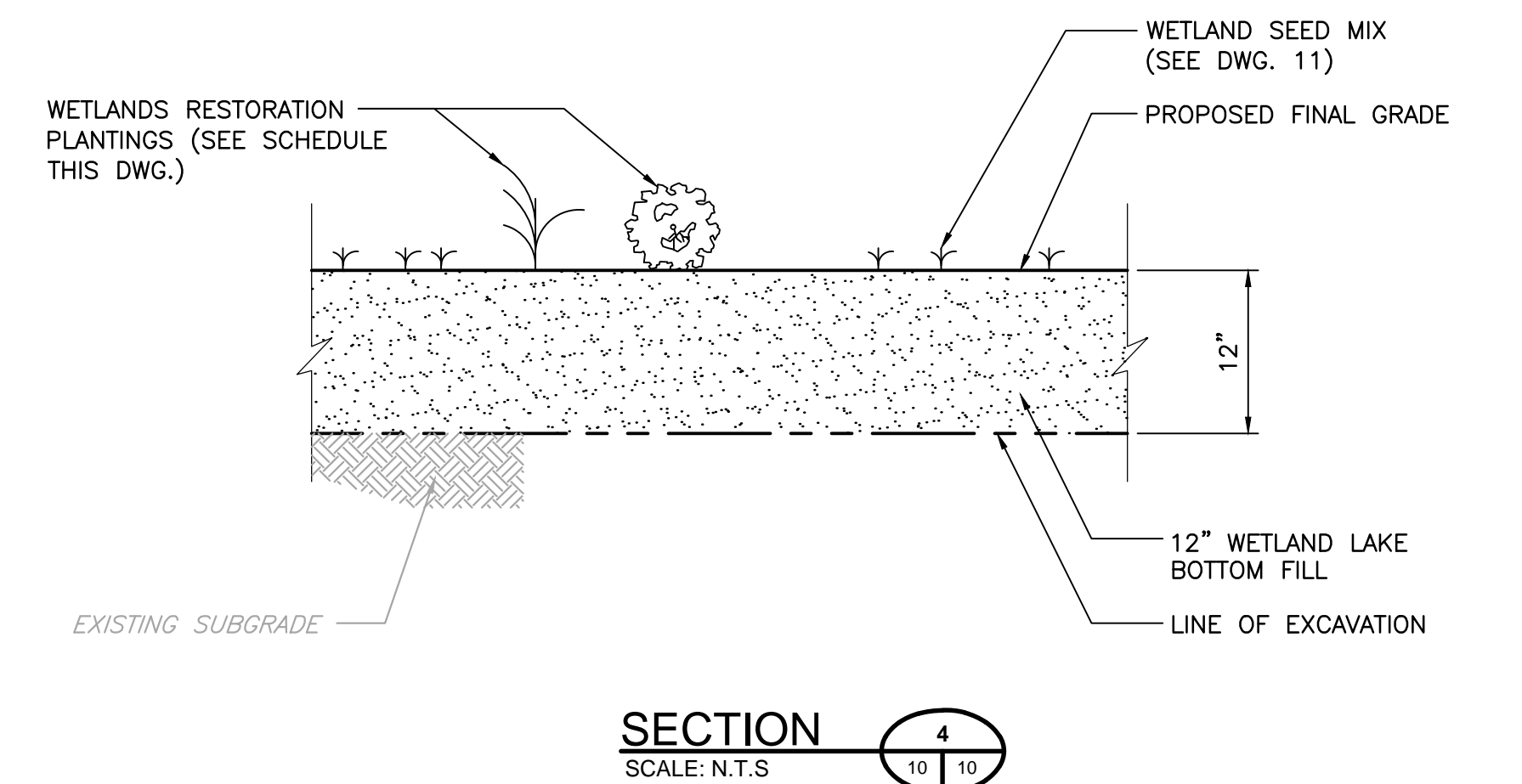
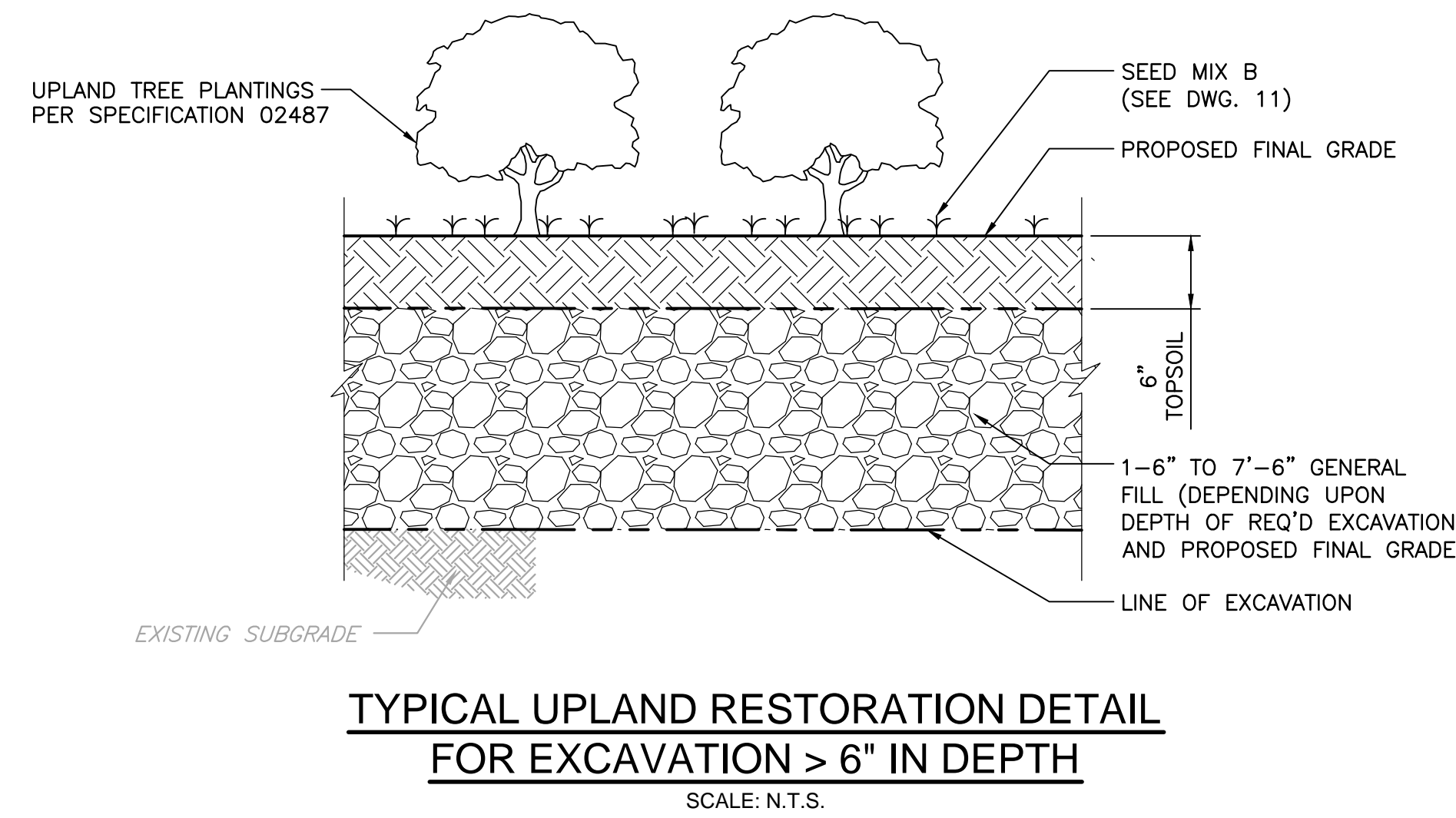
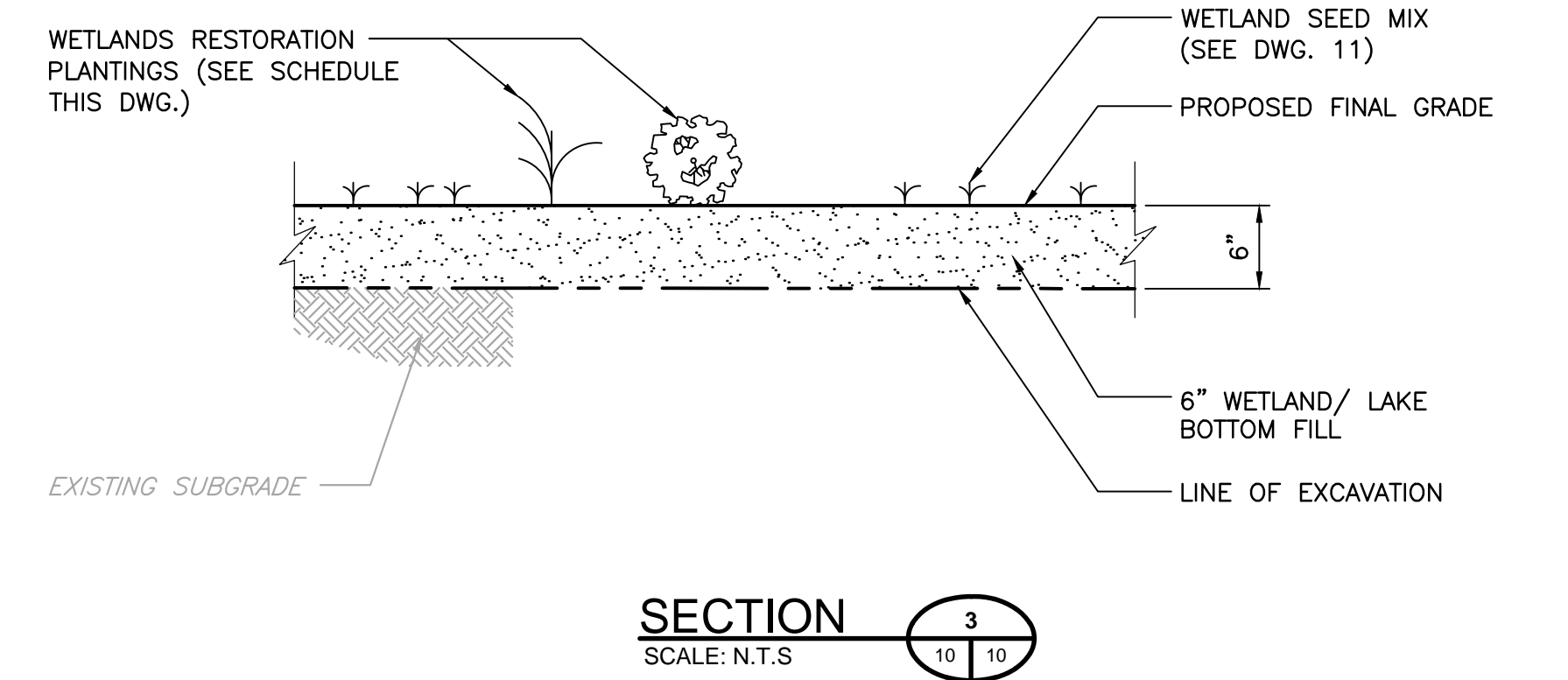
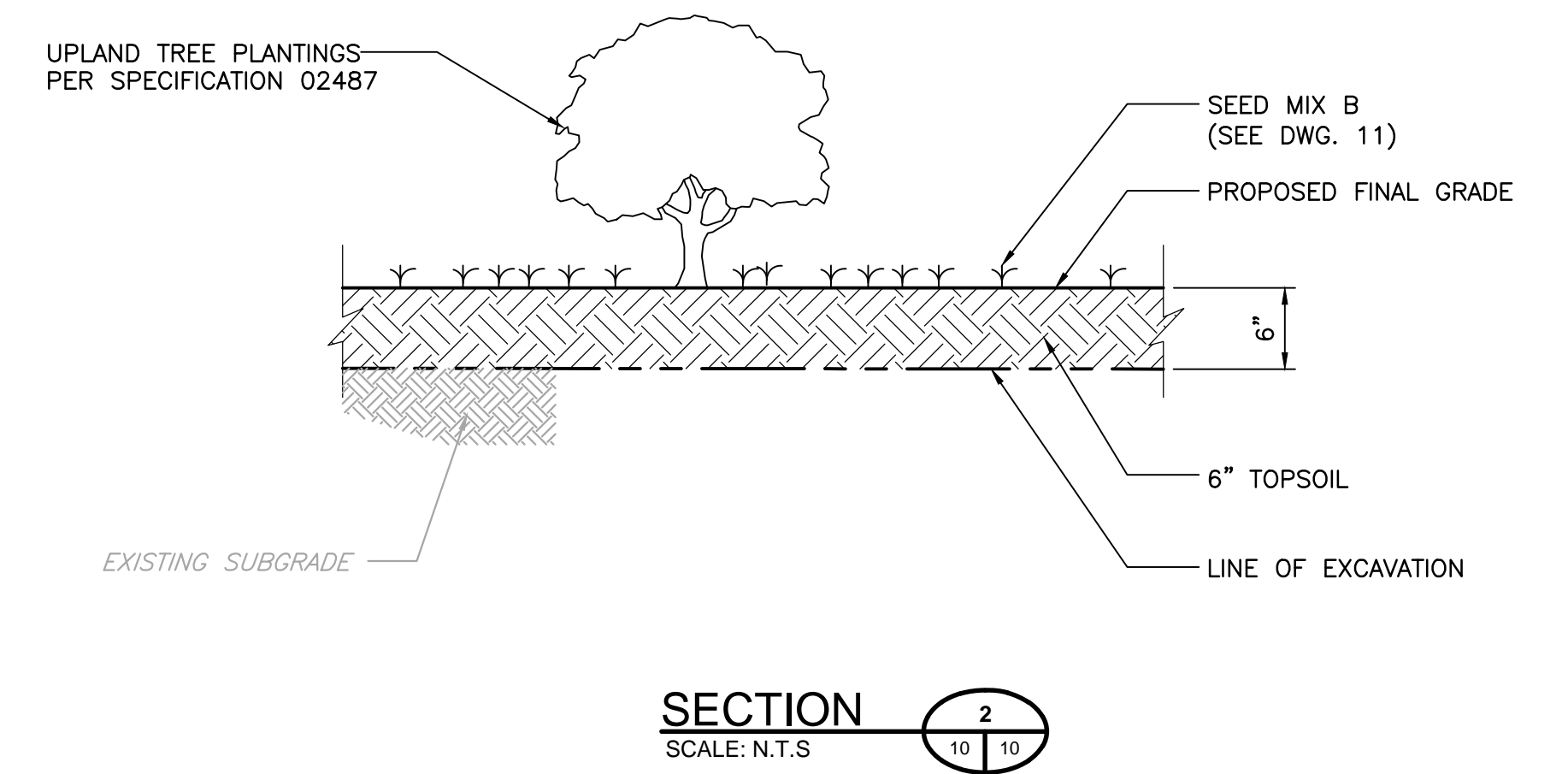
**NOTE:**  
REFER TO TECHNICAL SPECIFICATIONS FOR ADDITIONAL WETLANDS RESTORATION REQUIREMENTS.

**SECTION 1**  
SCALE: HOR. 1" = 10'  
VERT. 1" = 10'

**WETLANDS PLANTING SCHEDULE:**

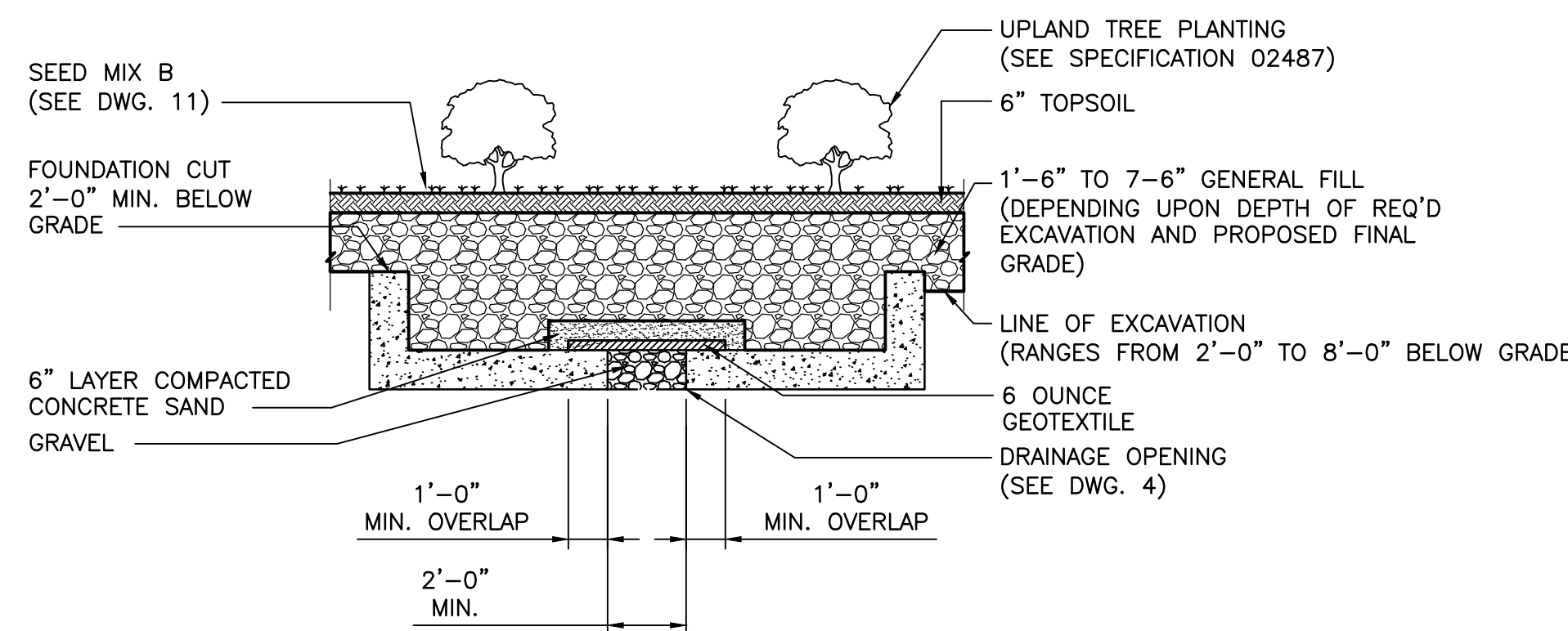
- ZONE D: PLANT ONE SENSITIVE FERN (ONOCLEA SENSIBILIS) AT A DENSITY OF THREE PLANTS PER SQUARE METER. PLANT ONE STAGGERBUSH (LYONIA MARIANA) OR SMOOTH AZALEA (RHODODENDRON ARBORESCENS) AT A DENSITY OF ONE PLANT PER 15 SQUARE METERS. ALSO APPLY SEED MIX TO ZONE D. REFER TO THE DWG 11 AND THE TECHNICAL SPECIFICATIONS FOR WETLANDS SEEDING REQUIREMENTS.
- ZONE C HERBACEOUS LAYER: PLANT EITHER ONE FALSE NETTLE (BOEHMERIA CYLINDRICA) OR ONE SWAMP LOOSESTRIPE (DECODON VERTICILLATUS) PER SQUARE METER. TO EACH SQUARE METER, PLANT UP TO THREE MARSH FERNS (THELYPTERIS PALUSTRIS) AND ONE EACH ARROW ARUM (PELTANDRA VIRGINICA) AND MARSH ST. JOHN'S WORT (HYPERICUM VIRGINICUM). ALSO APPLY SEED MIX TO ZONE C. REFER TO THE DWG 11 AND THE TECHNICAL SPECIFICATIONS FOR WETLANDS SEEDING REQUIREMENTS.  
ZONE C SHRUB LAYER: PLANT ONE BUTTON BUSH (CEPHALANTHUS OCCIDENTALIS) FOR EVERY 10 SQUARE METERS.
- ZONE B: PLANT EIGHT SWAMP SMARTWEED (PERSICARIA HYDROPIPEROIDES) AND FOUR ARROW ARUM (PELTANDRA VIRGINICA) PER SQUARE METER. IN EVERY OTHER SQUARE METER, PLANT ONE SWAMP LOOSESTRIPE (DECODON VERTICILLATUS) OR ONE NODDING BURR MARIGOLD (BIDENS CERNUA). ALSO APPLY SEED MIX TO ZONE B. REFER TO THE DWG 11 AND THE TECHNICAL SPECIFICATIONS FOR WETLANDS SEEDING REQUIREMENTS.
- ZONE A: PLANT ONE SHRUB EVERY FIVE SQUARE METERS (BUTTONBUSH [CEPHALANTHUS OCCIDENTALIS], HAZEL ALDER [ALNUS SERRULATA], SWEET PEPPERBUSH [CLETHRA ALNIFOLIA], Highbush Blueberry [VACCINIUM CORYMBOSUM], OR SILKY DOGWOOD [CORNUS AMOMUM]) INTERSPERSED WITH SWAMP LOOSESTRIPE (DECODON VERTICILLATUS).

**NOTE:**  
CONTRACTOR SHALL ASSUME FOR BIDDING PURPOSES THAT THE ENTIRE LIMITS OF WETLAND ZONES D, C AND B WILL REQUIRE SEEDING. HOWEVER, THE ACTUAL EXTENT OF THESE ZONES THAT WILL REQUIRE SEEDING WILL BE ADJUSTED IN THE FIELD IN CONSULTATION WITH THE DEPARTMENT AND THE ENGINEER AT THE TIME OF WETLANDS RESTORATION. APPLICATION OF SEED TO WETLAND AREAS WITH STANDING WATER AT THE TIME OF RESTORATION WILL NOT BE COMPLETED.



**NOTE:**  
1. FOR LAKE AREA REQUIRING REMOVAL OF 2' OF SEDIMENT, 2' OF WETLAND LAKE BOTTOM FILL WILL BE REQUIRED.

**TYPICAL UPLAND RESTORATION DETAIL FOR AREAS CONTAINING FOUNDATION WALLS OR BASEMENTS TO BE LEFT IN PLACE**  
SCALE: N.T.S.



**100% DESIGN SUBMITTAL**

NO.	DATE	REVISION	INT.

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PROJECT ENGINEER: <b>BMV</b>	DRAWN BY: <b>LVG</b>
DESIGNED BY: <b>MRD</b>	CHECKED BY: <b>AMC</b>

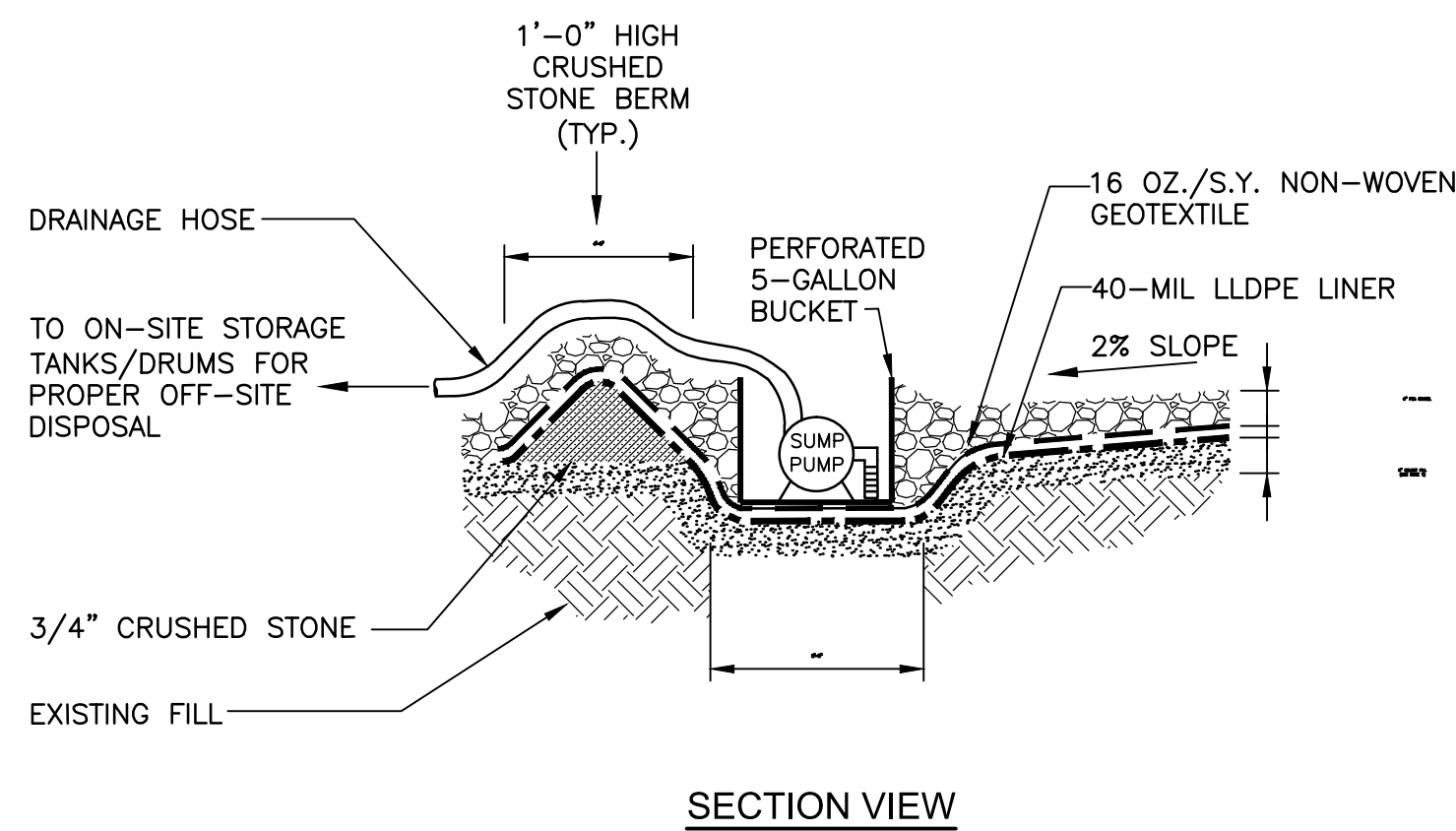


**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
ORANGE COUNTY NEW YORK  
**GLENMERE LAKE PROPERTY**

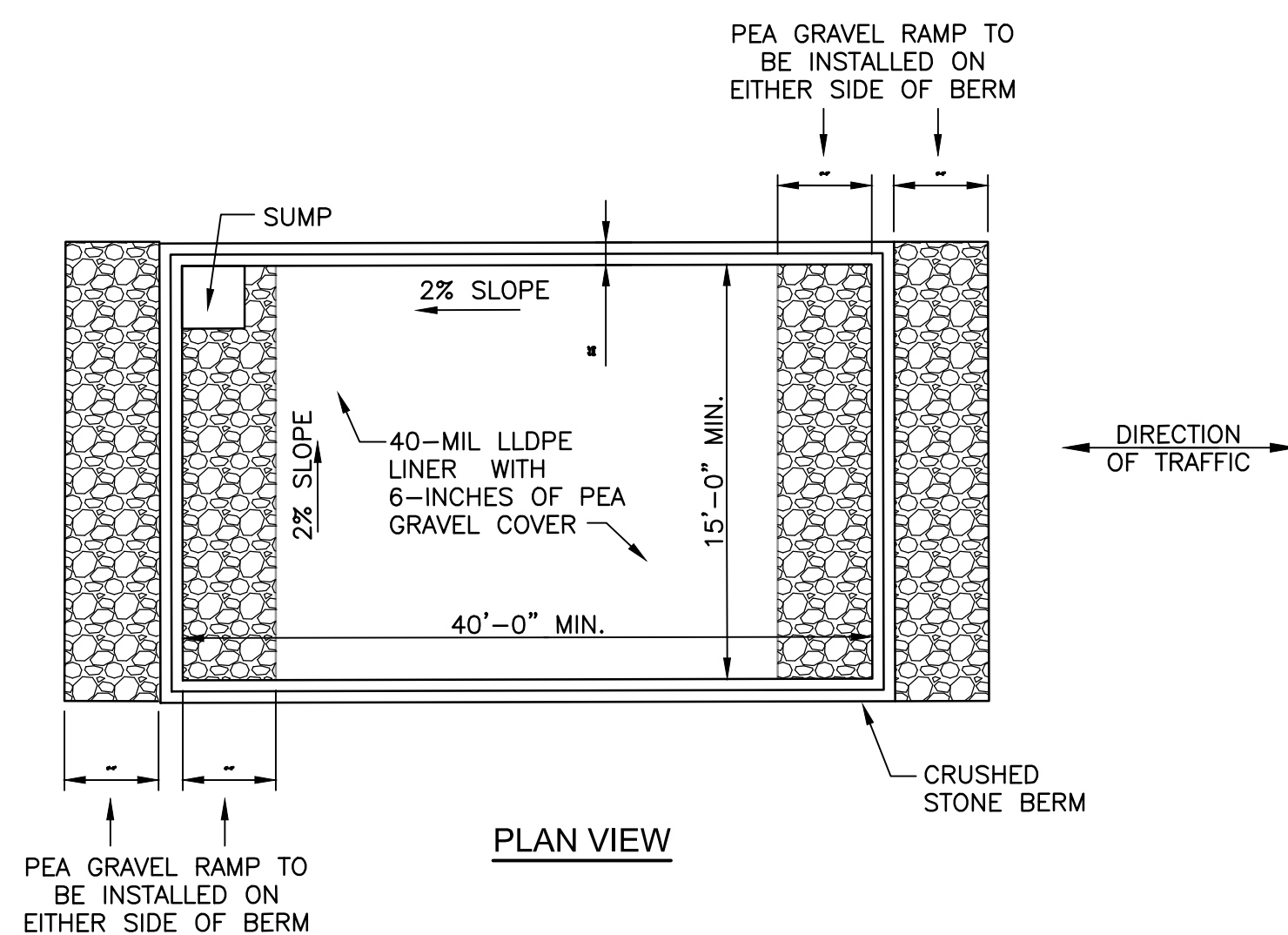
**DETAILS I**

PROJECT NO. <b>3150-05</b>	DRAWING NO. <b>10</b>
DATE <b>MARCH 2014</b>	
SCALE <b>AS NOTED</b>	





SECTION VIEW

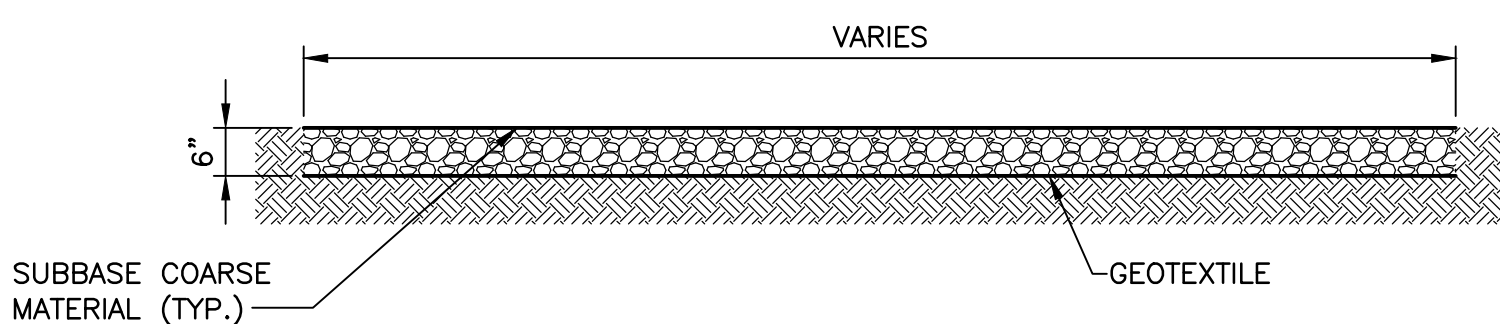


PLAN VIEW

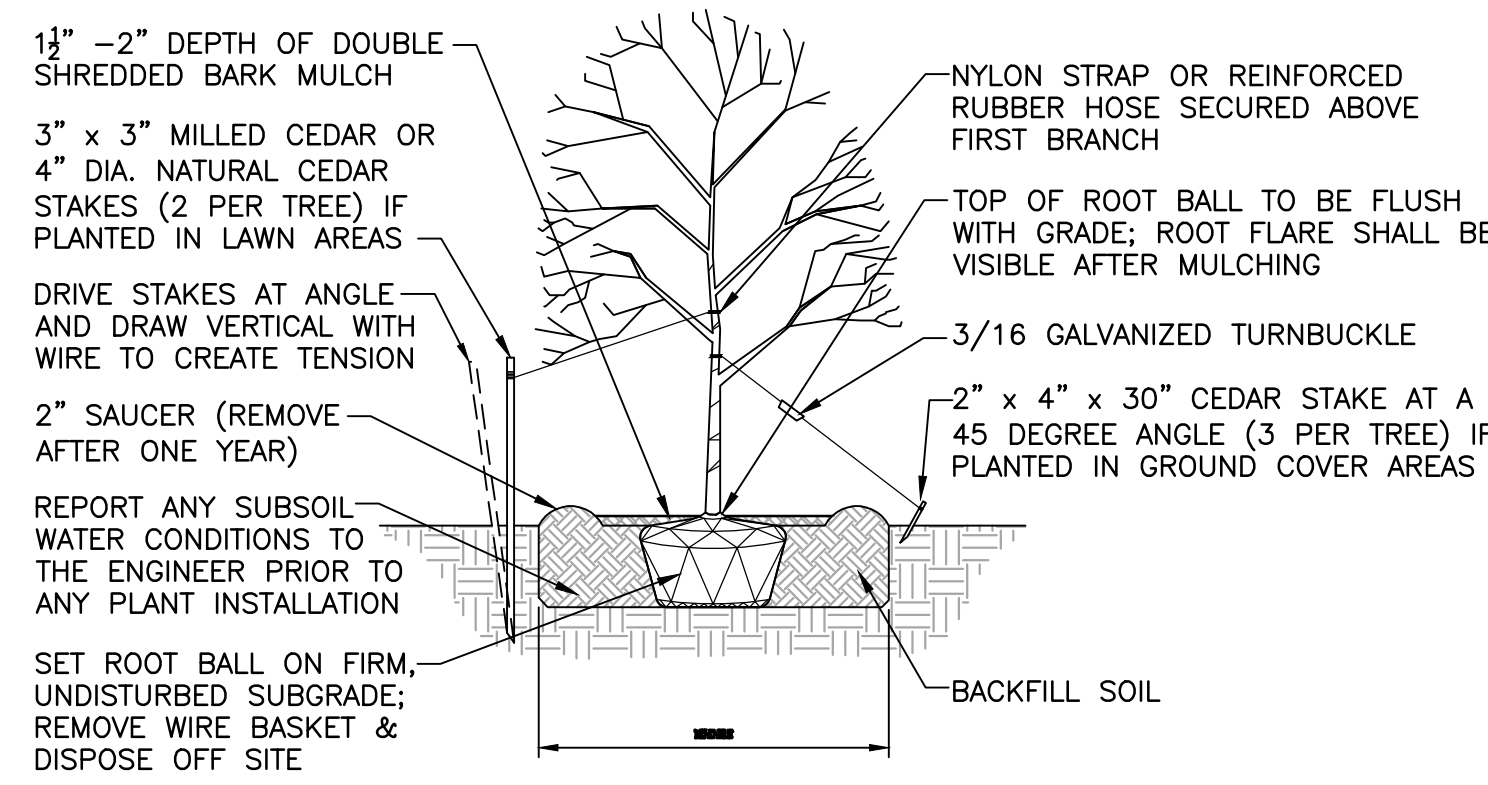
EQUIPMENT DECONTAMINATION AREA DETAIL  
N.T.S.

**NOTES:**

1. SELECT FILL SHALL CONSIST OF CONCRETE SAND CONFORMING TO THE REQUIREMENTS OF SECTION 703-07 OF THE NYS DOT STANDARD SPECIFICATIONS.
2. THE CONTRACTOR SHALL EXCAVATE SOIL TO THE DEPTH SHOWN AS NEEDED TO INSTALL EQUIPMENT DECONTAMINATION AREA AT LOCATION AS SELECTED BY CONTRACTOR AND ACCEPTABLE BY ENGINEER.
3. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, THE MATERIALS USED FOR THE EQUIPMENT DECONTAMINATION AREA SHALL BE REMOVED, TRANSPORTED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.
4. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL RESTORE AREA IN ACCORDANCE WITH THE SITE RESTORATION PLAN TO THE LINES, GRADES AND DIMENSIONS OF THE EXISTING CONDITIONS (AS THEY EXISTED PRIOR TO INSTALLATION OF THE EQUIPMENT DECONTAMINATION AREA).



GRAVEL ACCESS ROAD/PARKING AREAS  
N.T.S.

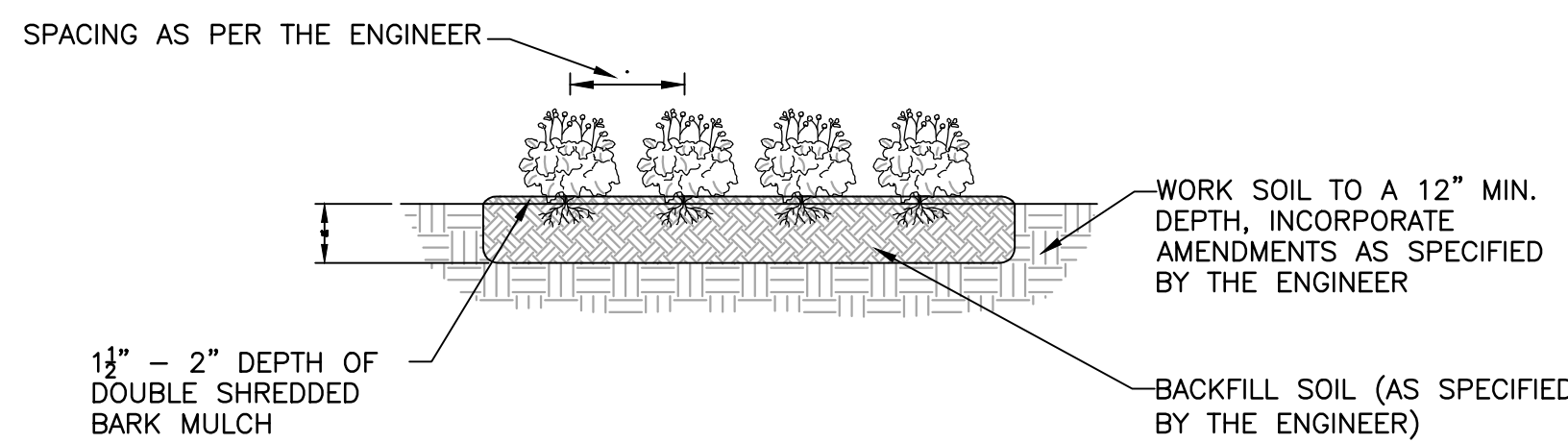


DECIDUOUS TREE PLANTING DETAIL

FOR TREES UP TO 6\"/>

**NOTES:**

1. ALL TREES TO BE WATERED IN THOROUGHLY ON DAY OF INSTALLATION REGARDLESS OF RAINFALL.
2. DO NOT HANDLE TREE BY TRUNK.
3. WOUNDED TREE WILL NOT BE ACCEPTED.
4. ALL NYLON/POLY STRINGS, ROPES, MATERIAL TO BE REMOVED FROM TREE AND DISPOSED OFF-SITE.
5. DO NOT PRUNE TREE UNLESS DIRECTED BY THE ENGINEER.
6. STAKES AND GUYS REQUIRED ONLY IN WINDY EXPOSED CONDITIONS. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN THE TREES WITH OR WITHOUT STAKES.
7. THE CONTRACTOR IS RESPONSIBLE FOR STRAIGHTENING TREE THROUGH THE GUARANTEE PERIOD (VERIFY WITH THE ENGINEER).
8. USE GUY WIRES IN GROUND COVER AREA (REMOVE AFTER ONE YEAR).

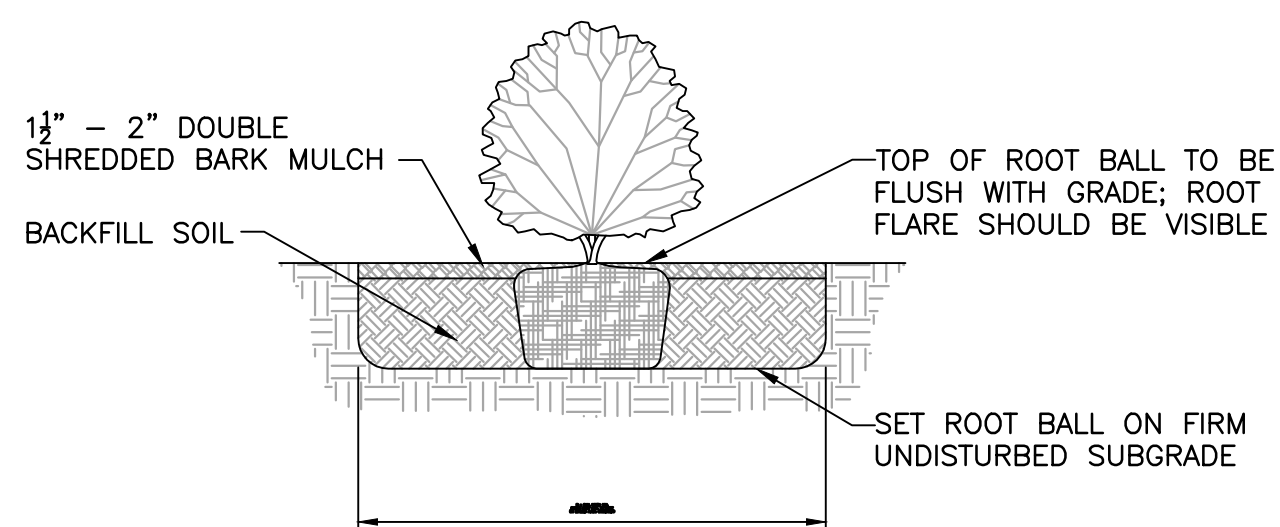


**NOTES:**

1. ALL PLANTS TO BE WATERED IN THOROUGHLY ON DAY OF INSTALLATION REGARDLESS OF RAINFALL.
2. REPORT ANY SUBSOIL WATER CONDITIONS TO THE ENGINEER PRIOR TO INSTALLATION.

GROUND COVER PLANTING DETAIL

N.T.S.



**NOTES:**

1. REPORT ANY SUBSOIL WATER CONDITIONS TO THE ENGINEER PRIOR TO PLANT INSTALLATION.
2. ALL SHRUBS TO BE WATERED IN THOROUGHLY ON DAY OF INSTALLATION REGARDLESS OF RAINFALL.

SHRUB PLANTING DETAIL

N.T.S.

**PLANT NOTES:**

1. ALL PLANT MATERIALS SHALL BE NURSERY GROWN AND CONFORM TO A.A.N. "AMERICAN STANDARDS FOR NURSERY STOCK".
2. THE CONTRACTOR SHALL FAMILIARIZE HIM/HERSELF WITH LOCATION OF MECHANICAL EQUIPMENT AND UTILITIES, EXISTING OR PROPOSED, IN THE AREAS TO BE PLANTED.
3. VERIFY ALL GRADES, DIMENSIONS, AND EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
4. STAKE OUT LOCATION OF NEW PLANTS AND OBTAIN APPROVAL BY THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
5. PLANT MATERIAL SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEER AT THE NURSERY AND AT THE SITE BEFORE PLANTING IS BEGUN.
6. ALL PLANT BEDS AND TREE SAUCERS SHALL RECEIVE 2" OF DOUBLE SHREDDED BARK MULCH IN ACCORDANCE WITH ATTACHED PLANT DETAILS.
7. ALTERNATELY SPACE ("STAGGER") PLANTS IN BEDS UNLESS OTHERWISE NOTED.
8. SCARIFY ROOT BALLS REMOVED FROM CONTAINER GROWN STOCK PRIOR TO PLANTING.
9. NO PLASTIC, NON-ROT BURLAP OR TWINE SHALL BE USED ON THIS JOB. ANY MATERIAL USED TO WRAP ROOT BALLS OF PLANTINGS SHALL BE COMPLETELY REMOVED PRIOR TO PLANTING.
10. EXISTING PLANT MATERIALS SO INDICATED TO REMAIN AND BE PROTECTED WHICH ARE INJURED OR DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AND SHALL BE OF THE SAME SIZE AND VARIETY AS THOSE DESTROYED OR DAMAGED.
11. NO EXISTING TREES ARE TO BE REMOVED UNLESS AS NOTED ON THE DRAWINGS AND APPROVED BY THE ENGINEER AND DEPARTMENT.
12. NO SUBSTITUTIONS TO BE MADE WITHOUT WRITTEN APPROVAL BY THE DEPARTMENT.
13. ALL PLANT PITS TO BE BACKFILLED WITH 2 PARTS TOPSOIL MIXED WITH ONE PART COMPOST. ADD BIOSTIMULANT (PLANT HEALTH CARE INC. - BIO PAK, ROOTSAVER OR EQUAL) AS PER MANUFACTURER'S RECOMMENDATIONS. SUBMIT SOURCE OF COMPOST AND BIOSTIMULANT PRODUCT FOR APPROVAL BY THE ENGINEER.
14. ALL PLANT MATERIAL TO BE GUARANTEED FOR 1 YEAR FROM DATE OF INSTALLATION AND WRITTEN ACCEPTANCE BY THE ENGINEER.
15. IF ANY DISCREPANCY EXISTS BETWEEN PLAN AND PLANT LIST, PLAN SHALL GOVERN.
16. EXISTING TREES NOT INTERFERING WITH NEW CONSTRUCTION AND IN GOOD HEALTH SHALL REMAIN.
17. PROJECT SITE SHALL BE KEPT WEED FREE DURING THE CONTRACT PERIOD.
18. THE CONTRACTOR SHALL MAKE (1) VISIT PER MONTH DURING APRIL - OCTOBER OF THE MAINTENANCE PERIOD TO REMOVE WEEDS, PRUNE DEAD LIMBS & BRANCHES, STRAIGHTEN TREES SHIFTED BY WIND, REPLACE DEAD OR INJURED PLANTS AS REQUIRED, ADD MULCH, AND BED LINE RE-CUTTING AS REQUIRED.
19. THE CONTRACTOR SHALL MANUALLY IRRIGATE ALL PLANTINGS AND SEEDING AREAS EQUIVALENT TO 1.5" OF RAIN PER WEEK THROUGHOUT THE MAINTENANCE PERIOD, REGARDLESS OF RAINFALL.
20. THE CONTRACTOR SHALL PROVIDE FOR 2 DAYS IN THE FIELD OF SUFFICIENT LABOR, EQUIPMENT AND MATERIAL TO TRANSPLANT WETLANDS VEGETATION FROM NEARBY AREAS TO THE WETLANDS RESTORATION AREA AT THE DIRECTION OF THE DEPARTMENT.

**SEEDING NOTES:**

1. APPROVED SEEDING WINDOWS:
  - APRIL 1st - MAY 31st
  - AUGUST 16th - OCTOBER 15th
- THE ACTUAL DATE OF SEEDING SHALL BE COORDINATED WITH THE ENGINEER AND DEPARTMENT TO ACCOUNT FOR CURRENT WEATHER CONDITIONS.
2. AREAS TO BE SEEDING SHALL HAVE A MINIMUM OF 6 INCHES OF TOPSOIL APPLIED PRIOR TO APPLICATION, SEE SPECIFICATION SECTION 02487, PLANTING. THIS SHALL NOT APPLY TO WETLANDS SEEDING. FILL FOR WETLANDS IS SPECIFIED IN SPECIFICATION 02488.
3. TOPSOIL SHALL BE TESTED PER SPECIFICATION SECTION 02487.
4. APPLY A 10-6-4 SLOW RELEASE NITROGEN FERTILIZER CONSISTING OF 50% MIN. ORGANIC NITROGEN AND 50% MIN. WATER INSOLUBLE NITROGEN. REFER TO SPECIFICATION SECTION 02485.
5. ADJUST pH, AS RECOMMENDED BY SOILS TESTING LABORATORY, WITH EITHER PELLETIZED DOLOMITIC LIMESTONE OR FERROUS SULFATE AT LABORATORY RECOMMENDED RATES. THIS SHALL NOT APPLY TO WETLANDS. FILL FOR WETLANDS IS SPECIFIED IN SPECIFICATION 02488
6. SEED BED SHALL BE LOOSENEED TO A DEPTH OF 8 INCHES.
7. ALL SEED BEDS SHALL BE WEED-FREE AND RAKED FREE OF DEBRIS (OVER 1 INCH DIAMETER) AND DISPOSED OF OFF SITE.
8. THE CONTRACTOR SHALL VERIFY ALL FINAL GRADING HAS BEEN COMPLETED PRIOR TO SEEDING.
9. ALL SEED BEDS SHALL BE SEEDING WITHIN 24 HOURS OF PREPARATION.
10. ALL WETLANDS SEEDING SHALL BE APPLIED MANUALLY BY SCATTERING SEEDS OR USING WALK BEHIND EQUIPMENT SUCH AS A ROTARY SPREADER TO AVOID DISTURBANCE OF THE WETLAND RESTORATION AREA, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
11. ALL UPLAND SEEDING SHALL BE APPLIED WITH AN ENGINEERED WOOD FIBER HYDROMULCH (SEE SPECIFICATION SECTION 02485). THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION. THE CONTRACTOR SHALL REVIEW METHOD OF INSTALLATION WITH THE ENGINEER PRIOR TO INSTALLATION.
12. SEED BED SHALL BE IRRIGATED AND MAINTAINED MOIST UNTIL GERMINATION AND ESTABLISHMENT.
13. THE CONTRACTOR SHALL INSTALL RAIN GAUGES (ONE PER SITE) IN AN INCONSPICUOUS AREA TO MONITOR AND ENSURE WEEKLY RAINFALL IS GREATER THAN 1" OF WATER PER WEEK. (THIS SHALL APPLY TO THE UPLAND SEEDING AREAS. WATERING OF THE WETLANDS AREA SHALL FOLLOW THE REQUIREMENTS ABOVE THAT PERTAIN TO PLANTING AREAS.)
14. THE CONTRACTOR SHALL SUPPLEMENT RAINFALL AND WATER ALL SEEDING AREAS AS DICTATED BY RAINFALL CONDITIONS AND NOT ON A TIME SCHEDULE. SHOULD WATERING BE REQUIRED (VERIFIED BY RAIN GAUGE), THE CONTRACTOR SHALL DEEPLY WATER ROOT ZONE OF ALL SEEDING AREAS EQUIVALENT TO THE AMOUNT OF 1" OF WATER PER WEEK. (THIS SHALL APPLY TO THE UPLAND SEEDING AREAS. WATERING OF THE WETLANDS AREA SHALL FOLLOW THE REQUIREMENTS ABOVE THAT PERTAIN TO PLANTING AREAS.)
15. ONCE SEED BEDS HAVE BEEN SEEDING, ALL ACCESS (PEDESTRIAN AND VEHICULAR) SHALL BE RESTRICTED. THE CONTRACTOR SHALL TEMPORARILY CORDON OFF ACCESS WITH FENCING, FLAGGING, RIBBON, ETC.
16. THE CONTRACTOR IS RESPONSIBLE FOR MIN. 95% SEED ESTABLISHMENT AND MAINTENANCE, AND SHALL RE-SEED ANY BARE SPOTS AS REQUIRED TO MAINTAIN SOIL COVERAGE AT NO ADDITIONAL COST TO THE DEPARTMENT.
17. THREE TO FOUR WEEKS AFTER GERMINATION, ALL SEED BEDS SHALL BE RE-TESTED FOR pH AND NUTRIENTS. THE CONTRACTOR SHALL FERTILIZE AND ADJUST pH (UPLAND AREAS ONLY) AS PER SOILS TESTING LABORATORY RECOMMENDATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.

**SEED MIX A: WETLAND SEED MIX ZONE D**

SEED MIX (ERNMX-183)  
AS PRODUCED BY: ERNST CONSERVATION SEEDS  
9006 MERCER PIKE  
MEADVILLE, PA 16335  
1-800-873-3321  
OR APPROVED EQUAL

RATE: 45 POUNDS PER ACRE OR 1 POUND PER 1,000 SQ.FT.

- 25 % ELYMUS VIRGINICUS (VIRGINIA WILD RYE)
- 25 % PANICUM (DICHANTHELIUM) CLANDESTINUM 'TIOGA' (DEER TONGUE)
- 20 % CAREX VULPINOIDEA (FOX SEDGE)
- 15 % AGROSTIS PERENNANS (AUTUMN BENTGRASS)
- 15 % AGROSTIS SCABRA (TICKLEGRASS OR ROUGH BENTGRASS)

**SEED MIX B: LOW MAINTENANCE TURF MIX UPLAND AREAS**

"ECO-LAWN" SEED MIX  
AS PRODUCED BY: WILDFLOWER FARM INC.  
10195 HWY. 12 WEST  
R.R. # 2 COLDWATER, ON LOK 1E0  
1-866-476-9453  
OR APPROVED EQUAL

RATE: 220 POUNDS PER ACRE OR 5 POUNDS PER 1,000 SQ.FT.

- 20 % FESTUCA RUBRA SSP. RUBRA 'NAVIGATOR' (NAVIGATOR CREEPING RED FESCUE)
- 20 % FESTUCA RUBRA SSP. RUBRA 'SHORELINE' (SHORELINE SLENDER CREEPING RED FESCUE)
- 15 % FESTUCA RUBRA SSP. COMMUTATA 'LONGFELLOW II' (LONGFELLOW II CHEWINGS FESCUE)
- 15 % FESTUCA OVINA VAR. OVINA 'AZAY' (AZAY SHEEP FESCUE)
- 10 % FESTUCA BREVIPIILA 'CHARIOT' (CHARIOT HARD FESCUE)
- 10 % FESTUCA BREVIPIILA 'BEACON' (BEACON HARD FESCUE)
- 10 % FESTUCA RUBRA SSP. RUBRA 'SR5250' (SR5250 CREEPING RED FESCUE)

**SEED MIX C: WETLAND SEED MIX ZONES B AND C**

NORTHEAST WETLAND GRASS/FORB MIX  
(STCMX-9) SEED MIX  
AS PRODUCED BY: SOUTHERN TIER CONSULTING INC.  
2701-A ROUTE 305  
P.O. BOX 30  
WEST CLARKSVILLE, NY 14786  
1-888-968-3120  
OR APPROVED EQUAL

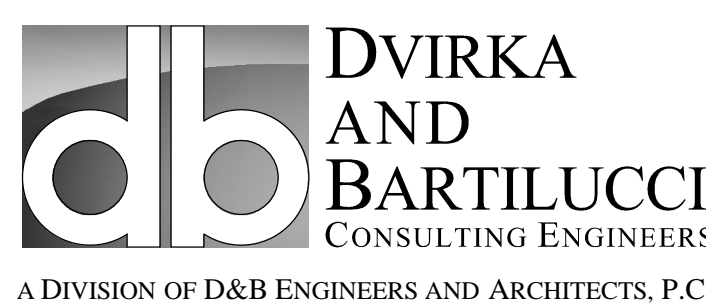
RATE: 6 POUNDS PER ACRE OR 1 POUND PER 7,300 SQ.FT.

- 37.3 % GLYCERIA CANADENSIS (CANADA MANNAGRASS)
- 29.3 % GLYCERIA GRANDIS (REED MEADOWGRASS)
- 7.5 % CALAMAGROSTIS CANADENSIS (BLUE JOINT)
- 7.3 % PANICUM DICHOTOMIFLORUM (SMOOTH PANIC-GRASS)
- 4.9 % LEERSIA ORYZOIDES (RICE CUT GRASS)
- 3.9 % ECHINOCHLOA CRUSGALLI (JAPANESE MILLET)
- 3.0 % VERBENA HASTATA (BLUE VERVAIN)
- 1.7 % ELYMUS CANADENSIS (CANADA WILD RYE)
- 1.5 % ALISMA PLANTAGO-AQUATICA (WATER PLANTAIN)
- 0.9 % POLYGONUM PENNSYLVANICUM (PENNSYLVANIA SMARTWEED)
- 0.8 % BIDENS CERNUA (NODDING BUR-MARIGOLD)
- 0.7 % CICUTA MACULATA (SPOTTED WATER HEMLOCK)
- 0.7 % CINNA ARUNDINACEA (STOUT WOOD-REEDGRASS)
- 0.3 % BIDENS FRONDOSA (BEGGAR-TICKS)
- 0.2 % RUMEX VERTICILLATUS (SWAMP DOCK)

**100% DESIGN SUBMITTAL**

NO.	DATE	REVISION	INT.

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DESIGNED BY: <b>MRD</b>	CHECKED BY: <b>AMC</b>



<b>NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION</b>	
ORANGE COUNTY	NEW YORK
<b>GLENMERE LAKE PROPERTY</b>	

<b>DETAILS II</b>	
PROJECT NO. <b>3150-05</b>	DRAWING NO. <b>11</b>
DATE <b>MARCH 2014</b>	SCALE <b>AS NOTED</b>

**ATTACHMENT 2**

**BID SHEET**

***Bid***

***New York State Department of Environmental Conservation***

***Glenmere Lake Property; Project Number: \_\_\_\_\_, NYS Site Number: 336071***

**UNIT PRICE ITEMS**

<b><i>Payment Item Number</i></b>	<b><i>Description</i></b>	<b><i>Unit</i></b>	<b><i>Estimated Quantity</i></b>	<b><i>Unit or Lump Sum Price</i></b>		<b><i>Total Amount (\$)</i></b>
				<b><i>Words</i></b>	<b><i>Figures</i></b>	
UP-1	Site Services	Days	125			
UP-2	Health and Safety Services	Days	125			
UP-3	Clearing and Grubbing	Acres	1.76			
UP-4	Gravel Access Road and Parking Area Construction	SY	1,392			
UP-5	Excavation of Contaminated Wetlands Soil	CY	165			
UP-6	Excavation of Contaminated Lake Sediments	CY	160			
UP-7	Excavation of Contaminated Upland Soil	CY	2,150			
UP-8	Excavation Confirmation Sampling and Analysis	Each Sample	130			
UP-9	Backfill Upland Excavated Areas	CY	1,250			
UP-10	Backfill Excavated Wetland and Lake Bottom Areas	CY	325			
UP-11	Transportation and Off-Site Disposal of Nonhazardous Metals-Contaminated Waste	Tons	4,241			
UP-12	Site Restoration – Upland Areas	Acres	1.4			
UP-13	Upland Planting (Trees)	Each	136			
UP-14	Transplanting Wetlands Plants	Day	2			

*New York State Department of Environmental Conservation*

*Glenmere Lake Property; Project Number: \_\_\_\_\_, NYS Site Number: 336071*

**LUMP SUM ITEMS**

<i>Payment Item Number</i>	<i>Description</i>	<i>Unit</i>	<i>Estimated Quantity</i>	<i>Unit or Lump Sum Price</i>		<i>Total Amount (\$)</i>
				<i>Words</i>	<i>Figures</i>	
LS-1	Submittals, Mobilization, Site Preparation and Demobilization	LS	1			
LS-2	Demolition and Removals	LS	1			
LS-3	Wetlands Planting and Seeding	LS	1			
<p><b>Grand Total Bid:</b>    \$ _____  <i>(Price in figures)</i></p>						

*New York State Department of Environmental Conservation*

*Glenmere Lake Property; Project Number: \_\_\_\_\_, NYS Site Number: 336071*

<i>Item No.</i>	<i>Item Description</i>	<i>Unit</i>	<i>Estimated Quantity</i>	<i>Unit or Lump Sum Price</i>		<i>Total Amount (\$)</i>
				<i>Words</i>	<i>Figures</i>	
	Pollution Liability Insurance	LS	1			
	<p><u>This item is not to be calculated in the base Bid for the project.</u> <b>Contractor</b> is referred to Article 4 of the General Conditions in the Contract Documents. The limits for Pollution Liability Insurance will be the same as defined in Article 4 of the General Conditions. After opening of bids, <b>Department</b> will determine if it is in <b>Department's</b> best interest to have <b>Contractor</b> obtain an additional \$4,000,000 Pollution Liability Insurance on a site specific basis, and if so, <b>Contractor</b> will be paid separately at the actual documented cost to obtain this additional insurance. The Bidder is required to fill in the above price if it can obtain site-specific Pollution Liability Insurance. This Bid amount will be the upper limit for payment of this item. The <b>Department</b> is to be listed on the Bidder's Company Policy as an additional insured at no additional cost to the <b>Department</b>.</p>					
	_____		_____		_____	
	<b>Contractor Authorized Representative</b>		<b>Contractor Name</b>		<b>Date</b>	



**ATTACHMENT 3**

**SUPPLEMENTARY CONDITIONS**

## SECTION IX

### SUPPLEMENTARY CONDITIONS NYSDEC CONTRACT NO. \_\_\_\_\_

#### SC 1.0 – PROTECTION OF ON-SITE UTILITIES

- A. The Contractor's attention is directed to the existing utilities running throughout the work. The Contractor is required to take any and all precautions necessary to locate, support and protect these utilities during construction. All costs associated with protecting, supporting, locating, digging test pits, etc., of all utilities or process pipelines shall be included in the prices bid for all work.
- B. The locations of all utilities shown on the contract drawings are based on available in-house information furnished by the Owner and utility companies and public agencies with lines and property in the vicinity of the proposed work areas and are not guaranteed to be complete or accurate. The contractor shall obtain utility markouts on all public and private properties in accordance with all local and state requirements where work under this contract is to be performed. Prior to any excavation or construction, the contractor shall notify the Owner, all utility companies and applicable agencies and request a markout of their lines and properties in the field in the area of the proposed work. In addition, on the project site (outside of public right-of-way), the contractor shall provide the services of an independent utility markout service subcontractor qualified to locate and mark out all utilities in the vicinity of the work using the appropriate equipment and methods available prior to construction. The subcontractor shall survey (location/elevation) and prepare a utilities location as-built drawing for use by the contractor in performance of the work under this contract.
- C. Prior to any excavation, in addition to utility location and markouts performed by the contractor, local and state required services and the independent markout service subcontractor, the contractor shall accurately locate existing utilities by probing test holes and excavating test pits where existing underground utilities are known to exist in the vicinity of the new work and at maximum intervals of 25 feet along the route or within the area of the proposed work. The contractor shall survey (location/elevation) and prepare an as-built drawing of all underground utilities encountered while constructing test pits and/or test hole probes for use in performance of the work under this contract. The contractor shall backfill/restore the holes and pits, and mark out the existing utilities and take extreme caution against damaging the utilities during excavation or sheeting installation.
- D. Work shall include, in addition to constructing test probes/pits, excavating and backfill, temporary sheeting, compacting and site restoration.

- E. Schedules for maintenance of utility markouts on public and private property shall be consistent with New York State law throughout the duration of the Contract.
- F. During construction/excavation, the contractor shall locate each utility by hand digging methods prior to the use of mechanical excavation equipment. During construction/excavation, if the contractor encounters evidence of suspected unmarked utilities, such as magnetic tape or other underground markers, the contractor shall promptly determine the location of the suspected utility, if any, before proceeding with the work. The contractor shall cooperate with the Owner and the utility companies involved to avoid delay or interference of service normally performed by their lines and properties.
- G. The Contractor shall take extreme caution against damaging utilities when excavating, sheeting and backfilling, during construction of test probes and test pits and while performing the work required under this Contract.
- H. The contractor shall be responsible for all costs associated with pre-project construction utility survey(s)/markout(s), the construction of the test holes and test pit work, and utility as-builts for this project, as well as protection and hand digging operations to verify location of all utilities during construction.

## **SC 2.0 – PRECONSTRUCTION PHOTOGRAPHS**

- A. The Contractor shall employ an experienced photographer to take preconstruction and progress photographs during the duration of the Work.
- B. Seventy-five (75) preconstruction photographs shall be made of the work as directed by the Engineer to show the general extent before the work begins. Thereafter, an additional twenty-five (25) photographs shall be taken as directed by the Engineer to show the progress of the work each month. All photographs shall be color, 8 x 10 inches in size and two (2) prints of each negative shall be delivered to the Engineer. A rubber stamp impression showing an outline plan of the project shall appear on the reverse side of each print with an arrow showing direction and approximate location of the photograph. Prints shall be dated and numbered consecutively on the reverse side and indicate project name/number and photo description.

**ATTACHMENT 4**

**STANDARD SPECIFICATIONS**

## SECTION X

### *STANDARD SPECIFICATIONS*

#### **DIVISION 1**

00001	PROGRESS SCHEDULE
00002	CONCRETE
00003	MINIMUM REQUIREMENTS FOR HEALTH AND SAFETY
00004	SURVEY
00005	PROJECT COORDINATION
00006	FIELD OFFICES
00007	PROJECT IDENTIFICATION AND SIGN
00008	PROJECT RECORD DOCUMENTS
00009	TRAFFIC CONTROL
00010	TEMPORARY FACILITIES AND CONTROLS
00011	SITE SECURITY
00013	SAMPLING
00014	MINIMUM REQUIREMENTS FOR WORK PLAN
00015	OFF-SITE TRANSPORTATION AND DISPOSAL
00016	QUALITY CONTROL
00018	ABBREVIATIONS
00019	CLEARING AND GRUBBING
00021	SUBMITTALS
00022	DEWATERING
00023	ACCESS ROAD
00024	SHOP DRAWING PROCEDURES
00025	SCHEDULE OF VALUES AND BID BREAKDOWN



# ***SECTION X - Standard Specifications***

## **SPEC 00001 *Progress Schedule***

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## SECTION X

### *Standard Specifications*

SPEC 00001

#### *Progress Schedule*

1) *Terms and Definitions*

The terms listed below (or pronouns in place of them) have the following intent and meanings which are applicable to both the singular and plural thereof.

- a) **Activity** - A part of the Work identified in the Progress Schedule, assigned a description, duration, certain codes, and other related Shop Drawing data, and Cost and Pricing data, and evaluated to start and finish in accordance with Early and Late Schedules.
- b) **Activity, Critical** - An Activity is considered to be Critical when it is evaluated to have the minimum value of Total Float Time available in the Progress Schedule.
- c) **Activity, Value** - That portion of the contract Price which represents a fair value for the part of the Work identified by that Activity.
- d) **As-Built Schedule** - Term used to denote record schedule drawings and data substantiating how the Work was performed as to timing, sequencing and rate of progress.
- e) **Bar Chart Diagram** - A graphical representation of how the Work is to be performed as shown by timing each activity between a single choice of anticipated start and finish dates.
- f) **Critical Path** - The sequence of Critical Activities from the Date for Commencement of the Contract Time, or Contract Times, to Substantial Completion of the Work, or part thereof.
- g) **Critical Path Method Diagram** - A graphical representation of how the Work is to be performed as represented by the sequencing and timing of the Activities. A CPM Diagram shall either follow an "arrow" (I-J) format, wherein the start of an Activity is dependent upon the finish of preceding Activities, or a "precedence" format, wherein either the start or finish of an Activity is dependent upon either the start or finish of preceding Activities.
- h) **Dummy restraints** - Activities not identifying a part of the Work, and used to preserve proper logic sequencing, avoid duplicate Activity numbering, to enforce Work Sequences indicated in or required by the Contract Documents, or to achieve other preferential sequencing chosen by **Contractor**.

- I) **Duration (Activity)** - Estimated or required time of performance for the part of the Work represented by that Activity.
  - j) **Free Float** - Working days by which an Activity may be delayed from its Early Schedule, without delaying any other Activities from their Early Schedules.
  - k) **Contract Float** - Working days between the date(s) for Substantial Completion shown for the Work, or part thereof, in **Contractor's** anticipated Early Schedule, and the corresponding Contract Time or Contract Times.
  - l) **Total Float** - Working days between the Early Schedule and the Late Schedule for an Activity by which that Activity may be delayed without necessarily extending the Contract time, or Contract Times.
  - m) **Early Schedule (Late Schedule)** - The proposed Early Dates (Late Dates) of performance for the parts of the Work represented by the Activities. The Early dates are predicated on proceeding with the Work, or part thereof, exactly on the date when the Contract Time, or applicable Contract Time, commences to run; and the Late dates are based on achieving Substantial Completion of the Work, or part thereof, exactly on the Contract Time, or applicable Contract Times.
  - n) **Percent Complete** - That portion of an Activity which when multiplied by the Activity Value will yield a fair proportion of the Contract Price for that part of the Work completed.
  - o) **Preferential Logic - Contractor's** approach to sequencing of the Work over and above those sequences indicated in or required by the Contract Documents. Examples include equipment restraints, crew movements, form reuse, special logic (lead/lag) restraints, etc. factored into the Progress Schedule instead of disclosing the associated Float Times.
- 2) **Requirements Included**
- a) Pursuant to the requirements of the Contract Documents, **Contractor** shall prepare and submit, finalize, and periodically adjust the Progress Schedule as required herein.
  - b) This Section of the Specifications requires **Contractor** to plan, manage, schedule and execute the Work in accordance with a Progress Schedule meeting the requirements of the Contract Documents; that **Contractor's** Progress Schedule stay current with **Contractor's** approach to performing Work remaining; that the Progress Schedule, when approved, be jointly used by **Owner, Engineer and Contractor** to substantiate or mitigate the impact of delays and Change Orders; and that **Contractor** prepare record schedule drawings and data showing how the Work is being performed as to sequencing, timing, and rate of progress.
- 3) **Bar Chart Description**
- a) A Bar Chart Diagram does not show express logic ties, nor does it compute Early or Late Dates as defined above. Although a Bar Chart Diagram may show Contract Float time, it does not disclose Activity Total Float values.

- b) Total Float and Contract Float are not for the exclusive benefit of **Owner, Engineer, Contractor**, or others, but is time available to all parties as needed for the Contract as a whole. Such Float times shall be shared between **Owner, Engineer, Contractor** and others to absorb delays which could not be mitigated by any other reasonable means.
- c) Activity representative quantities, Activity Value, Activity Percent Complete data, Activity Value of Work performed, and the applicable Value of significant subcomponents. The sum of all Activity Values shall equal the corresponding Contract Price for the Work. The sum of all Activity Values for Work performed divided by the Contract Price shall equal the Percent Complete for the Work.

4) ***Critical Path Method (CPM) Description***

- a) The Progress Schedule shall be based on the Critical Path Method (CPM) of planning and scheduling, and prepared, finalized, and revised in accordance with the principles, definitions and terms described hereafter and those standards of the industry for CPM scheduling which are not in conflict with this Specification.
- b) CPM Diagrams shall show in detail the priority, sequencing and interdependence of Activities, and the sequence in which the Work is to be accomplished to: a) to comply with the Contract Time(s), named allowances, and those sequences of Work indicated in or required by the Contract Documents; b) to anticipate foreseeable events that may in any manner affect cost, progress, schedule, performance, and furnishing of the Work; and c) to reflect the means, methods, techniques, sequences, and procedures of construction anticipated by **Contractor**, subject to the limitations on Float sequestering set forth by this Specification.
- c) Total Float and contract Float are not for the exclusive benefit of **Owner, Engineer, Contractor, OR OTHERS**, but is time available to all parties as needed for the Contract as a whole. Such Float Times shall be shared between **Owner, Engineer, Contractor** and others to absorb delays which could not be mitigated by any other reasonable means. Use of Float Time shown in the approved progress Schedule for interim milestones or Contract Times will be available to **Owner**, if required to effect proper interfacing between work performed.
- d) Use of float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended Activity times, imposed Activity dates, scheduling items of Work required for Final Completion as though they were prerequisites to Substantial Completion, and others, and 2) use of Float time disclosed or implied by the use of alternate Float suppression techniques will be allowed, provided: a) that **Contractor** not engage in Float manipulations which have the net effect of "sequestering" Float, that is to reduce unilaterally otherwise available Float Time by more than 50 percent; and b) that **Contractor** agrees that in order to mitigate the impact of delays to the Work, or parts thereof, adjustment or removal of such Float suppression techniques will be a prerequisite to consideration of any requests for compensation for delay or acceleration or for extensions in Contract Time.
- e) The finalized Schedule of Values will be acceptable to **Engineer** as to form and substance, and will serve as the basis for progress payments.

- f) The finalized Schedule of Shop Drawing submissions will be acceptable to **Engineer** as providing a workable arrangement for processing the submissions.
- 5) ***Progress Schedule Submittals for CPM Schedules***
- a) All CPM Diagrams, Schedule of Values, Schedule of Shop Drawing submissions, associated computer reports, and narratives submitted by **Contractor** shall be consistent with the requirements of this Specification.
- b) The "Preliminary" submittal set shall consist of:
- 1) A CPM Diagram and associated Schedule of Values and a supporting narrative.
  - 2) A User Manual for the scheduling software to be used by **Contractor** for the purposes of computation of the Progress Schedule.
- c) The "Interim" submittals shall consists of the interim CPM Diagram and associated Schedule of Values and Schedule of Shop Drawings submissions and a supporting narrative.
- d) The "Detailed" submittal set shall consist of:
- 1) The Detailed CPM Diagram, and the reports associated with the Schedule of Values, and Schedule of Shop Drawing submissions, and a supporting narrative.
  - 2) The five associated Activity reports described in paragraph 18.A sorted by each of the first four sequencing criteria described in paragraph 18.D.
- e) "Status" submittal sets shall consist of "mark-up" versions of the current Detailed CPM Diagram, Schedule of Values, and Schedule of Shop Drawings, together with a supporting narrative.
- f) "Update" submittal sets shall consist of revised Detailed CPM Diagrams, Schedule of Values and Schedule of Shop Drawings, the six associated computer reports, a detailed **Contractor's** Cost report, and a supporting narrative.
- g) The "Contract Completion" submittal set shall consist of the Detailed Contract Completion Schedule, and associated computer reports.
- h) The "As-Built" submittal set shall consist of the As-Built CPM Diagram, and a "Schedule Reconciliation" report.
- 6) ***Quality Assurance of Progress Schedule***
- a) **Engineer** will review and if acceptable, approve the Progress Schedule.
- b) In preparing a version of the Progress Schedule, pursuant to paragraph 1.6 of the General Conditions and Supplementary Conditions, it is the responsibility of **Contractor** 1) to inspect the preaward "Preliminary Progress Schedule" submitted in compliance with Article 11 of Section III of the Contract Documents, 2) to verify site conditions that may in any manner affect cost, scheduling, progress, performance and furnishing of the Work,

3) to work with each major Subcontractor, Supplier, or other relevant person or organization to obtain information on Activities, sequencing, and Activity Durations for incorporation into the Progress Schedule, and 4) to request and obtain written interpretations from **Engineer** as needed.

c) The Detailed Progress Schedule shall break down the Work into Activities in sufficient detail to identify clearly all individual parts of the Work and those factors which may in any manner affect the cost, schedule, progress, performance, and furnishing of the Work. At a minimum, the break down of the Work in the detailed Progress Schedule submittal for CPM schedules only, shall delineate the following:

- 1) Those Activities designating the date for commencement of the Contract Time, or Contract Times; those Activities leading to Substantial Completion of the Work, or parts thereof; and those Activities identifying parts of the Work to be performed or furnished leading from Substantial Completion to Final Completion.
- 2) All special Work sequences, schedule milestones, intermediate Contract Times, and named allowances set forth in the Contract Documents.
- 3) Items pertaining to securing prerequisite permits and approvals from those agencies with jurisdiction over Work to be performed under the Contract.
- 4) All items of Work involved in the preparation, submittal, review and approval of Shop Drawings and samples required by the Specifications.
- 5) Appropriate times required for the fabrication, delivery, receipt and inspection, and storage of items of materials and equipment.
- 6) Work associated with installation, erection and other field construction activities.
- 7) Items of Work required to work around existing physical conditions and Underground Facilities which are at or contiguous to the site including the time for permanent or temporary relocation of such existing physical conditions and/or underground facilities.
- 8) Items of interface which relate to the responsibilities of **Owner**, **Engineer** or other contractors performing work under separate contracts with **Owner**.
- 9) Work required to implement cut-offs or closures, power shutdowns or temporary or permanent take-down or interruptions to existing facilities or affecting the operations of **Owner**, utilities or similarly involved third-parties. Specific dates when such cut-offs, etc. are to take place shall be shown as milestone dates on the appropriate Activities.
- 10) All items of Work related to shop and field testing, associated trimout activities and specified manufacturer or supplier training required prior to placing the facilities in service, including but not limited to manufacturer or supplier installation checks; leak, disinfection and pressure tests; removal or erection of temporary components; tie-ins; flushing and chemical/mechanical cleaning operations; specified performance tests; and other necessary non-operating tasks

adjustments, cold-alignment checks, corrections, housekeeping and spare parts stocking required of **Contractor** to conform to the Pre-operational testing requirements of the Contract Documents.

- 11) All items of Work associated with the performance of the Start-Up Testing requirements of the Contract Documents, including, but not limited to, trial operation tests and operator training, performance tests under simulated and design operating conditions, emission testing, final acceptance or guarantee tests.
  - 12) Work related to the tentative list of items to be completed or corrected before and subsequent to Pre-operational, Startup Testing and Final Testing.
- d) The following limitations shall also apply to the selection and scoping of Activities for CPM schedules only:
- 1) Activity Durations shall be in working days and represent **Contractor's** best estimate of the time required for completion based on the Work included and the resources planned for that Activity. The computation of the Activity dates shall be based on a calendar recognizing the applicable holidays and the limitations on Work during hours other than the normal working hours set forth in the General Conditions and the Supplementary Conditions.
  - 2) Unless otherwise provided in the Special Progress Schedule Requirements, all Activities, except those identifying Work related to Shop Drawings and deliveries, shall span twenty working days or less, and their Values shall not exceed \$45,000. Duration requirements for Activities identifying Work related to **Engineer's** review of Shop Drawing or sample submissions are prescribed in the Special progress Schedule Requirements.
  - 3) Installation Activities shall not combine Work located in separate structures, buildings or facilities, nor Work corresponding to different Divisions of the Specifications. Submittal and associated delivery Activities shall identify each submittal required by the Sections of the specifications. Activities identifying Work in connection with Pre-Operational or Start-up Testing shall not combine Work pertaining to the different Division within the specifications.
  - 4) Reference is made to Article 1.11 of this specification for the identification of allowances and their incorporation into the Progress Schedule.
  - 5) Items that qualify as (a) on-site stored materials, fixtures and equipment and (b) undelivered equipment, shall be separately identified on the Progress Schedule.

7) ***References for CPM Schedules***

- a) The text "Precedence and Arrow Networking Techniques for Construction," by R.B. Harris (Wiley, 1978), provides principles, definitions and terms common to CPM arrow and precedence diagrams, and schedule computations therefrom.
- b) The provisions of this Section are binding on **Contractor** in the event of a conflict between the Standard Specifications and this Specification.

8) ***Review of Progress Schedule Submittals***

- a) **Engineer's and Owner's** review of **Contractor's** Progress Schedule submittals will be only for conformance with the Contract Time(s), those sequences of Work indicated in or required by the Contract Documents, the Float sharing concepts established in the Contract Documents, and for compliance with the requirements of this Specification and the information given in the Contract Documents. **Engineer's and Owner's** review, comments and exceptions taken, if any, shall not extend to, nor constitute directions nor approval of, the means, methods, techniques, sequences, or procedures of construction or safety precautions, the correctness of which shall be the sole responsibility of **Contractor**.
- b) **Engineer's and Owner's** review of progress schedule submittals will be predicated on a **Contractor's** stamp of approval signed off by **Contractor**. **Contractor's** stamp of approval on Progress Schedule submittals shall constitute a representation to **Owner** that **Contractor** has either determined or verified all data on the Progress Schedule submittal, or assumes full responsibility for doing so, and that **Contractor** and his Subcontractors, Suppliers or other persons or organizations have reviewed and coordinated the sequences shown in the Progress Schedule with the requirements of the Work under the Contract Documents.
- c) **Engineer's and Owner's** review will not be intended to be for the purpose of determining the accuracy of other matters that may be contained in the submittals. When the review of a Progress Schedule results in a number of comments or exceptions taken, **Engineer and Owner** does not warrant that these comments are inclusive of all variations, as it shall remain the responsibility of **Contractor** to meet the requirements of the contract documents and to identify expressly any proposed variations.
- d) **Engineer's and Owner's** review of progress schedule submittals shall not relieve **contractor** from responsibility for any variations from the requirements of the Contract Documents unless **Contractor** has in writing, by means of a specific notice, called **Engineer's** attention to each variation, and **Engineer** has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Progress Schedule submittal.
- e) **Engineer's** approval of Progress Schedule submittals will not relieve **Contractor** from responsibility for errors and omissions in the submittals or from responsibility for having complied with the provisions of General Conditions and Supplementary Conditions. Approval of a Progress Schedule with undisclosed variations or errors such as omitted Work or erroneous sequences will not relieve **Contractor** from completing the omitted or impacted Work within the applicable Contract Time(s).
- f) Progress Schedules that include Activities with negative Float Times, or Activities scheduled beyond the applicable Contract Time(s), will not be approved until a specific Change Order or Proposed Change Order authorizing appropriate changes to the impacted Contract Time(s) is agreed upon between **Owner and Contractor**.
- g) When reviewed by **Engineer and Owner**, each progress schedule submittal will be returned stamped as either "approved," "approved as noted," "resubmit with revisions," or "disapproved." Submittals stamped as "approved" or "approved as noted" will indicate approval thereof, subject to the limitations set forth, and will be considered to



represent the approved progress schedule as of the date in the approval stamp until an updated progress schedule is submitted by **Contractor** and approved by **Owner** and **Engineer**.

- h) If **Contractor** believes that **Engineer's** approval of a progress schedule justifies an increase or decrease in contract price or an extension or shortening in contract time, **Contractor** shall be required to deliver a proposed change order thereof to **Engineer** in accordance with the provisions of article 9 of the general conditions. If **Owner** and **Contractor** are unable to agree as to amount and extent thereof, a claim maybe made pursuant to Articles 10 and 11 of the General Conditions.
- I) Costs associated with **Engineer's** and **Owner's** review and return of a progress schedule submission after the **Engineer's** second time review shall be borne by **Contractor**. **Owner's** charges to **Contractor** for additional reviews will be equal to **Engineer's** charges to **Owner** under the terms of **Engineer's** agreement with **Owner**. In the event **Contractor** fails to pay such costs within 30 days after receipt of an invoice from **Owner**, a change order or proposed change order will be issued incorporating the unpaid amount, and **Owner** will be entitled to an appropriate decrease in Contract Price.
- j) No partial submittals will be reviewed. Submittals not complete will be returned to **Contractor** for resubmittal.

9) ***Delays and Recovery***

- a) Reference is made to the General Conditions and the Supplementary Conditions for Contract requirements related to delays, conditions warranting extensions in Contract Time(s), and conditions applicable to reimbursement for delay costs.
- b) Whenever **Contractor** fails to complete an activity within its late date on the approved progress schedule, **Contractor** shall, within five days or with the next application for payment, whichever comes earlier, submit a written statement to **Engineer** describing the cause for the slippage in the Activity and the actions being considered by **Contractor** to recover the time lost and to prevent or mitigate any derived slippage beyond the applicable Contract Time(s).
- c) A written schedule recovery statement shall include, but not be limited to, such actions as overlapping of dependent Activities, sequencing changes to accommodate increased Activity concurrency, assignment of additional labor or equipment, shift or overtime Work, expediting of submittals or deliveries, or any combination of the foregoing.
- d) If **Contractor** refuses, fails or neglects to submit a required written schedule recovery statement, **Owner** may, at its option, withhold additional retainage pursuant to the Contract Documents and/or initiate default termination proceedings in accordance with Contract Documents or request **Engineer** to identify and to order alternate recovery actions on the basis of the information in the current Progress Schedule. If **Contractor** believes that a written order to recover schedule from **Engineer** justifies an increase in Contract Price or an extension in Contract Time, **Contractor** shall be required to deliver a written request thereof in accordance with the provisions of Article 9 of the General Conditions. If **Owner** and **Contractor** are unable to agree as to responsibility for the slippage in the schedule or the amount and extent thereof, a claim may be made pursuant to Articles 10 and 11 of the General Conditions.

10) ***Early-Completion Progress Schedules***

- a) Progress Schedules anticipating achievement of Substantial Completion ahead of the corresponding Contract Time(s), and disclosing appropriate Contract Float Time(s) for the Work, or parts thereof, shall be considered equivalent or equal to Progress Schedules anticipating Substantial Completion exactly on the Contract Time(s). In accordance with requirements of the Contract Documents, the contract Float Time in these equivalent or equal Progress Schedules will be available to **Owner, Engineer, Contractor** and others to absorb delays to the Work as a whole which cannot be mitigated by any other means.
- b) Progress Schedules anticipating achievement of Substantial Completion ahead of the corresponding Contract Time(s), but with zero Contract Float as opposed to positive Contract Float, will be returned as either "Approved as Noted," "Resubmit with Revisions," or "Disapproved." Submittals stamped as "Approved as Noted" will indicate **Engineer's** approval thereof, subject to the limitations set forth, including **Engineer's** computation of the appropriate Contract Float implied by the anticipated early completion.
- c) If upon approval (or approval as noted) by **Engineer** of a Progress Schedule with disclosed or implied Contract Float Time, **Contractor** disputes the availability of Contract Float and proposes that compensation for delay shall be measured from the anticipated early completion date(s) as opposed to the corresponding Contract Time(s), **Contractor** agrees and understands that said proposal will represent a request to **Owner** that the approved Progress Schedule be evaluated as a substitute Progress Schedule for the purposes of changing the Contract Time(s) to those supported by the **Contractor's** early-completion Progress Schedule. Evaluation of that substitution will be in accordance with the requirements of paragraphs 5.7.1, 5.7.2 and 5.7.3 of the General conditions, and will require additional supporting data that explains and substantiates the basis of the anticipated Early Schedules. Such supporting data shall consist of: 1) notice of any scheduled Work during hours other than normal work hours, 2) information related to rates of production including pertinent quantities, crew sizes, man-day requirements, major items of equipment, etc., for Critical and other significant Activities, 3) express or implied contingency allowances figured in for Activities for such factors as weather, delays, activities of **Owner AND Engineer** to respond to reports of differing site conditions, and other relevant factors. Acceptance of that substitution will be evidenced by a Change Order shortening the Contract Time, or Contract Times accordingly, but maintaining the Contract Price and the provisions for liquidated and actual damages set forth in the Agreement.

11) ***Cash Allowance - Scheduling Subcontractor***

- a) It is understood that **Contractor** has included in the Contract Price the allowance stipulated in the Bid Form so named in the Contract Documents and shall cause the Work so covered to be done by the Scheduling Subcontractor and for such sums within the allowance as maybe acceptable to **Owner and Engineer**.
- b) It is also understood that **Contractor** has included in the Contract Price sufficient funds to cover all costs in excess of the allowance in connection with Work to be done by the Scheduling Subcontractor.

- c) **Contractor's** costs for administering the performance of Work by the Scheduling Subcontractor, for participating in the preparation of the required progress Schedule submittals, for overhead, profit and other expenses contemplated for the allowance have been included in the Contract Price for the Work and not in the allowance for the Scheduling Subcontractor. No demand for additional payment on account of any costs thereof will be valid.

12) ***Time Allowance Requirements for Document Review and Other Activities***

- a) **Contractor** shall make allowances for time required for a) document review and approval of submittals of Shop Drawings and samples specified in this Specification, b) the requirements for anticipated repeat submissions for particular items of materials or equipment, and c) the requirements for anticipated or required time intervals for the performance of specific parts of the Work by **Contractor**.
- b) **Contractor** shall make allowances for time required by a) those other activities indicated in or required by the contract Documents which are the responsibility of **Owner** or **Engineer**, b) the potential time requirements of **Owner** and **Engineer** to investigate instances of potential differing site conditions, and c) those other named time allowances required by the Contract Documents.
- c) It is understood that **Contractor** has included in the Contract Price the effect of accommodating all of these time allowances and requirements in the planning, scheduling and execution of the Work; that **Contractor's** Progress Schedule will incorporate Activities and sequences contemplated by the time allowances based on the information indicated in or required by the Contract Documents; and that **Contractor** shall cause the Work or requirements covered by such time allowances to be done within the limits of the Contract Time(s).

13) ***Measurement and Payments***

- a) All costs in connection with these requirements, including the Work to be performed by the Scheduling Subcontractor, shall be borne by **Contractor**. Payments made to **Contractor** under the allowance for the Scheduling Subcontractor provided for in paragraph 11.A shall be disbursed in their entirety to the Scheduling Subcontractor.
- b) Payments for Work performed under this Section of the Specifications will be made pursuant to Article 9 of the Agreement. Payment for Work performed shall be in accordance with the schedule of payments in the Special Progress Schedule Requirements.

14) ***Compliance***

- a) If **Contractor** refuses, fails or neglects to provide the required Progress Schedules or related schedule, Pricing and cost data, Shop Drawing data, or schedule recovery data, he will be deemed not to have provided sufficient information to **Engineer** upon which progress can be evaluated, and **Engineer** may refuse to recommend the whole or part of any outstanding payment if, in the **Engineer's** opinion, it would be incorrect to make such representations to **Owner**. Further, and pursuant to the Article 14 of the General Conditions, **Owner** may refuse to make payment of those amounts recommended by **Engineer** because of **Contractor's** failure or refusal to provide the required Progress Schedule and related submittal data.

15) ***Acceptable CPM Diagrams***

- a) Interim and Detailed CPM Diagrams shall be based on an arrow or precedence diagram format, and sequenced by the separate structures, facilities, buildings or site areas.
- b) CPM Diagrams shall be allotted on a time-scaled calendar and expressly identify: 1) the Contract Times, 2) the approach taken to comply with the Work Sequence conditions, 3) the Critical Path(s), and 4) all Activities. Activities shall be shown on their Early Schedule, and their total Float Times noted beside them.
- c) CPM Diagrams shall include title blocks identifying the name and location of the Project, Contract designation, names of **Owner, Engineer, Contractor** and Scheduling Subcontractor, Progress Schedule issue number and date, and sheet title. Diagram sheets shall be dimensioned as the full-size Contract Drawings, be neat and legible and submitted on a medium suitable for reproduction. Connections between Activities on different sheets shall be shown on the different sheets of the CPM Diagrams to allow a complete schedule document.

16) ***Acceptable Activity Schedule Data for CPM Diagrams***

- a) Activity schedule information shall, at a minimum, include the following data:
  - 1) Activity identified, i.e., I-J numbers in arrow format, or alphanumeric numbers in precedence format, such that not more than one Activity, dummy, or restraint may have the same identifier.
  - 2) Activity Description for each Activity, dummy or preferential restraint shall fully convey the scope of the Work included.
  - 3) Special Activity codes designating: a) location of the Work, e.g., site areas, elevations, etc., b) Work breakdown, e.g., process, trade, performing organization, c) responsibility, e.g., **Contractor, Owner**, Subcontractors, etc., d) as-awarded from amended (added or deleted by a Change Order or Proposed Change Order) items of Work.
  - 4) Activity labor requirements, based on a proportionate share of the (direct) labor manhours and quantities in the associated items from the Contract Price Breakdown developed pursuant to the requirements of the Supplementary Conditions.
  - 5) The use of start or finish restraint dates must be annotated as to the basis for the chosen restraints.

17) ***Acceptable Activity Value and Shop Drawing Data***

- a) Activity data pertaining to the Schedule of Values shall at a minimum include the following for each Activity:
  - 1) Activity code and description as on the CPM Diagram.

- 2) Activity representative quantities, Activity Value, Activity Percent Complete data, Activity Value of Work performed, and the applicable Value of significant subcomponents. The sum of all Activity Values shall equal the corresponding Contract Price for the Work. The sum of all Activity Values for Work performed divided by the Contract Price shall equal the Percent Complete for the Work.
  - 3) Activity Values shall breakdown Value for anticipated stored materials from Value for Work installed, as applicable.
  - 4) Cost of equipment or materials to be incorporated in the Work shall be assigned to the appropriate fabrication and delivery Activities.
- b) Activity data pertaining to the Schedule of Shop Drawing submissions shall at a minimum include the following for each Activity:
    - 1) Activity code and description as on the CPM Diagram.
    - 2) A list of specific submissions, Specification Section, Contract Drawing sheet numbers, and applicable submission dates.
  - c) The Schedule of Values and the Schedule of Shop Drawing submissions shall be provided on forms acceptable to **Engineer**.

18) ***Acceptable Scheduling Software***

- a) **Contractor's** evaluation of the CPM Diagrams shall be based on scheduling software meeting the data management, computational, and reporting requirements of this Specification. Activity reports provided by the scheduling software selected shall, at a minimum, display the following data for each Activity, dummy, or restraint:
  - 1) Activity identifier, activity description, activity duration, activity man-days, computed or restrained Early Start date, computed Early Finish date, computed Late Start date, computed or restrained Late Finish date, Total Float and Free Float, Activity Value, Percent Complete, Activity Value for Work performed, and associated Activity list items (e.g., Shop Drawing submissions).
  - 2) Dates shall be in calendar form. Contract Times representing Substantial Completion requirements shall be set as restrained Late Finish Dates where applicable; Contract Times representing Commencement of Work conditions shall be shown as restrained Early Start Dates as applicable. Contract Float times shall be computed and shown pursuant to the definition in Attachment A.
- b) If the CPM Diagram is based on the precedence format, an additional computer report tabulating the sequences on the Diagram shall be provided showing: a) each Activity together with a listing of all of its preceding and succeeding Activities, and b) the relationship type, lead/lag types, and lead/lag times between each Activity and each of its preceding and succeeding Activities.
- c) The scheduling software shall have the capability of sorting out computer reports by the special Activity codes designated in 17(a) above.

- d) The scheduling software shall have the capability of sequencing computer reports by:
- 1) Activity identifier, in order of ascending I-J number.
  - 2) Activity identifier, in order of descending J-I number.
  - 3) Total Float, in order of ascending Total Float values, and by ascending Early Start Dates, or by ascending I-J numbers, or by descending J-I numbers, within the same Total Float values.
  - 4) Early Start dates in chronological order of Early Start dates, and by ascending I-J numbers within the same Early Start Dates.
  - 5) Late Finish dates, in chronological order of Late Finish Dates and by descending J-I numbers within the same Late Finish Dates.
  - 6) Change Order or Proposed Change Order No.
- e) In addition to the ability to process the required Activity data, the scheduling software shall offer the following features: a) the capability of accepting and processing schedules with actual start and actual finish dates for the Activities; b) processing of CPM schedules with negative Total Float values; c) printing or plotting of rate of progress data, such as labor utilization and payment curves; d) the ability of drawing CPM Diagrams using plottergraphics.

19) ***Acceptable Progress Schedule Narratives***

- a) A narrative shall include sufficient information to substantiate the basis of the data used to develop that Progress Schedule submittal, and detail:
- 1) The status of the Progress Schedule in terms of number of days ahead or behind the Contract Time, or Contract Times.
  - 2) The progress status (i.e., progress achieved vs. that forecasted) for a) Activities designating accomplishment of Substantial Completion, b) Critical and other significant Activities, c) Work related to achieving milestones set forth by the Work Sequences indicated in or required by the Contract Documents, d) long-lead delivery items of material or equipment.
  - 3) The assumptions made in incorporating Work related to pending or authorized Change Orders and Proposed change Orders.
  - 4) Actual or potential delays, including causes, the steps taken or anticipated to mitigate their impact, and the anticipated effect on the Progress Schedule as a whole.
  - 5) Schedule recovery statement describing actions under consideration by **Contractor** to recover from a negative float or overrun in Late Finish Date condition.

- 6) Any significant changes in Progress Schedule sequences, and their basis thereof. Significant sequencing changes shall be those affecting Critical Activities, or causing a substantial reduction or increase in the Total Float Times available.
- 7) **Owner** and **Engineer** Activities which become due over the next two months on account of **Contractor's** requirements for performing Work which follows such **Owner** and **Engineer** Activities.
- 8) Rate of progress or "momentum" curves showing: a) the anticipated levels of labor utilization, e.g., man-days per week, and b) the anticipated level of payments for Work to be performed, all in accordance with the Activity time frames supported by the Early and Late Dates in the Progress Schedule.
- 9) Other information relevant to or of concern in the planning, scheduling and execution of Work over the next two months.
- 10) **Contractor's** responses to **Engineer's** comments raised in the review of the previous Progress Schedule submittal.
- 11) Actions taken to address schedule noncompliance issues which have negated **Engineer's** approval of a previous Progress Schedule submittal.

20) ***Acceptable Contractor's Cost Data***

- a) Cost data for inclusion in the **Contractor's** Cost reports required with each Progress Schedule Update submittal shall detail Contract financial and budget data available to and customarily relied upon by **Contractor** to monitor financial and cost performance.
- b) Acceptable financial and cost data for each cost account used by **Contractor** to apportion the contract Price to separable parts of the Work shall include:
  - 1) Account number and description.
  - 2) Account estimate data, identifying labor, material and equipment, and Subcontract costs for that account is included in the **Contractor's** Bid estimate, together with the sum increase or decrease in associated authorized Change Orders or Proposed Change Orders, and those sums anticipated by proposed Change Orders in negotiation or claims pending resolution.
  - 3) Current labor, material and equipment, and Subcontract cost data for the account; percent complete for the Work designated by that account; and **Contractor's** current forecast of the cost to complete Work designated by the account.

**\* END OF SECTION \***

**SECTION X - Standard Specifications**

**SPEC 00002**

**Concrete**

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## ***SECTION X - Standard Specifications***

### **SPEC 00002**

#### ***Concrete***

#### 1) ***General***

##### 1.1 **Scope of Work**

- a) The Contractor shall furnish all labor, materials, equipment, and incidentals needed for the cast-in-place and/or precast concrete required by the Contract Documents and as herein specified.

##### 1.2 **Submittals**

- a) Cast-in-place concrete.

- 1) Name and location of batch plant.
- 2) Design mix.
- 3) Shop drawings indicating placement of all reinforcing inserts, location of joints, sealing of joints, etc.
- 4) Submittal on grating and frame.

- b) Precast concrete

- 1) Name and location of precaster.
- 2) Submittals of precast units.
- 3) Certifications of design for loading.
- 4) Submittal on manhole frame and cover.

##### 1.3 **Quality Assurance**

- a) Codes and Standards

- 1) Comply with the provisions of the following codes and standards, except as otherwise shown or specified:
  - a) ACI 301 - "Specifications for Structural Concrete for Buildings."
  - b) ACI 318 - "Building Code Requirements for Reinforced Concrete."
  - c) CRSI - "Manual of Standard Practice."

- d) ACI 305 - "Recommended Practice for Hot Weather Concreting."
- 2) Where provisions of the above codes and standards are in conflict with the building code in force for the project, the more stringent code shall apply.

2) **Products**

2.1 **Cast-In-Place Concrete**

- a) Portland Cement - ASTM C 150, Type III.
- b) Aggregates - ASTM C 33
  - 1) Fine aggregates - clean, sharp, natural sand free of dune sand, bank run sand, manufactured sand, loam, clay, etc.
  - 2) Coarse aggregate - clean processed natural limestone free of all foreign matter.
- c) Water - clean, fresh, free of all oils, acids organics, etc.
- d) Admixtures.
  - 1) Air-Entraining - ASTM C 260.
  - 2) Water-Reducing - ASTM C 494.
  - 3) Floor sealer - Sonoglaze is manufactured by Sonneborn Building Products or similar product by Master Builders.
- e) Concrete Qualifiers.
  - 1) Concrete mix shall be DOT Class E.
  - 2) Strength - 4,000 psi at twenty-eight (28) days with maximum water-cement ratio of 0.45.
  - 3) Air content - 6 percent.
  - 4) Slump limits - 3-4 inch.
- f) Reinforcing
  - 1) Bars - ASTM A615, Grade 40.
  - 2) Welded Wire Fabric - ASTM A185.
- g) Frame and Grating - (Reteculine)
  - 1) The frames, gratings, and appurtenances shall be fabricated from steel conforming to ASTM A36.

- 2) All parts shall be galvanized according to the requirements of the NYSDOT 719-01 type 1.
  - 3) Grating shall be provided with lock down bolt anchors.
- h) Waterstops
- 1) Waterstops to be 6" PVC dumbbell style, made of virgin raw materials.
  - 2) Waterstops shall be #747 as manufactured by Greenstreak, #8046 as manufactured by Vulcan Metal Products, Inc., or equal.

## 2.2 **Precast Concrete Units**

- a) Precast concrete units shall be of sizes shown and built in accordance with ASTM standards C913-89. Units to be designated to withstand H-20 loading.
- b) Manhole cover and frame shall conform to NYSDOT Standard 715-05, Class No. 30. Units shall be supplied with lock down device.

## 3) **Execution**

### 3.1 **Concrete Placement**

- a) General - Place concrete in compliance with the practices and recommendations of ACI-304, and herein specified.
- b) Deposit and consolidate concrete slabs in a continuous operation, within the limits of construction joints, until the placing of a panel or section is complete. In the event that the slab is placed in two sections, the sections shall have continuous waterstops.
- c) Consolidate concrete during placing operations using mechanical vibrating equipment, so that concrete is thoroughly worked around reinforcing and other embedded items and into corners.
- d) Bring slab surfaces to the correct level with a straight edge strike off. Use bull floats or darbies to smooth the surface, leaving it free of humps or hollows.

### 3.2 **Cold Weather Placing**

- a) Protect all concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures.
- b) When air temperature has fallen to or is expected to fall below 40° F, uniformly heat all water and aggregate before mixing, to obtain a mixture temperature of not less than 50° F and not more than 80° F at point of placement.
- c) Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators.

### 3.3 **Monolithic Slab Finish**

- a) Begin float finishing when surface water has disappeared or when concrete has stiffened sufficiently to permit the operation of a power-driven float. Check surface plane to a tolerance not to exceed 1/4 inch in 10 feet, with uniform slopes to drains.
- b) Begin the final troweling when the surface produces a ringing sound as the trowel is moved over the surface.

### 3.4 **Concrete Curing and Protection**

- a) Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- b) Weather permitting, keep placed concrete continuously moist for not less than 72 hours.

### 3.5 **Concrete Floor Sealer**

- a) Concrete slab shall be fully cured, cleaned, and etched.
- b) Apply sealer as recommended by manufacturer or as specified in the contract documents.

**\* END OF SECTION \***

# ***SECTION X - Standard Specifications***

## **SPEC 00003**

### **Minimum Requirements for Health and Safety**

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MINIMUM REQUIREMENTS FOR HEALTH AND SAFETY

1. GENERAL

1.01 Description

- A. The **CONTRACTOR** is solely responsible and liable for the health and safety of all on-site personnel and any off-site community potentially impacted by the remediation.
- B. This section describes the minimum health and safety requirements for this project including the requirements for the development of a written Health and Safety Plan (HASP). All on-site workers must comply with the requirements of the HASP. The **CONTRACTOR's** HASP must comply with all applicable federal and state regulations protecting human health and the environment from the hazards posed by activities during this site remediation. The HASP is a required deliverable for this project. The HASP will be reviewed by the **ENGINEER**. The **CONTRACTOR** will resubmit the HASP, addressing all review comments from the **ENGINEER**. The **CONTRACTOR** shall not initiate on-site work in contaminated areas until an acceptable HASP addressing all comments has been developed.
- C. Consistent disregard for the provision of these health and safety specifications shall be deemed just and sufficient cause for immediate stoppage of work and/or termination of the Contract or any Subcontract without compromise or prejudice to the rights of the **DEPARTMENT** or the **ENGINEER**.
- D. Any discrepancies between this HASP and the specifications (or OSHA requirements) shall be resolved in favor of the more stringent requirements as determined by the **ENGINEER**.

1.02 Basis

- A. The Occupational Safety and Health Administration (OSHA) Standards and Regulations contained in Title 29, Code of Federal Regulations, Parts 1910 and 1926 (20 CFR 1910 and 1926) and subsequent additions and/or modifications, the New York State Labor Law Section 876 (Right-to-Know Law), the Standard Operating Safety Guidelines by the United States Environmental Protection Agency (EPA), Office of Emergency and Remedial Response and the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH, OSHA, USCG, and EPA) provide the basis for the safety and health program. Additional specifications within this section are in addition to OSHA regulations and reflect the positions of both the EPA and the National Institute for Occupation Safety and Health (NIOSH) regarding procedures required to ensure safe operations at abandoned hazardous waste disposal sites.

- B.** The safety and health of the public and project personnel and the protection of the environment will take precedence over cost and schedule considerations for all project work. Any additional costs will be considered only after the cause for suspension of operations is addressed and work is resumed. The **ENGINEER's** on-site representative and the **CONTRACTOR's** Superintendent will be kept apprised, by the Safety Officer, of conditions which may adversely affect the safety and health of project personnel and the community. The **ENGINEER** may stop work for health and safety reasons. If work is suspended for health and/or safety reasons, it shall not resume until approval is obtained from the **ENGINEER**. The cost of work stoppage due to health and safety is the responsibility of the **CONTRACTOR** under this Contract.

### **1.03 Health and Safety Definitions**

- A.** The following definitions shall apply to the work of this Contract:
1. **Project Personnel:** Project personnel include the **ENGINEER**, the **ENGINEER's** On-site Representatives, **CONTRACTOR**, Subcontractors, and Federal and State Representatives, working or having official business at the Project Site.
  2. **Authorized Visitor:** Authorized visitors who work for the State of New York shall receive approval to enter the site from the **DEPARTMENT**. The Safety Officer has primary responsibility on determining who is qualified and may enter the site. The Site Safety Officer will only allow authorized visitors with written proof that they have been medically certified and trained in accordance with 29 CFR 1910.120 to enter the contamination reduction zone and/or exclusion area.
  3. **Health and Safety Coordinator (HSC):** The HSC shall be a Certified Industrial Hygienist (CIH) or Certified Safety Professional (CSP) retained by the **CONTRACTOR**. The HSC will be responsible for the development and implementation of the HASP.
  4. **Safety Officer (SO):** The SO will be the **CONTRACTOR's** on-site person who will be responsible for the day-to-day implementation and enforcement of the HASP.
  5. **Health and Safety Technicians (HST):** The HST(s) will be the **CONTRACTOR's** on-site personnel who will assist the SO in the implementations of the HASP, in particular, with air monitoring in active work areas and maintenance of safety equipment.
  6. **Medical Consultant (MC):** The MC is a physician retained by the **CONTRACTOR** who will be responsible for conducting physical exams as specified under the Medical Monitoring Programs in this section.
  7. **Project Site:** The area designated on the Site Sketch, which includes the Contractor Work Area.
  8. **Contractor Work Area:** An area of the project site including the Support Zone, access road, staging area, and Exclusion Zone.

9. Contractor Support Zone: An area of the Contractor Work Area outside the Exclusion Zone, accessible for deliveries and visitors. No persons, vehicles, or equipment may enter these areas from the Exclusion Zone without having gone through specified decontamination procedures in the adjacent Contamination Reduction Zone.
10. Staging Areas: Areas within the Exclusion Zone for the temporary staging of contaminated soil and debris.
11. Exclusion Zone: The innermost area within the Contractor Work Area that encloses the area of contamination. Protective clothing and breathing apparatus as specified in the health and safety requirements and in the **CONTRACTOR's** approved HASP must be worn.
12. Contamination Reduction Zone: An area at the Exit Point of the Exclusion Zone through which all personnel, vehicles, and equipment must enter and exit. All decontamination of vehicles and equipment and removal of personal protective clothing and breathing apparatus must take place at the boundary between the Exclusion Zone and the Contamination Reduction Zone.
13. **ENGINEER's** on-site representative: The **ENGINEER's** representative assigned responsibility and authority by the **ENGINEER** for day-to-day field surveillance duties.
14. Work: Work includes all labor, materials, and other items that are shown, described, or implied in the Contract and includes all extra and additional work and material that may be ordered by the **ENGINEER**.
15. Monitoring: The use of direct reading field instrumentation to provide information regarding the levels of gases and/or vapor, which are present during remedial action. Monitoring shall be conducted to evaluate employee exposures to toxic materials and hazardous conditions.

#### **1.04 Responsibilities**

**A.** The **ENGINEER** will be responsible for the following:

1. Reviewing the HASP for the acceptability for its personnel and the impact on the site and human health.
2. Reviewing modifications to the HASP.

**B.** The **CONTRACTOR** will be responsible for the following:

**C.** The **CONTRACTOR** will perform all work required by the Contract Documents in a safe and environmentally acceptable manner. The **CONTRACTOR** will provide for the safety of all project personnel and the community for the duration of the Contract.



**D. The CONTRACTOR shall:**

1. Employ an SO who shall be assigned full-time responsibility for all tasks herein described under this HASP. In the event the SO cannot meet his responsibilities, the **CONTRACTOR** shall be responsible for obtaining the services of an "alternate" SO meeting the minimum requirements and qualifications contained herein. No work will proceed on this project in the absence of an approved SO.
2. Ensure that all project personnel have obtained the required physical examination prior to and at the termination of work covered by the contract.
3. Be responsible for the pre-job indoctrination of all project personnel with regard to the HASP and other safety requirements to be observed during work, including but not limited to (a) potential hazards, (b) personal hygiene principles, (c) personal protection equipment, (d) respiratory protection equipment usage and fit testing, and (e) emergency procedures dealing with fire and medical situations.
4. Be responsible for the implementation of this HASP, and the Emergency Contingency and Response Plan.
5. Provide and ensure that all project personnel are properly clothed and equipped and that all equipment is kept clean and properly maintained in accordance with the manufacturer's recommendations or replaced as necessary.
6. Alert appropriate emergency services before starting any hazardous work and provide a copy of the Emergency Contingency Plan to the respective emergency services.
7. Have sole and complete responsibility of safety conditions for the project, including safety of all persons (including employees).
8. Be responsible for protecting the project personnel and the general public from hazards due to the exposure, handling, and transport of contaminated materials. Barricades, lanterns, roped-off areas, and proper signs shall be furnished in sufficient amounts and locations to safeguard the project personnel and public at all times.
9. Ensure all OSHA health and safety requirements are met.
10. Maintain a chronological log of all persons entering the project site. It will include organization, date, and time of entry and exit. Each person must sign in and out.

**1.05 Health and Safety Plan**

- A.** The HASP is a deliverable product of this project. The **ENGINEER** will review and comment on the **CONTRACTOR's** HASP. Agreed upon responses to all comments will be incorporated into the final copy of the HASP. The HASP shall govern all work performed for this contract. The HASP shall address, at a minimum, the following items in accordance with 29 CFR 1910.120(I)(2):

1. Health and Safety Organization.
2. Site Description and Hazard Assessment.
3. Training.
4. Medical Surveillance.
5. Work Areas.
6. Standard Operating Safety Procedures and Engineering Controls.
7. Personal Protective Equipment (PPE).
8. Personnel Hygiene and Decontamination.
9. Equipment Decontamination.
10. Air Monitoring.
11. Emergency Equipment/First Aid Requirements.
12. Emergency Response and Contingency Plan.
13. Confined-Space Entry Procedures.
14. Spill Containment Plan.
15. Heat & Cold Stress.
16. Record Keeping.
17. Community Protection Plan.

**B.** The following sections will describe the requirements of each of the above-listed elements of the HASP.

**1.06 Health and Safety Organization**

**A.** The **CONTRACTOR** shall list in the HASP a safety organization with specific names and responsibilities. At a minimum, the **CONTRACTOR** shall provide the services of a Health and Safety Coordinator, SO, Health and Safety Technician, and a Medical Consultant.

**B.** Health and Safety Coordinator: The **CONTRACTOR** must retain the services of a Health and Safety Coordinator (HSC). The HSC must be an American Board of Industrial Hygiene (ABIH) Certified Industrial Hygienist (CIH) or a Certified Safety Professional (CSP). The HSC must have a minimum of two years experience in hazardous waste site remediations or related industries and have a working knowledge of federal and state occupational health and safety regulations. The HSC must be familiar with air monitoring techniques and the development of health and safety programs for personnel working in potentially toxic atmospheres.

In addition to meeting the above requirements the HSC will have the following responsibilities:

1. Responsibility for the overall development and implementation of the HASP.
2. Responsibility for the initial training of on-site workers with respect to the contents of the HASP.
3. Availability during normal business hours for consultation by the Safety Officer.
4. Availability to assist the Safety Officer in follow-up training and if changes in site conditions occur.

C. Safety Officer: The designated SO must have, at a minimum, two years of experience in the remediation of hazardous waste sites or related field experience. The SO must have formal training in health and safety and be conversant with federal and state regulations governing occupational health and safety. The SO must be certified in CPR and first aid and have experience and training in the implementation of personal protection and air monitoring programs. The SO must have "hands-on" experience with the operation and maintenance of real-time air monitoring equipment. The SO must be thoroughly knowledgeable of the operation and maintenance of air-purifying respirators (APR) and supplied-air respirators (SAR) including SCBA and airline respirators.

In addition to meeting the above qualifications, the SO will be responsible for the following minimum requirements:

1. Responsibility for the implementation, enforcement, and monitoring of the health and safety plan.
2. Responsibility for the pre-construction indoctrination and periodic training of all on-site personnel with regard to this safety plan and other safety requirements to be observed during construction, including:
  - a. Potential hazards.
  - b. Personal hygiene principles.
  - c. PPE.
  - d. Respiratory protection equipment usage and fit testing.
  - e. Emergency procedures dealing with fire and medical situations.
  - f. Conduct daily update meetings in regard to health and safety.
3. Responsibility for alerting the **ENGINEER's** on-site representative prior to the **CONTRACTOR** starting any particular hazardous work.
4. Responsibility for informing project personnel of the New York State Labor Law Section 876 (Right-to-Know Law).

5. Responsibility for the maintenance of separation of Exclusion Zone (Dirty) from the Support Zone (Clean) areas as described hereafter.

**D.** Health and Safety Technicians: The Health and Safety Technician (HST) must have one year of hazardous waste site or related experience and be knowledgeable of applicable occupational health and safety regulations. The HST must be certified in CPR and first aid. The HST will be under direct supervision of the SO during on-site work. The HST must be familiar with the operations, maintenance and calibration of monitoring equipment used in this remediation. An HST will be assigned to each work crew or task in potentially hazardous areas.

**E.** Medical Consultant: The **CONTRACTOR** is required to retain a Medical Consultant (MC) who is a physician, certified in occupational medicine. The physician shall have experience in the occupational health area and shall be familiar with potential site hazards of remedial action projects. The MC will also be available to provide annual physicals and to provide additional medical evaluations of personnel when necessary.

#### **1.07 Site Description and Hazard Assessment**

**A.** The **CONTRACTOR** shall perform a hazard assessment to provide information to assist in selection of PPE and establish air monitoring guidelines to protect on-site personnel, the environment, and the public. The **CONTRACTOR** shall provide a general description of the site, its location, past history, previous environmental sampling results, and general background on the conditions present at the site.

1. Chemical Hazards: A qualitative evaluation of chemical hazards shall be based on the following:

- Nature of potential contaminants;
- Location of potential contaminants at the project site;
- Potential for exposure during site activities; and
- Effects of potential contaminants on human health.

2. Biological Hazards: A qualitative evaluation of biological hazards consisting of the elements listed for chemical hazards.

3. Physical Hazards: The **CONTRACTOR** shall assess the potential for physical hazards affecting personnel during the performance of on-site work.

**B.** The **CONTRACTOR** shall develop a hazard assessment for each site task and operation established in the HASP.

## **1.08 Training**

### **A. OSHA Training**

1. The **CONTRACTOR** is responsible to ensure that all project personnel have been trained in accordance with OSHA 1910.120 regulations.
2. The **CONTRACTOR** shall ensure that all employees are informed of the potential hazards of toxic chemicals to the unborn child and of the risks associated with working at the project site.
3. The **CONTRACTOR** shall be responsible for, and guarantee that, personnel not successfully completing the required training are not permitted to enter the project site to perform work.

### **B. Safety Meetings**

1. The SO will conduct daily safety meetings for each working shift that will be mandatory for all project personnel. The meetings will provide refresher courses for existing equipment and protocols, and will examine new site conditions as they are encountered.
2. Additional safety meetings will be held on an as-required basis.

- C. Should any unforeseen or site-specific safety-related factor, hazard, or condition become evident during the performance of work at this site, the **CONTRACTOR** will bring such to the attention of the SO in writing as quickly as possible for resolution. In the interim, the **CONTRACTOR** will take prudent action to establish and maintain safe working conditions and to safeguard employees, the public, and the environment.

## **1.09 Medical Surveillance**

- A. The **CONTRACTOR** shall utilize the services of a Physician to provide the minimum medical examinations and surveillance specified herein. The name of the Physician and evidence of examination of all **CONTRACTOR** and Subcontractor on-site personnel shall be kept by the SO.

- B. **CONTRACTOR** and Subcontractor project personnel involved in this project shall be provided with medical surveillance prior to onset of work. Immediately at the conclusion of this project, and at any time there is suspected excessive exposure to substances that would be medically detectable, all project personnel will be medically monitored. The costs for these medical exams, including state field representatives, (four maximum) are to be borne by the **CONTRACTOR**.

- C. Physical examinations are required for:

1. Any and all personnel entering hazardous or transition zones or performing work that required respiratory protection.
2. All **CONTRACTOR** personnel on site who are dedicated or may be used for emergency response purposes in the Exclusion Zone.

3. **CONTRACTOR** supervisors entering hazardous or transition zones, or on site for more than 16 hours during the length of the contract.
- D. Physical examinations are not required for people making periodic deliveries provided they do not enter hazardous or transition zones.
- E. In accordance with good medical practice, the examining Physician or other appropriate representative of the Physician shall discuss the results of such medical examination with the individual examined. Such discussion shall include an explanation of any medical condition that the Physician believes required further evaluation or treatment and any medical condition which the Physician believes would be adversely affected by such - individual's employment at the project site. A written report of such examination shall be transmitted to the individual's private physician upon written request by the individual.
- F. The examining Physician or Physician group shall notify the SO in writing that the individual has received a medical examination and shall advise the SO as to any specific limitations upon such individual's ability to work at the project site that were identified as a result of the examination. Appropriate action shall be taken in light of the advice given pursuant to this subparagraph.
- G. The physical examination shall also include but not be limited to the following minimum requirements:
  1. Complete blood profile;
  2. Blood chemistry to include: chloride, CO<sub>2</sub>, potassium, sodium, BUN, glucose, globulin, total protein, albumin, calcium, cholesterol, alkaline phosphatase, triglycerides, uric acid, creatinine, total bilirubin, phosphorous, lactic dehydrogenase, SGPT, SGOT;
  3. Urine analysis;
  4. "Hands on" physical examination to include a complete evaluation of all organ systems including any follow-up appointments deemed necessary in the clinical judgement of the examining physician to monitor any chronic conditions or abnormalities;
  5. Electrocardiogram;
  6. Chest X-ray (if recommended by examining physician in accordance with good medical practice);
  7. Pulmonary function;
  8. Audiometry - To be performed by a certified technician, audiologist, or physician. The range of 500 to 8,000 hertz should be assessed.
  9. Vision screening - Use a battery (TITMUS) instrument to screen the individual's ability to see test targets well at 13 to 16 inches and at 20 feet. Tests should include an assessment of muscle balance, eye coordination, depth perception, peripheral vision, color discrimination, and tonometry.

10. Tetanus booster shot (if no inoculation has been received within the last five years); and
11. Complete medical history.

#### 1.10 Site Control

##### A. Security

1. Security shall be provided and maintained by the **CONTRACTOR**.
2. The **CONTRACTOR** shall contact law enforcement officials, emergency medical care units, local fire departments and utility emergency teams to ascertain the type of response required in any emergency situation and to coordinate the responses of the various units. A standard operating procedure describing security force response to foreseeable contingencies shall be developed. The **CONTRACTOR** shall also prepare and update a list of emergency points of contact, telephone numbers, radio frequencies, and call signs to ensure dependable responses.
3. Security personnel shall record their presence while patrolling the site using a watchman's clock. The Tapes or punch cards shall be delivered to the **ENGINEER** once a week.
4. Security identification, specific to the project site, shall be provided by the **CONTRACTOR** for all project personnel entering the project site. The **CONTRACTOR** shall be responsible for and ensure that such identification shall be worn by each individual, visible at all times, while the individual is on the site. Vehicular access to the site, other than to designated parking areas, shall be restricted to authorized vehicles only.
5. Use of on-site designated parking areas shall be restricted to vehicles of the **ENGINEER**, **ENGINEER's** on-site representative, **CONTRACTOR**, subcontractor, and service personnel assigned to the site and actually on duty but may also be used on short-term basis for authorized visitors.
6. The **CONTRACTOR** shall be responsible for maintaining a log of security incidents and visitor access granted.
7. The **CONTRACTOR** shall require all personnel having access to the project site to sign-in and sign-out, and shall keep a record of all site access.
8. All approved visitors to the site shall be briefed by the SO on safety and security, provided with temporary identification and safety equipment, and escorted throughout their visit.
9. Site visitors shall not be permitted to enter the hazardous work zone unless approved by the **DEPARTMENT** with appropriate site access agreement.
10. Project sites shall be posted, "Warning Hazardous Work Area, Do Not Enter Unless Authorized," and access restricted by the use of a snow fence or equal at a minimum. Warning signs shall be posted at a minimum of every 500 feet.

## **B. Site Control**

1. The **CONTRACTOR** shall provide the following site control procedures as a minimum:
  - A site map;
  - A map showing site work zones;
  - The use of a "buddy system"; and
  - Standard operating procedures or safe work practices.

## **C. Work Areas**

1. The **CONTRACTOR** will clearly lay out and identify work areas in the field and will limit equipment, operations and personnel in the areas as defined below:
  - a. Exclusion Zone (EZ) - This will include all areas where potential environmental monitoring has shown or it is suspected that a potential hazard may exist to workers. The level of PPE required in these areas will be determined by the SO after air monitoring and on-site inspection has been conducted. The area will be clearly delineated from the decontamination area. As work within the hazardous zone proceeds, the delineating boundary will be relocated as necessary to prevent the accidental contamination of nearby people and equipment. The Exclusion Zone will be delineated by fencing (e.g., chain link, snow fencing, or orange plastic fencing).
  - b. Contamination Reduction Zone - This zone will occur at the interface of "Hazardous" and "Clean" areas and will provide for the transfer of equipment and materials from the Support Zone to the Exclusion Zone, the decontamination of personnel and clothing prior to entering the "Clean" area, and for the physical segregation of the "Clean" and "Hazardous" areas. This area will contain all required emergency equipment, etc. This area will be clearly delineated by fencing (e.g., chain link, snow fencing, or orange plastic fencing). It shall also delineate an area that although not contaminated at a particular time may become so at a later date.
  - c. Support Zone - This area is the remainder of the work site and project site. The Support Zone will be clearly delineated and procedures implemented to prevent active or passive contamination from the work site. The function of the Support Zone includes:
    1. An entry area for personnel, material and equipment to the Exclusion Zone of site operations through the Contamination Reduction Zone;
    2. An exit for decontamination personnel, materials and equipment from the "Decontamination" area of site operations;
    3. The housing of site special services; and
    4. A storage area for clean, safety, and work equipment.



## 1.11 Standard Operating Safety Procedures (SOSP), Engineering Controls

### A. General SOSP

1. The **CONTRACTOR** will ensure that all safety equipment and protective clothing is kept clean and well maintained.
2. All prescription eyeglasses in use on this project will be safety glasses and will be compatible with respirators. No contact lenses shall be allowed on site.
3. All disposable or reusable gloves worn on the site will be approved by the SO.
4. During periods of prolonged respirator usage in contaminated areas, respirator filters will be changed upon breakthrough. Respirator filters will always be changed daily.
5. Footwear used on site will be covered by rubber overboots or booties when entering or working in the Exclusion Zone area or Contamination Reduction Zone. Boots or booties will be washed with water and detergents to remove dirt and contaminated sediment before leaving the Exclusion Zone or Contamination Reduction Zone.
6. All PPE used on site will be decontaminated or disposed of at the end of the work day. The SO will be responsible for ensuring decontamination of PPE before reuse.
7. All respirators will be individually assigned and not interchanged between workers without cleaning and sanitizing.
8. **CONTRACTOR**, subcontractor and service personnel unable to pass a fit test as a result of facial hair or facial configuration shall not enter or work in an area that requires respiratory protection.
9. The **CONTRACTOR** will ensure that all project personnel shall have vision or corrected vision to at least 20/40 in one eye.
10. On-site personnel found to be disregarding any provision of this plan will, at the request of the SO, be barred from the project.
11. Used disposable outerwear such as coveralls, gloves, and boots shall not be reused. Used disposable outerwear will be removed upon leaving the hazardous work zone and will be placed inside disposable containers provided for that purpose. These containers will be stored at the site at the designated staging area and the **CONTRACTOR** will be responsible for proper disposal of these materials at the completion of the project. This cost shall be borne by the **CONTRACTOR**.
12. Protective coveralls that become torn or badly soiled will be replaced immediately.
13. Eating, drinking, chewing gum or tobacco, smoking, etc., will be prohibited in the hazardous work zones and neutral zones.
14. All personnel will thoroughly cleanse their hands, face, and forearms and other exposed areas prior to eating, smoking or drinking.

15. Workers who have worked in a hazardous work zone will shower at the completion of the work day.
16. All personnel will wash their hands, face, and forearms before using toilet facilities.
17. No alcohol, firearms or drugs (without prescriptions) will be allowed on site at any time.
18. All personnel who are on medication should report it to the SO who will make a determination whether or not the individual will be allowed to work and in what capacity. The SO may require a letter from the individual's personal physician stating what limitations (if any) the medication may impose on the individual.

**B. Engineering Controls - Air Emissions**

1. The **CONTRACTOR** shall provide all equipment and personnel necessary to monitor and control air emissions.

**1.12 Personal Protective Equipment**

**A. General**

1. The **CONTRACTOR** shall provide all project personnel with the necessary safety equipment and protective clothing, taking into consideration the chemical wastes at the site. The **CONTRACTOR** shall supply the **ENGINEER's** on-site personnel (average two people for the project duration) with PPE as specified. The **ENGINEER** will require specific manufacturers and styles of PPE, which are detailed in the Safety Equipment Specifications portion of this section. At a minimum, the **CONTRACTOR** shall supply all project personnel with the following:
  - a. Two (2) sets of cotton work clothing to include underwear, socks, work shirts, and work pants. Leather steel-toed work boots, and such other clothing and outer garments as required by weather conditions (e.g., insulated coveralls and winter jacket);
  - b. Sufficient disposable coveralls;
  - c. One pair splash goggles;
  - d. Chemical-resistant outer and inner gloves;
  - e. Rubber overshoes (to be washed daily);
  - f. Hard hat;
  - g. One full-face mask with appropriate canisters. The **ENGINEER** and the **DEPARTMENT** will supply their own full-face mask. The **CONTRACTOR** will supply the appropriate canisters to all on-site project personnel including the **ENGINEER** and the **DEPARTMENT**. The **CONTRACTOR** shall supply MSA canisters; and

- h. For all project personnel involved with Level B protection, a positive-pressure SCBA or in-line air. A 5-minute escape bottle must be included with the in-line air apparatus.

**B. Levels of Protection**

1. It is planned that Levels C and D PPE will be required in this remediation. Although Levels A and B are not planned, site conditions may be encountered that require their use. The following sections described the requirements of each level of protection.

**a. Level A Protection**

1. PPE:
  - a. Supplied-air respirator approved by the Mine Safety and Health Administration (MSHA) and NIOSH. Respirators may be:
    - Positive-pressure SCBA; or
    - Positive-pressure airline respirator (with escape bottle for Immediately Dangerous to Life and Health [IDLH] or potential for IDLH atmosphere).
  - b. Fully encapsulating chemical-resistant suit.
  - c. Coveralls.
  - d. Cotton long underwear.\*
  - e. Gloves (inner), chemical-resistant.
  - f. Boots, chemical-resistant, steel toe and shank. (Depending on suit construction, worn over or under suit boot.)
  - g. Hard hat (under suit).\*
  - h. Disposal gloves and boot covers (worn over fully encapsulating suit).
  - i. Cooling unit.\*
  - j. Two-way radio communications (inherently safe).\*

\* Optional

2. Criteria for Selection:

Meeting any of these criteria warrants use of Level A protection:

- a. The chemical substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory system based on:
  - Measures (or potential for) high concentration of atmospheric vapors, gases, or particulates, or
  - Site operations and work functions involves high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates of materials highly toxic to the skin.
- b. Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible.
- c. Operations must be conducted in confined, poorly ventilated areas until the absence of substances requiring Level A protection is determined.
- d. Direct readings on field Flame Ionization Detectors (FID) or Photoionization Detectors (PID) and similar instruments indicate high levels of unidentified vapors and gases in the air.

3. Guidance on Selection:

- a. Fully encapsulating suits are primarily designed to provide a gas- or vapor-tight barrier between the wearer and atmospheric contaminants. Therefore, Level A is generally worn when high concentrations of airborne substances could severely effect the skin. Since Level A requires the use of SCBA, the eyes and respiratory system are also more protected.

Until air surveillance data become available to assist in the selection of the appropriate level of protection, the use of Level A may have to be based on indirect evidence of the potential for atmospheric contamination or other means of skin contact with severe skin affecting substances.

Conditions that may require Level A protection include:

- Confined spaces: Enclosed, confined, or poorly ventilated areas are conducive to the buildup of toxic vapors, gases, or particulates. (Explosive or oxygen-deficient atmospheres are also more probable in confined spaces). Confined-space entry does not automatically warrant wearing Level A protection, but should serve as a cue to carefully consider and to justify a lower level of protection.
- Suspected/known highly toxic substances: Various substances that are highly toxic, especially skin

absorption, for example, fuming corrosives, cyanide compounds, concentrated pesticides, Department of Transportation Poison "A" materials, suspected carcinogens, and infectious substances may be known or suspected to be involved. Field instruments may not be available to detect or quantify air concentrations of these materials. Until these substances are identified and concentrations measured, maximum protection may be necessary.

- Visible emissions: Visible air emissions from leaking containers or railroad/vehicular tank cars, as well as smoke from chemical fires and others, indicate high potential for concentrations of substances that could be extreme respiratory or skin hazards.
- Job Functions: Initial site entries are generally walk-throughs, in which instruments and visual observations are used to make a preliminary evaluation of the hazards.

In initial site entries, Level A should be worn when:

- There is a probability for exposure to high concentrations of vapors, gases, or particulates; and
- Substances are known or suspected of being extremely toxic directly to the skin or by being absorbed.

Subsequent entries are to conduct the many activities needed to reduce the environmental impact of the incident. Levels of protection for later operations are based not only on data obtained from the initial and subsequent environmental monitoring, but also on the probability of contamination and ease of decontamination.

Examples of situations where Level A has been worn are:

- Excavating of soil to sample buried drums suspected of containing high concentrations of dioxin;
- Entering a cloud of chlorine to repair a valve broken in a railroad accident;
- Handling and moving drums known to contain oleum; and
- Responding to accidents involving cyanide, arsenic, and undiluted pesticides.

- b. The fully encapsulating suit provides the highest degree of protection to skin, eyes, and respiratory system if the suit material resists chemicals during the time the suit is worn. While Level A provides maximum protection, all suit material may be rapidly permeated and degraded by certain chemicals from extremely high air concentrations, splashes, or immersion of boots or gloves in

concentrated liquids or sludges. These limitations should be recognized when specifying the type of fully encapsulating suit. Whenever possible, the suit material should be matched with the substance it is used to protect against.

**b. Level B Protection**

1. PPE:
  - a.. Positive-pressure SCBA (MSHA/NIOSH approved); or
  - b. Positive-pressure air line respirator (with escape bottle for IDLH or potential for IDLH atmosphere) MSHA/NIOSH approved;
  - c. Chemical-resistant clothing (overalls and long-sleeved jacket; coveralls or hooded, one- or two-piece chemical-splash suit; disposable chemical-resistant, one-piece suits);
  - d. Cotton long underwear;\*
  - e. Coveralls;
  - f. Gloves (outer), chemical-resistant;
  - g. Gloves (inner), chemical-resistant;
  - h. Boots (inner), leather work shoe with steel toe and shank;
  - I. Boots (outer), chemical-resistant, (disposable);
  - j. Hard hat (face shield\*);
  - k. 2-way radio communication;\* and
  - l. Taping between suit and gloves, and suit and boots.

\*Optional

2. Criteria for Selection:

Any one of the following conditions warrants use of Level B Protection:

- a. The type and atmospheric concentration of toxic substances have been identified and require a high level of respiratory protection, but less skin protection than Level A. These atmospheres would:
  - Have IDLH concentrations; or
  - Exceed limits of protection afforded by an air-purifying mask; or

- Contain substances for which air-purifying canisters do not exist or have low removal efficiency; or
  - Contain substances requiring air-supplied equipment, but substances and/or concentrations do not represent a serious skin hazard.
- b. The atmosphere contains less than 19.5% oxygen.
  - c. Site operations make it highly unlikely that the work being done will generate high concentrations of vapors, gases or particulates, or splashes of material that will affect the skin of personal wearing Level B protection.
  - d. Working in confined spaces.
  - e. Total atmospheric concentrations, sustained in the breathing zone, of unidentified vapors or gases range from 5 ppm above background to 500 ppm above background as measured by direct reading instruments such as the FID or PID or similar instruments, but vapors and gases are not suspected of containing high levels of chemicals toxic to skin.

### 3. Guidance on Selection Criteria:

Level B equipment provides a reasonable degree of protection against splashes and to lower air contaminant concentrations, but a somewhat lower level of protection to skin than Level A. The chemical-resistant clothing required in Level B is available in a wide variety of styles, materials, construction detail, permeability, etc. Taping joints between the gloves, boots and suit, and between hood and respirator reduces the possibility for splash and vapor or gas penetration. These factors all affect the degree of protection afforded. Therefore, the SO should select the most effective chemical-resistant clothing based on the known or anticipated hazards and/or job function. (It is anticipated that Level B protection will not be required under this contract.)

Level B does provide a high level of protection to the respiratory tract. Generally, if SCBA is required, Level B clothing rather than a fully encapsulating suit (Level A) is selected based on needing less protection against known or anticipated substances affecting the skin. Level B skin protection is selected by:

- a. Comparing the concentrations of known or identified substances in air with skin toxicity data;
- b. Determining the presence of substances that are destructive to or readily absorbed through the skin by liquid splashes, unexpected high levels of gases, vapor or particulates, or other means of direct contact; and

- c. Assessing the effect of the substance (at its measured air concentrations or splash potential) on the small area of the head and neck left unprotected by chemical-resistant clothing.

For initial site entry at an open site, Level B protection should protect site personnel, providing the conditions described in selecting Level A are known or judged to be absent.

**c. Level C Protection**

- 1. PPE
  - a.. Full-face, air-purifying, cartridge- or canister-equipped respirator (MSHA/NIOSH approved) with cartridges appropriate for the respiratory hazards;
  - b. Chemical-resistant clothing (coveralls, hooded, one-piece or two-piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls);
  - c. Coveralls;
  - d. Cotton long underwear;\*
  - e. Gloves (outer), chemical-resistant;
  - f. Gloves (inner), chemical-resistant;
  - g. Boots (inner), leather work shoes with steel toe and shank;
  - h. Boots (outer), chemical-resistant (disposable);\*
  - i. Hard hat (face shield);\*
  - j. Escape SCBA of at least 5-minute duration;
  - k. 2-way radio communications (inherently safe);\* and
  - 1. Taping between suit and boots, and suit and gloves.

\* Optional

2. Criteria for Selection

Meeting all of these criteria permits use of Level C protection:

- a. Measured air concentrations of identified substances will be reduced by the respirator to, at or below, the substance's Threshold Limit Value (TLV) or appropriate occupational exposure limit and the concentration is within the service limit of the canister.
- b. Atmospheric contaminant concentrations do not exceed IDLH levels.



- c. Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of the skin left unprotected by chemical-resistant clothing.
  - d. Job functions do not require SCBA.
  - e. Total readings register between background and 5 ppm above background as measured by instruments such as the FID or PID.
  - f. Oxygen concentrations are not less than 19.5% by volume.
  - g. Air will be monitored continuously.
3. Guidance on Selection Criteria

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing air-purifying devices. The air-purifying device must be a full-face mask (MSHA/NIOSH approved) equipped with a cartridge suspended from the chin or on a harness. Cartridges must be able to remove the substances encountered.

A full-face, air-purifying mask can be used only if:

- a. Oxygen content of the atmosphere is at least 19.5% by volume;
- b. Substance(s) is identified and its concentrations(s) measured;
- c. Substance(s) has adequate warning properties;
- d. Individual passes a qualitative fit-test for the mask; and
- e. Appropriate cartridge is used, and its service limits concentration is not exceeded.

An air monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators (Level C). Continual surveillance using direct-reading instruments and air sampling is needed to detect any changes in air quality necessitating a higher level of respiratory protection. Total unidentified vapor/gas concentrations exceeding 5 ppm above background require Level B.

**d. Level D Protection**

- 1. PPE:
  - a. Coveralls, chemical resistant;

- b. Gloves (outer), chemical resistant;
- c. Gloves (inner), chemical resistant;\*
- d. Boots (inner), leather work shoes with steel toe and shank;
- e. Boots (outer), chemical resistant (disposable);\*
- f. Hard hat;
- g. Face shield;\*
- h. Safety glasses with side shields or chemical splash goggles;\* and
- i. Taping between suit and boots, and suit and gloves.

\* Optional

2. Criteria for Selection:

- a. No atmospheric contaminant is present.
- b. Direct reading instruments do not indicate any readings above background.
- c. Job functions have been determined not to require respirator protection.

3. Guidance on Selection Criteria:

Level D protection is distinguished from Level C protection in the requirement for respiratory protection. Level D is used for non-intrusive activities or intrusive activities with continuous air monitoring. It can be worn only in areas where there is no possibility of contact with contamination.

e. Anticipated Levels of Protection

- 1. It is anticipated that most of the work shall be performed in Level D. A respirator shall be immediately available in the event that air monitoring indicates an upgrade to Level C is required. The determination of the proper level of protection for each task shall be the responsibility of the **CONTRACTOR**. These task specific levels of protection shall be stated in the **CONTRACTOR's** HASP.

**C. Safety Equipment Specifications**

Note: Prior to purchasing any equipment or supplies required by this HASP, the **CONTRACTOR** shall notify the **ENGINEER** of the type, model and manufacturer/supplier of that particular safety equipment he is proposing to use or purchase for use on this project. The specifications for PPE that the **CONTRACTOR** is to supply to the **ENGINEER** and which differ from the minimum requirements shown below are provided at the end of this section.

#### **D. Self-Contained Breathing Apparatus**

1. The **CONTRACTOR** shall provide positive-pressure SCBA for possible upgrades in respiratory protection. The **CONTRACTOR** shall further supply all the SCBA for all field personnel for the duration of normal work activities. The units must be a MSHA/NIOSH-approved pressure-demand type with a 30-minute service life, manufactured/supplied by Scott, MSA, or other appropriate manufacturers. The **CONTRACTOR** shall inspect and maintain respirators in accordance with OSHA regulations (29 CFR 1910.13-4) and as recommended by the manufacturer.

#### **E. Disposable Coveralls**

1. The **CONTRACTOR** shall provide, as necessary, protective coveralls for all project personnel each day with extra sets provided for authorized visitors. The coveralls shall be of the disposable type made of Tyvek or equivalent material, and shall be manufactured/supplied by Durafab, Koppler, or other appropriate manufacturers. To protect project personnel from exposure to liquids, splash-resistant suits (Saranex suits, from appropriate manufacturers) shall be provided. Ripped suits will be immediately replaced after all necessary decontamination has been completed to the satisfaction of the SO.

#### **F. Hard Hat**

1. The **CONTRACTOR** shall provide and maintain one hard hat per person on site (authorized visitors included). The hard hats shall comply with OSHA Health and Safety Standards (29 CFR 1910.135).

#### **G. Face Shields**

1. The **CONTRACTOR** shall provide and maintain one face shield per person on site. The face shields shall be of the full face type meeting OSHA Health and Safety Standards (29 CFR 1910.133) and shall have brackets for mounting on hard hats. Hard hats and face shields shall be from the same manufacturer to ensure proper fit and shall be manufactured/supplied by Bullard, Norton, or other appropriate manufacturers.

#### **H. Work Clothing**

1. The **CONTRACTOR** shall provide a minimum of two sets of work clothing per personnel to allow for changing if contaminated. The work clothing shall include a minimum of underwear, socks, work shirts, work pants, and other clothing as weather conditions dictate. All work clothes shall be put on clean, before entering the site and shall not be kept in same lockers as the workers street clothes. All project personnel shall shower and change to street clothing prior to leaving the site. All contaminated work clothing shall be laundered on site with wash water drained to the decontamination water holding tank.

**I. Escape-Type Respirator**

1. The **CONTRACTOR** shall provide and maintain one self-contained breathing escape-type respirator per person working on site. The small self-contained device shall be capable of providing oxygen to the worker while protecting an escaping worker from toxic gases. The respirator shall be made by Scott, MSA, or other appropriate manufacturer. The **CONTRACTOR** shall inspect and ensure all devices are in working order before issuing to personnel. Employees must be trained to use equipment prior to being allowed to work on site and carry the escape-type respirator with them. An escape-type respirator must be provided if positive-pressure SCBA are not part of the ensemble worn by each person on site.

**J. Full Face Organic Vapor Respirator**

1. The **CONTRACTOR** shall provide and maintain a dedicated air-purifying organic vapor respirator per person working in hazardous work and neutral work zones. The respirator shall be of the full-face canister type with cartridges appropriate for the respiratory hazards. Respirators and cartridges shall be MSHA/NIOSH approved, manufactured/supplied by MSA, Scott, or other appropriate manufacturers. The **CONTRACTOR** shall inspect and maintain respirators and canisters in accordance with OSHA regulations (29 CFR 1910.134) and in accordance with manufacturer's instructions. The **CONTRACTOR** shall ensure that proper fit testing training and medical surveillance of respirator users is in accordance with OSHA regulations (29 CFR 1910.134).

**K. Gloves (outer)**

1. The **CONTRACTOR** shall supply a minimum of one pair of gloves per workman in areas where skin contact with hazardous material is possible. Work gloves shall consist of nitrile (NCR) or Neoprene material. Other gloves may be selected if required based on the potential chemical present. Cotton liners will be provided by the **CONTRACTOR** during cold weather.

**L. Gloves (inner)**

1. The **CONTRACTOR** shall supply Latex or equivalent surgical gloves to be worn inside the outer gloves.

**M. Boots (inner)**

1. The **CONTRACTOR** shall supply one pair of safety shoes or boots per workman and shall be of the safety-toe type meeting the requirements of 29 CFR 1910.136.

**N. Boots (outer)**

1. The **CONTRACTOR** shall provide and maintain one pair of overshoes for the on-site person entering a hazardous work area. The overshoes shall be constructed of rubber and shall be 12 inches high minimum.

<b>PERSONAL PROTECTIVE EQUIPMENT SPECIFICATIONS</b>				
<b>Description</b>	<b>Manufacturer</b>	<b>Model Number</b>	<b>Size</b>	<b>Comments</b>
Tyvek coveralls	Kappler/Abanda	1427/1428	xl/lg	NA
Saranex coveralls	Kappler/Abanda	77427/77428/77434	xl/lg	NA
Sijal acid suit	Chemtex Bata	91522-G	xl/lg	NA
Surgical gloves	Best	7005	xl/lg	NA
Neoprene gloves	Edmont	8-354	xl/lg	NA
Nitrile gloves	Granet	1711	10	NA
Butyl gloves	North	B-161	10	NA
Viton gloves	North	F-124	10/11	NA
Long gauntlet neoprene	Edmont	19-938	xl	NA
Cotton work gloves	North	Grip-N/K511M	men's	or equal
Latex booties	Rainfair	1250-Y	xl	NA
PAPR pesticide cartridges	Racal	AP-3	NA	NA
PAPR asbestos cartridges	Racal	SP-3	NA	NA
APR organic cartridges	MSA	GMC-H	NA	NA
APR asbestos cartridges	MSA	Type H	NA	NA
APR pesticide cartridges	MSA	GMP	NA	NA

### 1.13 Personnel Hygiene and Decontamination

#### A. On-Site Hygiene Facility

1. The **CONTRACTOR** shall provide a hygiene facility on site. The hygiene facility shall include the following:
  - Adequate lighting and heat;
  - Shower facilities for project personnel;
  - Laundry facilities for washing work clothes and towels;
  - Areas for changing into and out of work clothing. Work clothing should be stored separately from street clothing;
  - Clean and "dirty" locker facilities; and

- Storage area for work clothing, etc.
- a. **Portable "Boot Wash" Decontamination Equipment**
  1. The **CONTRACTOR** shall provide a portable decontamination station, commonly referred to as a "Boot Wash" facility for each hazardous work zone requiring decontamination for project personnel. These facilities shall be constructed to contain spent wash water, contain a reservoir of clean wash water, a power supply to operate a pump for the wash water, a separate entrance and exit to the decontamination platform, with the equipment being mobile, allowing easy transport from one hazardous work zone to the next. All such wash water shall be disposed of at the dewatering facility. An appropriate detergent such as trisodium phosphate shall be used.
- b. **Personnel Decontamination**
  1. The **CONTRACTOR** shall provide full decontamination facilities at all hazardous zones. Decontamination facilities must be described in detail in the HASP.
- c. **Disposal of Spent Clothing and Material**
  1. Contaminated clothing, used respirator cartridges and other disposable items will be put into drums/containers for transport and proper disposal in accordance with TSCA and RCRA requirements.
  2. Containers/55-gallon capacity drums shall conform to the requirements of 40 CFR Part 178 for Transportation of Hazardous Materials. The containers/drums containing excavated and other hazardous material shall be transported by the **CONTRACTOR** to the staging area.
  3. The **CONTRACTOR** is responsible for the proper container packaging, labeling, transporting, and disposal.

#### 1.14 Equipment Decontamination

##### A. General

1. All equipment and material used in this project shall be thoroughly washed down in accordance with established federal and state procedures before it is removed from the project. With the exception of the excavated materials, all other contaminated debris, clothing, etc. that cannot be decontaminated shall be disposed at the **CONTRACTOR's** expense by a method permitted by appropriate regulatory agencies. The cost for this element of work shall be incorporated in the lump sum bid for mobilization/demobilization the unit prices bid for disposal of decontamination liquids or as otherwise directed on this project. All vehicles and equipment used in the "Dirty Area" will be decontaminated to the satisfaction of the SO in the decontamination area on site prior to leaving the project. The **CONTRACTOR** will certify, in writing, that each piece of equipment has been decontaminated prior to removal from the site.

2. Decontamination shall take place within the designated equipment and materials decontamination area. The decontamination shall consist of degreasing (if required), followed by high-pressure, hot-water cleaning, supplemented by detergents as appropriate. Wash units shall be portable, high-pressure with a self-contained water storage tank and pressurizing system (as required). Each unit shall be capable of heating wash waters to 180 degrees Fahrenheit and providing a nozzle pressure of 150 psi.
3. Personnel engaged in vehicle decontamination will wear protective clothing and equipment as determined in the HASP. If the **CONTRACTOR** cannot or does not satisfactorily decontaminate his tools or equipment at the completion of the project, the **CONTRACTOR** will dispose of any equipment which cannot be decontaminated satisfactorily and will bear the cost of such tools and equipment and its disposal without any liability to the **ENGINEER**. At the completion of the project the **CONTRACTOR** shall completely decontaminate and clean the decontamination area.

**B. Decontamination Station**

1. The **CONTRACTOR** shall construct a decontamination station as described. The decontamination station shall be located in the Contamination Reduction Zone and shall be used to clean all vehicles leaving the Exclusion Zone prior to entering the Support Zone or leaving the site.
2. Each decontamination pad will be equipped with a drain system and holding tank on a properly graded area that has no deleterious material. The **CONTRACTOR** shall obtain and analyze one soil sample at the area where the decontamination pad is to be built and one soil sample after the pad has been dismantled, as directed by the Engineer. The cost associated with the samples shall be included in the cost of providing health and safety at the site.
3. Shop drawings of the decontamination pad shall be submitted to the **ENGINEER** for approval.
4. The **CONTRACTOR** shall be responsible for the provision of an adequately equipped decontamination pad which shall meet the following requirements:
  - a. Adequate dimensions to contain wash water and debris from the largest sized vehicles to be utilized in this contract. All vehicles and construction equipment leaving a contaminated zone shall be decontaminated.
  - b. Perimeter to be curbed and provided with splash guards.
  - c. 40 mil impervious HDPE membrane is required to prevent seepage into the ground.
  - d. Sumps, pumping facilities, and temporary storage facilities to be adequate for anticipated use.
  - e. Temporary storage facility may be mobile tankers or suitable fixed tanks. Fixed tanks shall be located within secondary containment areas capable of containing 100% of the tank capacity, or 110% of the largest tank where the secondary containment area holds more than one tank. The secondary containment area shall have a permeability of not more than  $1.0 \times 10^{-7}$  cm/sec.

- f. The decontamination pad is to be located at the exit of each contaminated zone such that previously non-contaminated areas are not contaminated during remedial activities. This may require the construction and use of multiple decontamination pads.
  - g. The **CONTRACTOR** shall place a minimum of six (6) inches of sand under the decontamination pad.
  - h. There shall be side wall panels, six (6) feet high minimum on two sides to prevent over spray.
- C. The **CONTRACTOR** shall clean the decontamination pad after daily use. No contamination shall be left behind. The **CONTRACTOR** will be required to dismantle, remove and properly dispose of the pad at their own expense.

### 1.15 Air Monitoring Program

#### A. General

1. The **CONTRACTOR** shall develop, as part of the HASP, an air monitoring program (AMP). The purpose of the AMP is to determine that the proper level of personnel protective equipment is used, to document that the level of worker protection is adequate, and to assess the migration of contaminants to off-site receptors as a result of site work.
2. The **CONTRACTOR** shall supply all personnel, equipment, facilities, and supplies to develop and implement the air monitoring program described in this section. Equipment shall include at a minimum real-time aerosol monitors, depending on work activities and environmental conditions.
3. The **CONTRACTOR's** AMP shall include both real-time and documentation air monitoring (personal and area sampling as needed). The purpose of real-time monitoring will be to determine if an upgrade (or downgrade) of PPE is required while performing on-site work and to implement engineering controls, protocols, or emergency procedures if **CONTRACTOR**-established action levels are encountered.
4. The **CONTRACTOR** shall also use documentation monitoring to ensure that adequate PPE is being used and to determine if engineering controls are mitigating the migration of contamination to off-site receptors. Documentation monitoring shall include the collection and analysis of samples for total nuisance dust.
5. To protect the public in the neighboring residential neighborhood, the **CONTRACTOR** must include in the AMP provisions for suspending work and implementing engineering controls based upon detectable odors, as well as upon instrument monitoring results.
6. During the progress of active remedial work, the **CONTRACTOR** will monitor the quality of the air in and around each active hazardous operation with real-time instrumentation prior to personnel entering these areas. Sampling at the hazardous work site will be conducted on a continuous basis. Any departures from general background will be reported to the SO prior to entering the area. The SO will determine when and if operations should be shut down.



7. Air monitoring (both real time and documentation monitoring) shall be conducted by a minimum of one dedicated person with communication to the foreman whenever intrusive activities (such as excavation, tank removal, and soil treatment) are performed in an exclusion zone. After completion of intrusive activities involving contaminated materials and removal of the exclusion zone, air monitoring may be discontinued.
8. Air monitoring equipment will be operated by personnel trained in the use of the specific equipment provided and will be under the control of the SO. A log of the location, time, type and value of each reading and/or sampling will be maintained. Copies of log sheets will be provided on a daily basis to the **ENGINEER's** on-site representative.

**B. Action Levels**

1. The **CONTRACTOR** is responsible for developing level of protection site action levels for organic vapors and/or inorganic species.
2. The SO, **CONTRACTOR**, and their personnel will be responsible for implementing, maintaining and enforcing the respirator program.
3. In addition to these on-site action levels, the following action levels will be established for work area and perimeter monitoring of particulates. If the following levels are attained at the perimeter of the exclusion zone, then work will cease until engineering controls bring levels down to acceptable limits. These levels are general and shall be used as minimum action levels. The **CONTRACTOR** shall develop site-specific work area and perimeter monitoring action levels based on contaminants found in the work areas.

<b>Parameter</b>	<b>Action Level</b>	<b>Action</b>
Total particulates	2.5 times background and/or greater than 150 µg/m <sup>3</sup>	Work ceases until mitigated
Visible Dust	Visible dust as determined by the <b>ENGINEER</b> .	Work ceases until mitigated

The following action levels shall be used as minimum action levels for organic vapors and odors.

<b>Parameter</b>	<b>Action Level</b>	<b>Action</b>
Total Organic Vapors	5 ppm at work zone	Workers use respirators
	25 ppm at work zone	Work ceases until mitigated
Odors	Noticeable odors outside the exclusion zone as determined by the <b>ENGINEER</b> .	Work ceases until mitigated

### C. Real-Time Monitoring

1. The **CONTRACTOR** shall submit a written copy of the real time air monitoring results for each Workday, by 10:00 a.m. the following Workday, which shall include an appropriately scaled map of the Work area depicting sample locations, wind direction and other pertinent meteorological data: date; time; analytical results; applicable standards and engineering controls implemented (if necessary).
2. Real-time monitoring shall be conducted using the following equipment:
3. Organic vapor photoionizers shall be Photovac TIP, total organic vapor analyzer as manufactured by Photovac International, 739B Park Avenue, Huntington, New York 11743 or equal. The **CONTRACTOR** shall provide one Photovac TIP for each and every hazardous work zone operation.
4. Particulate monitoring must be performed using real-time particulate monitors (MiniRam Model MIEPDM-3, or equal) and shall monitor particulate matter in the range of 0-10 microns diameter (PM<sub>10</sub>) with the following minimum performance standards:

Object to be measured: Dust, Mists, Aerosols

Measurement Ranges: 0.001 to 400 mg/m<sup>3</sup> (1 to 400,000 µg/m<sup>3</sup>)

Precision (2-sigma) at constant temperature:

+/- 10 µg/m<sup>3</sup> for one second averaging; +/- 1.5 µg/m<sup>3</sup> for sixty second averaging

Accuracy:

+/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 µm, g= 2.5, as aerosolized)

Resolution: 0.1% of reading or 1 µg/m<sup>3</sup>, whichever is larger

Particle Size Range of Maximum Response: 0.1-10 µ

Total Number of Data Points in Memory: 10,000

Logged Data:

Each Data Point: average concentration, time/date, and data point number

Run Summary:

overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number.

Alarm Averaging Time (user selectable):

real-time (1-60 seconds) or STEL (15 minutes)

Operating Time: 48 hours (fully charged NiMH battery); continuously with charger

Operating Temperature: -10 to 50°C (14 to 122°F)

Automatic alarms are suggested.

5. Particulate levels will be monitored and integrated over a period not to exceed 15 minutes. Consequently, instrumentation shall require necessary averaging hardware to accomplish this task. A monitor such as the personal DataRAM, manufactured by Monitoring Instruments for the Environment, Inc., or equivalent, can be used as a real time particulate screening tool. Although the instrument's design does not allow it to make a sharp differentiation of particulates at the PM<sub>10</sub> standard, the instrument could be used in the passive mode without a pump to provide readings in the 0.1 to 10µ range in the immediate vicinity of construction activities.

6. Monitor the air, using the same equipment, for 10-15 minutes upwind of the work site to establish background level. The background level shall be established before the start of each shift every day. In the event that downwind particulates are detected at levels in excess of 150 ug/m<sup>3</sup> or 2.5 times the established background level at the work site, re-measure the background concentrations upwind of the work zone using the same equipment. If the measured particulate level at the work zone is 100 ug/m<sup>3</sup> above background, monitor the downwind site perimeter and implement additional dust controls in the work zone. Continue to take hourly measurements of the upwind background concentrations and compare such concentrations with the particulate level at the work zone, until the downwind level at the work zone is less than 100 ug/m<sup>3</sup> above the upwind level. If at any time the measured particulate level at the work zone is more than 150 ug/m<sup>3</sup> over background concentration, the CONTRACTOR shall immediately suspend work at the site, promptly notify the Safety Officer, and implement suitable corrective action or engineering controls before work resumes.
7. Real-time monitoring will be conducted at any excavation of contaminated soil or sediments. Real-time monitoring will also be conducted at perimeter locations including an upwind (background) and three downwind locations. A background reading will be established daily at the beginning of the work shift. If the wind direction changes during the course of the day, a new background reading will be made. Downwind readings at the perimeter will be made when **CONTRACTOR** action levels have been exceeded at the excavation face or at a minimum of twice a day.
8. If action levels are exceeded at the perimeter location for fugitive dust, work must be suspended and engineering controls must be implemented to bring concentrations back down to acceptable levels.
9. Construction activities generate dust which could potentially transport contaminants off site. There may be situations when visible dust is being generated and leaving the site and the monitoring equipment does not measure PM<sub>10</sub> at or above the action level. Therefore, if dust is observed leaving the working site, additional dust suppression techniques must be employed by the **CONTRACTOR**.

#### **D. Documentation Monitoring**

1. Documentation monitoring will be conducted at the perimeter at a minimum of four locations (one upwind and three downwind) for total dust. Documentation monitoring will be conducted only during excavation, consolidation, staging, removal, or decontamination activities (i.e., intrusive activities).
  - a. Collect total nuisance dust using PVC collection filter and personnel sampling pump and analyze gravimetrically according to NIOSH 89-127 Method 0500.
  - b. Documentation samples will be collected at established perimeter locations. The four locations will be chosen according to site activities and expected wind direction.
  - c. The perimeter locations will be established and marked with high visibility paint or flagging at approximately equidistant points around the site. Samples will be collected at a height of 6 feet above ground surface.

- d. Documentation samples will be collected continuously, during the normal work hours when activities are occurring on site. At the end of the week, one days worth of sampling (i.e. three downwind locations and one upwind location) will be selected by the Engineer for analysis by the Contractor.
- e. The documentation samples will be collected over an eight (8) hour work period.
- f.. In addition to perimeter monitoring, personnel documentation samples will be collected on site once a week. On-site samples will be collected by choosing "high risk" workers to wear appropriate collection media for pesticides, metals, and particulate. "High risk" workers are those who are most likely to encounter contamination on a particular task. At a minimum, two high risk workers will be chosen to wear collection media for a particular day each week and the media will be analyzed with the documentation air monitoring samples.
- g. The **CONTRACTOR** shall submit a written copy of the documentation air monitoring results within 7 days of sampling, which shall include an appropriately scaled map of the Work area depicting sample locations, wind direction and other pertinent meteorological data: date; time; analytical results; applicable standards and engineering controls implemented (if necessary).
- h. The documentation sampling submitted shall also identify the "high risk" workers chosen to wear appropriate collection media for contaminants; date media was worn; task involved; analytical results and applicable standards.
- i. Payment for air monitoring will not be approved until the above submittals have been received and approved by the **ENGINEER**.

#### **E. Community Air Monitoring**

- 1. Real-time air monitoring, for particulate levels at the perimeter of the work area is necessary:
  - a. Particulates should be continuously monitored upwind, downwind and within the work area at temporary particulate monitoring stations. If the downwind particulate level is 150 ug/m<sup>3</sup> greater than the upwind particulate level, then dust suppression techniques must be employed. All readings must be recorded and be available for **ENGINEER**'s review.
- 2. The **CONTRACTOR** shall install a meteorological station on site that will be capable of recording, at a minimum, wind velocity and direction.

#### **1.16 Emergency Equipment and First Aid Requirements**

##### **A. Communications**

- 1. The **CONTRACTOR** shall provide telephone communication at the site field office. Emergency numbers, such as police, sheriff, fire, ambulance, hospital, poison control, NYSDEC, EPA, NYSDOH, and utilities, applicable to this site shall be prominently posted near the telephone.
- 2. The **CONTRACTOR** shall establish a signaling system for emergency purposes.

**B. Emergency Shower and Emergency Eye Wash**

1. The **CONTRACTOR** shall supply and maintain one portable eyewash/body wash facility per active hazardous work zone. The facility shall have a minimum water capacity of 10 gallons and shall conform to OSHA regulations 29 CFR 1910.151. The portable eyewash/body wash facility shall be manufactured/ supplied by Direct Safety Company, Lab Safety Supply Company, or other appropriate suppliers.

**C. Fire Extinguishers**

1. The **CONTRACTOR** shall supply and maintain at least one fire extinguisher in the **CONTRACTOR's** office and one at each hazardous work zone. The fire extinguisher shall be a 20-pound Class ABC dry fire extinguisher with UL-approval per OSHA Safety and Health Training Standards 29 CFR 1910.157. The fire extinguisher shall be manufactured/supplied by Direct Safety Company, Lab Safety Supply Company, or other appropriate suppliers.

**D. First Aid Kit**

1. The **CONTRACTOR** shall supply and locate in his project office and at each and every hazardous work zone one 24-unit (minimum size) "industrial" or "Contractor" first aid kit, required by OSHA requirements 29 CFR 1910.151. The first aid kit shall be manufactured/supplied by Norton, Scott, or other appropriate suppliers.

**E. Emergency Inventory**

1. In addition to those items specified elsewhere, the SO will maintain the following inventory of equipment and protective clothing for use at the site in the event of emergencies.
  - a. Washable coveralls;
  - b. Gloves (outer);
  - c. Gloves (inner);
  - d. SCBA;
  - e. Escape SCBA (authorized visitor use);
  - f. Face shields;
  - g. Safety glasses;
  - h. Respirators and appropriate cartridges;
  - i. Disposable coveralls;
  - j. Chemical-resistant boots and latex boot covers;
  - k. Hard hats;
  - l. Bottled breathing air; and

- m. Rain suits.

## **1.17 Emergency Responses/contingency Plan and Procedures**

### **A. Daily Work**

1. During the progress of work, the **CONTRACTOR** will monitor the quality of the air in and around each active hazardous operation prior to personnel entering these areas. Sampling shall be conducted on a continuous basis. Based on the air monitoring data, the proper level of protection will be chosen by the SO.

### **B. Emergency Vehicle Access**

1. In the event that emergency services vehicles (police, fire, ambulance) need access to a location which is blocked by the working crew operations, those operations (equipment, materials, etc.) will be immediately moved to allow those vehicles access. Emergency crews will be briefed as to site conditions and hazards by the SO. All vehicles and personnel will be decontaminated prior to leaving the site.
2. The **CONTRACTOR** shall schedule a site briefing with the local Fire Department at the completion of mobilization to familiarize emergency response personnel with his operations and site layout.

### **C. Personal Injury Response Plan**

1. In cases of personal injuries, the injured person or the crew personnel in charge will notify the SO. The SO will assess the seriousness of the injury, give first aid treatment if advisable, consult by telephone with a physician if necessary, and arrange for hospitalization if required. The SO will arrange for an ambulance if required.
2. If soiled clothing cannot be removed, the injured person will be wrapped in blankets for transportation to the hospital.
3. Personnel, including unauthorized personnel, having skin contact with chemically contaminated liquids or soils shall be flushed with water after any wet or soiled clothing has been removed.
4. These personnel should be observed by the SO to ascertain whether there are any symptoms resulting from the exposure. If there is any visible manifestation of exposure such as skin irritation, the project personnel will refer to a consulting physician to determine whether the symptoms were the result of a delayed or acute exposure, a secondary response to exposure such as skin infection, or occupational dermatitis. All episodes of obvious chemical contamination will be reviewed by the SO in order to determine whether changes are needed in work procedures.

### **D. Route to the Hospital**

1. The **CONTRACTOR** shall post in conspicuous places in the Support Zone a map with written directions to the nearest hospital or emergency medical treatment facility.

**E. Fire Service**

1. The **CONTRACTOR** will make arrangements to take immediate fire fighting and fire protection measures with the local Fire Chief. If there is a fire, the crewmen or their person in charge will immediately call the SO. The SO will immediately call the fire personnel.
2. The air downwind from any fire or explosion will be monitored immediately in order to protect workers and the nearby community. If personal injuries result from any fire or explosion, the procedures outlined in the Personal Injury Response Plan are to be followed.

**F. Master Telephone List**

1. The attached master telephone list will be completed and prominently posted at the field office. The list will have telephone numbers of all project personnel, emergency services including hospital, fire, police, and utilities. In addition, two copies with telephone numbers are to be given to the **DEPARTMENT** for emergency reference purposes.

<u>Emergency Service</u>		<u>Telephone Number</u>
Fire Department		911
Police Department		911
Ambulance		911
Hospital/Emergency Care Facility		To be determined
Poison Control Center		(800) 336-6997
Chemical Emergency Advice (CHEMTREC)		(800) 424-9300
NYSDEC Albany Office	Work Hours	To be determined
	After Hours	To be determined
NYSDEC Regional Office	Work Hours	To be determined
County Dept. of Health		To be determined
New York State Dept. of Health - Albany		To be determined
New York State Dept. of Health - Regional		To be determined

## 1.18 Heat Stress Monitoring

- A. Site personnel who wear protective clothing allow body heat to be accumulated with an elevation of the body temperature. Heat cramps, heat exhaustion, and heat stroke can be experienced, which, if not remedied, can threaten life or health. Therefore, an American Red Cross Standard First Aid book or equivalent will be maintained on site at all times so that the SO and site personnel will be able to recognize symptoms of heat emergencies and be capable of controlling the problem.
- B. When protective clothing is worn, especially Levels A and B, the suggested guidelines for ambient temperature and maximum wearing time per excursion are:

Ambient Temperature (°F)	Maximum Wearing Time Per Excursion (Minutes)
Above 90	15
85 to 90	30
80 to 85	60
70 to 80	90
60 to 70	120
50 to 60	180

- C. One method of measuring the effectiveness of employees' rest-recovery regime is by monitoring the heart rate. The "Brouha guideline" is one such method:
- During a 3-minute period, count the pulse rate for the last 30 seconds of the first minute, the last 30 seconds of the second minute, and the last 30 seconds of the third minute.
  - Double the count.
- D. If the recovery pulse rate during the last 30 seconds of the first minute is at 110 beats/minute or less and the deceleration between the first, second, and third minutes is at least 10 beats/minute, the work-recovery regime is acceptable. If the employee's rate is above that specified, a longer rest period is required, accompanied by an increased intake of fluids.
- E. In the case of heat cramps or heat exhaustion, "Gatorade" or its equivalent is suggested as part of the treatment regime. The reason for this type of liquid refreshment is that such beverages will return much-needed electrolytes to the system. Without these electrolytes, body systems cannot function properly, thereby increasing the represented health hazard.
- F. This liquid refreshment will be stored in a cooler at the edge of the decontamination zone in plastic squeeze bottles. The plastic bottles will be marked with individual's names. Disposable cups with lids and straws may be used in place of the squeeze bottles. Prior to drinking within the decontamination zone, the project personnel shall follow the following decontamination procedures:



1. Personnel shall wash and rinse their outer gloves and remove them.
  2. Personnel shall remove their hard hats and respirators and place on table.
  3. Personnel shall remove their inner gloves and place them on table.
  4. Personnel shall wash and rinse their face and hands.
  5. Personnel shall carefully remove their personal bottle or cup from the cooler to ensure that their outer clothes do not touch any bottles, cups, etc.
  6. The used bottle or cups will not be returned to the cooler, but will be placed in a receptacle or container to be cleaned or disposed of.
  7. Personnel shall replace their respirators, hard hats, gloves and tape gloves prior to re-entering the hazardous zone.
- G.** When personnel are working in situations where the ambient temperatures and humidity are high--and especially in situations where protection Levels A, B, and C are required--the SO must:
- Assure that all employees drink plenty of fluids ("Gatorade" or its equivalent);
  - Assure that frequent breaks are scheduled so overheating does not occur; and
  - Revise work schedules, when necessary, to take advantage of the cooler parts of the day (i.e., 5:00 a.m. to 1:00 p.m., and 6:00 p.m. to nightfall).

#### **1.19 Cold Stress**

- A.** Whole-body protection shall be provided to all site personnel that have prolonged exposure to cold air. The right kind of protective clothing shall be provided to site personnel to prevent cold stress. The following dry clothing shall be provided by the **CONTRACTOR** as deemed necessary by the SO:
- Appropriate underclothing (wool or other);
  - Outer coats that repel wind and moisture;
  - Face, head, and ear coverings;
  - Extra pair of socks;
  - Insulated safety boots; and
  - Glove liners (wool) or wind- and water-repellant gloves.
- B.** The SO will use the equivalent chill temperature when determining the combined cooling effect of wind and low temperatures on exposed skin or when determining clothing insulation requirements.

- C. Site personnel working continuously in the cold are required to warm themselves on a regular basis in the on-site hygiene facility. Warm, sweet drinks will also be provided to site personnel to prevent dehydration. The SO shall follow the work practices and recommendations for cold stress threshold limit values as stated by the 1991-1992 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices by the American Conference of Governmental Industrial Hygienists or equivalent cold stress prevention methods.

## 1.20 Logs, Reports and Record Keeping

### A. Security Log

1. A daily log of security incidents and visitors granted access to the site will be maintained, as well as a log of all personnel entering and exiting the site.
2. All approved visitors to the site will be briefed by the SO on safety and security, provided with temporary identification and safety equipment, and escorted throughout their visit. Site visitors will not be permitted to enter a hazardous work zone.
3. Project site shall be posted, "Warning: Hazardous Work Area, Do Not Enter Unless Authorized," and access restricted by the use of a snow fence.

### B. Safety Log

1. The **CONTRACTOR's** SO will maintain a bound safety logbook. The log will include all health and safety matters on site and include, but not be limited to, the following information:
  - Date and weather conditions on site;
  - A description of the proposed work for the day;
  - Times when site personnel arrive and depart;
  - Air monitoring data;
  - Heat and/or cold stress monitoring;
  - Decontamination procedures;
  - Type and calibration of air sampling/monitoring equipment used;
  - Safety meeting summaries; and
  - Accidents.

### C. Emergency Or Accident Report

1. Any emergency or accident will be reported immediately to the SO. The **ENGINEER** will also be notified. The **CONTRACTOR** will submit a written report immediately, but no later than 24 hours of its concurrence. The report will include, but not be limited to, the nature of the problem, time, location, areas affected, manner and methods used to control the emergency, sampling and/or monitoring data, impact, if any, to the surrounding community, and corrective actions the **CONTRACTOR** will institute to minimize future occurrences. All spills will be treated as emergencies.

## **D. Daily Work Report**

1. The **CONTRACTOR** shall maintain a daily work report that summarizes the following:

- Work performed,
- Level of protection,
- Air monitoring results,
- Safety-related problems, and
- Corrective actions implemented.

### **1.21 Posting Regulations**

- A.** The **CONTRACTOR** will post signs at the perimeter of the Exclusion Zone that state "Warning, Hazardous Work Area, Do Not Enter Unless Authorized." In addition, a notice directing visitors to sign in will be posted at the project site. Also, the **CONTRACTOR** will post a sign stating that any questions about the site should be directed to the New York State Department of Environmental Conservation.
- B.** Safety regulations and safety reminders will be posted at conspicuous locations throughout the project area. The following safety regulations and safety reminders are at a minimum to be posted around the job site:

#### **SAFETY REGULATIONS**

(To be Posted for Project Personnel)

The main safety emphasis is on preventing personal **contact** with gases, soils, sludge and water. Towards that end, the following rules have been established.

#### **Regulations**

- A.** Eating, drinking and smoking on the site is **PROHIBITED** except in specifically designated areas.
- B.** All project personnel on the site must wear clean or new gloves daily.
- C.** If you get wet to the skin, you must wash the affected area with soap and water immediately. If clothes in touch with the skin are wet, these must be changed.
- D.** You must wash your hands and face before eating, drinking or smoking.
- E.** Observe regulations on washing and removing boots before entering the dressing room or a clean area and showering before going home.

## Recommendations

- A. Do not smoke on site with dirty hands; better yet, do not smoke.
- B. Check for any personal habit which could get soil or water into your body.

Examples: food off your fingers, wiping your face or nose with a dirty hand or running a dirty hand through your hair.

- C. Check that any regularly worn clothing is clean. Examples include dirty watchbands, neck chains and a dirty liner on your safety helmet. Safety practices with poisonous chemicals can be summed up with a few words:

**Don't breathe in chemical odors and don't touch the water, soil, and sludge.**

If you do get dirty or wet, clean up as soon as possible.

## SAFETY REMINDER FOR TOXIC CHEMICALS

(Post for Project Personnel)

Chemicals can't cause problems unless you breathe them, eat them, or put them on your skin.

### Chemicals in Gases, Soils, Sludge, and Water

Don't let them go into your mouth, nose, or stay on your skin.

Use common personal hygiene.

- A. Don't eat or drink on the site.
- B. No smoking in the area of work.
- C. Wear protective clothing.
- D. Glove liners must be **clean**.
- E. Wash your hands whenever practical. Wash before eating, drinking, or smoking.
- F. Don't carry chemicals home to your family. (For example, on clothing, mud in the car, dirty hands.)
- G. Follow strictly the HASP.

## **1.22 Community Protection Plan**

### **A. General**

1. Develop, as part of this HASP, a Community Protection Plan (CPP). The CPP shall outline those steps to be implemented to protect the health and safety of surrounding human population and the environment.

### **B. Air Monitoring**

1. As part of the Air Monitoring Program, use real-time monitoring and documentation sampling as described in the Subpart "Air Monitoring Program" of this section to determine if off-site emission, as a result of site work, poses a threat to the surrounding community.
2. Provide real-time air monitoring for volatile compounds and particulate levels as the perimeter of the work area as necessary. Include the following:
  - a. Volatile organic compounds must be monitored at the downwind perimeter of the work area on a continuous basis. If total organic vapor levels exceed 5 ppm above background, work activities shall be halted and monitoring continued under the provisions of a Vapor Emission Response Plan. All readings shall be recorded and be available for State (DEC & DOH) personnel to review.
  - b. Particulates shall be continuously monitored at the 4 documentation sampling stations for a total of 4 dust monitors. If the downwind particulate level is 150 ug/m<sup>3</sup> greater than the upwind particulate level, dust suppression techniques shall be employed. All readings shall be recorded and be available for State (DEC & DOH) personnel to review.

### **C. Vapor Emission Response Plan**

1. If the ambient air concentration of organic vapors exceed 5 ppm above background at the perimeter of the work area, activities shall be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities may resume. If the organic vapor levels are greater than 5 ppm over background but less than 225 ppm over background at the perimeter of the work area, activities may resume provided the organic vapor level 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.
2. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities shall be shutdown. When work shutdown occurs, downwind air monitoring as directed by the SO shall be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

### **D. Major Vapor Emission**

1. If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, all work activities shall be halted.

2. If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, the air quality shall be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).
3. If efforts to abate the emission source are unsuccessful and if organic vapor levels are approaching 5 ppm above background and persist for more than 30 minutes in the 20 Foot Zone, the Major Vapor Emission Response Plan shall automatically be placed into effect.
4. However, the Major Vapor Emission Response Plan shall be immediately placed into effect if organic vapor levels are greater than 10 ppm above background levels.

#### **E. Major Vapor Emission Response Plan**

1. Upon activation, the following shall be undertaken:
  - a. All Emergency Response Contracts as listed in the Subpart titled "Emergency Response and Contingency Plan" paragraph titled "Telephone List."
  - b. The local police authorities shall immediately be contacted by the SO and advised of the situation. Coordinate with local officials to arrange for notification and evacuation of the surrounding community.
  - c. Frequent air monitoring shall be conducted at 30 minutes intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the SO.
2. The Air Monitoring Program shall include real-time air monitoring and shall be conducted at the perimeter of the site. Particulates should be continuously monitored upwind, downwind and within the Exclusion Zone at temporary particulate monitoring stations. If the downwind particulate level is more than 2.5 times greater than the upwind particulate level and greater than 150 ug/m<sup>3</sup>, then dust suppression techniques shall be employed. This is a general action level. A site-specific action level shall be developed based on available analytical data. All readings shall be recorded and be available for ENGINEER, NYSDEC, and NYSDOH personnel to review.
3. Coordinate with local officials to arrange for notification and evacuation of the surrounding community in the event that off-site emissions pose a threat.

#### **F. Odor**

1. Foam active work areas to reduce odors if odor complaints are received from nearby residences during site activities. Odor masking agents or other odor control methods may be used subject to ENGINEER's review. Continue odor suppression during each day that odor complaints are received.

## **G. Off-Site Spill Response**

1. Produce as part of the HASP a Spill Response Plan, also coordinated with local officials, in case of an off-site spill of either liquid or solid wastes. The plan shall include transportation routes and times, as well as the minimum requirements set forth in the Subpart titled "On-Site Spill Containment Plan." The driver shall be supplied with Material Safety Data Sheets (MSDSs), a 24-hour emergency phone number, and instructions for reporting emergencies to local agencies and the project site.

### **1.23 Confined Space Work**

- A. Evaluate the work areas and determine if there are any permit-required confined spaces. If the **CONTRACTOR** determines that personnel will not need to enter a permit-required confined space, appropriate measures to prevent personnel from entering such shall be taken. If the **CONTRACTOR** determines that personnel will need to enter a permit-required confined space, develop and implement a written permit-required confined space program.
- B. The written program shall comply with 29 CFR 1910.146 and shall include the following:
  1. Implement methods to prevent unauthorized entry;
  2. Identify and evaluate the hazards of permit-required confined spaces before personnel entry;
  3. Develop and implement procedures for safe permit-required confined space entry;
  4. Provide the appropriate equipment to evaluate permit-required confined spaces;
  5. Evaluate permit-required confined spaces when entry operations are conducted;
  6. Provide at least one attendant outside the permit-required confined space which will be entered; .
  7. Designate the personnel who will have active roles in entry operations;
  8. Develop and implement procedures for obtaining rescue and emergency services;
  9. Develop and implement a system for the preparation, issuance, use, and collection of entry permits;
  10. Develop and implement procedures to coordinate entry operations when personnel from more than one employer are working;
  11. Develop and implement procedures for concluding the entry;
  12. Review and revise entry operations if measures may not protect personnel; and
  13. Review the permit-required confined space program to ensure personnel are protected from the hazards present.
- C. Copies of the permit-required confined space program and employee training certificates shall be included with the HASP.

## **2. PRODUCTS**

Not Used.

## **3. EXECUTION**

Not Used.

**\* END OF SECTION \***



## SPEC 00004

### SURVEY

#### 1. GENERAL

##### 1.01 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. State of New York Department of Transportation document entitled “Standard Specifications,” dated May 1, 2008 or latest revision.
- C. United States Bureau of the Budget document entitled “United States National Map Accuracy Standards.”
- D. Federal Geodetic Control Committee document entitled “Standards and Specifications for Geodetic Control Networks.”

##### 1.02 RELATED SECTIONS

- A. Not used.

##### 1.03 SUBMITTALS

- A. Submit the following in accordance with Section VIII, Article 5.23-5.29, “Shop Drawings and Samples.” The submittals described below are minimum requirements for surveying. Additional surveys needed to document quantities for payment will also be performed as directed by the **ENGINEER**.

#### 1. Drawings

##### a. Initial Site Survey

- 1. Perform an Initial Site Survey to establish existing site conditions, baseline elevations and benchmarks for the layout and completion of Work as specified, as shown on the Drawings and as described in the Contract Documents. Any errors, omissions or apparent discrepancies found in the Drawings as a result of the completion of the Initial Site Survey shall be called to the **ENGINEER**'s attention for interpretation prior to proceeding with the work.

b. Intermediate Site Survey

1. Upon completion of the excavation of contaminated soil, the **CONTRACTOR** shall perform an Intermediate Site Survey showing all dimensions, locations, angles and elevations of the final excavation limits, as well as the elevation and location of all confirmation samples taken. The Intermediate Site Survey shall also show all installed utilities (water, sanitary sewer, storm sewer, etc.), including inverts at all changes in vertical alignment.
2. Calculations documenting the amount of soil removed based upon comparing the Intermediate Site Survey and the Initial Site Survey shall be depicted on the survey. The Intermediate Site Survey shall be used for payment purposes for excavation, and handling and disposal of contaminated soil.

c. Record Drawings

1. Following completion of construction activities and prior to final acceptance, the **CONTRACTOR** shall perform a detailed physical/topographical survey of the completed work. These drawings shall constitute the Record Drawings for the project.

B. The **CONTRACTOR** shall submit to the **ENGINEER** two sets of paper prints and an electronic version for review and approval of each submittal specified in SPEC 00004, 1. – General, 1.03 Submittals, A, 1. – Drawings. Electronic versions shall be in AutoCAD<sup>®</sup> and portable document format.

C. The paper print of each submittal specified in SPEC 00004, 1. – General, 1.03 Submittals, A, 1. – Drawings shall be signed and sealed by a New York State licensed surveyor retained by the **CONTRACTOR**.

**2. Records**

a. Field Data

1. Original final survey book (hard bound) upon completion of each phase of survey work. Include all field notes, notations, and descriptions used and compiled during the field survey. Photocopies or carbon copies are not acceptable.

- b. Coordinate List
  - 1. Final coordinate list of all survey points with specific coordinates and elevations.
- c. Volume Quantity Calculations
  - 1. All calculations required to support requests for payments and verifications of volumes and areas involved.

## 2. PRODUCTS

Not used.

## 3. EXECUTION

### 3.01 GENERAL

- A. The following surveys must be conducted during the project, and will form the basis of measurement for payment of most cubic yard, linear foot, and square foot pay items:
  - 1. Initial Site Survey.
  - 2. Intermediate Site Survey.
  - 3. Record Drawings.
- B. All work in this section shall be performed by a licensed professional land surveyor registered to practice in the State of New York.
- C. Mapping shall conform to the National Map Accuracy Specifications and shall bear the seal of a licensed land surveyor registered in New York. Map shall contain a title block with the name and address of the **CONTRACTOR** and the seal and signature of the registered surveyor. Record Drawings shall include labeled contour lines, property line locations, horizontal grid systems, cross-sections and details modified to show “as-built” conditions, details and cross sections not on original drawings, and any field changes of elevations, dimensions, and details.

### 3.02 INITIAL SITE SURVEY

- A. The Initial Site Survey shall be performed prior to the performance of the Work to verify existing site conditions and to establish benchmarks for the completion of Work, as specified. The Initial Site Survey shall show the exact surveyed location

and elevation of all Work in relation to the accepted benchmarks and reference points, including, but not limited to:

1. Aboveground and buried utilities.
2. Property boundary and established reference points.
3. Ground surface elevations measured across the entire site at the intersection points of a 25'-0" by 25'-0" grid, as approved by the **ENGINEER**.
4. Existing site features (e.g., site structures, limits of paved areas, fence, gates, etc.).
5. Groundwater monitoring well and/or piezometer locations and elevations of top of casings to within  $\pm 0.01$  foot.

### **3.03 INTERMEDIATE SITE SURVEY**

A. The Intermediate Site Survey shall show the exact surveyed locations and elevations of all Work in relation to the accepted benchmarks and reference points, including, but not limited to:

1. Property boundary and established reference points.
2. All utilities identified or uncovered during the performance of the Work.
3. Limits of all excavations.
4. For small excavation areas ( $\leq 625$  ft<sup>2</sup>) elevation of excavation bottom, measured at each corner of and the center of (five locations) the excavation area, as approved by the **ENGINEER**, and volume in cubic feet of soil removed.
5. For larger excavation areas ( $> 625$  ft<sup>2</sup>) elevation of excavation bottom, measured at each corner of the limits of excavation and at the intersection points of a 25'-0" by 25'-0" grid, as approved by the **ENGINEER**.
6. Elevations and locations of all post-excavation confirmation soil samples collected.

### **3.04 RECORD DRAWINGS**

A. The Record Drawings shall show the exact surveyed locations and elevations of all Work in relation to the accepted benchmarks and reference points, including, but not limited to:

1. Property boundary and established reference points.
2. Results of all construction activities.
3. All deviations from the Contract Documents.

### **3.05 HORIZONTAL AND VERTICAL CONTROL**

- A. Horizontal and vertical control points shall be referenced to the permanent site control monuments to an accuracy of one part in ten thousand. Provide control points at each location of work using closed traverse and leveling loops.
- B. Provide grade and offset stakes to control the location and depth of excavation and fill. Survey the location and elevation of all excavation and fill limits to document the areas remediated.

### **3.06 COORDINATE LIST**

- A. Compute the coordinates of each surveyed point on the New York State Plane Coordinate System using the 1983 North American Datum. The elevations shall be on the North American Vertical Datum of 1988.

### **3.07 SITE CONTROL**

- A. Provide one permanent site control monument with elevations referenced to a North American Vertical Datum of 1988 benchmark and coordinates referenced to the New York State Plane Coordinate System using the 1983 North American Datum. The monument locations and elevations shall meet the Federal Geodetic Control Committee Standard for second order (horizontal and vertical). Final locations will be reviewed by the **ENGINEER** for acceptability.

### **3.08 SURVEY NOTES**

- A. Record all field work in a clear, legible, and complete manner. The Field Notes shall contain a complete description of the nature and location of the new and existing points. The record shall also include a sketch of the point locations, and the monument witness points.

### **3.09 UTILITIES**

- A. Scan the construction site with electromagnetic and/or sonic equipment, and mark the surface of the ground where existing underground utilities are discovered. Verify the elevations of existing pipe, utilities, and any type of underground obstruction not indicated or specified to be removed but indicated or discovered during scanning in locations to be traversed by piping, ducts and other work to be

installed. Verify elevations before installing new work closer than nearest manhole or other structure at which an adjustment in grade can be made.

- B. Record locations and elevations of all utilities.

### **3.010 SURVEY CHECKS**

- A. Provide the **ENGINEER** with survey, level, tripod, rod and measuring tape to perform survey checks of the work. Provide an individual to assist the **ENGINEER** in performing survey checks.

**\* END OF SECTION \***

## SPEC 00005

### PROJECT COORDINATION

#### 1. GENERAL

##### 1.01 DESCRIPTION

- A. This section includes: requirements for contractor coordination, subcontractor approvals and project schedule status and updating.

##### 1.02 SUBMITTALS

- A. Submit the following in accordance with Section VIII, Article 5.23-5.29, “Shop Drawings and Samples.”
1. Subcontractor List: submit for review and approval. This list shall be updated and submitted each time a new subcontractor is proposed for employment on the project (see Section VIII, Article 5.8.1).
  2. Uniform Contracting Questionnaire: submit in accordance with instructions in Section V, Article 2(e). Submit properly executed New York State Uniform Contracting Questionnaire for subcontracts valued at greater than \$10,000. The **DEPARTMENT** requires a minimum of two (2) weeks to review.
  3. Project Schedule Status Reports: submit biweekly 48 hours prior to project meetings.
  4. Project Schedule Updates: submit proposed updates for approval prior to updating the project schedule.

#### 2. PRODUCTS

##### 2.01 SUBCONTRACTOR LIST

- A. The **CONTRACTOR** shall submit a complete list of proposed subcontractors (including disposal facilities) identifying name, address, telephone number, contact, type of work to be subcontracted, dollar amount and M/WBE status. No subcontractors can begin work without the written approval of the **DEPARTMENT**.



## **2.02 PROJECT SCHEDULE STATUS REPORTS AND UPDATES**

- A.** Project Schedule status reports shall be based on the current approved Project Schedule and shall show the previous two weeks and succeeding two weeks as of the corresponding project meeting date. The schedule shall state actual progress.
- B.** Project schedule updates shall be in accordance with Section X, Spec 00001.

## **3. EXECUTION**

### **3.01 SCHEDULE**

- A.** The **CONTRACTOR** shall be solely responsible for the coordination of schedules for any and all of his subcontractors. The **ENGINEER** shall approve all schedules and the **CONTRACTOR** shall coordinate with the **ENGINEER** to make any appropriate changes to the schedule.
- B.** The **CONTRACTOR** shall cooperate with the **ENGINEER's** review of the project schedule and promptly furnish the **ENGINEER** with such data as may be requested in accordance with **ENGINEER's** review of the project schedule and incorporate required revisions.
- C.** It shall be the duty of the **CONTRACTOR** to conform to the specified schedule and to arrange his work in such a manner that it will be completed within the time limits indicated.
- D.** The **CONTRACTOR** shall coordinate his letting of subcontracts (if any), material purchases, delivery of materials and sequence of operations to conform to the schedule and shall furnish proof of same as required by the **ENGINEER**.
- E.** See Section X, Specification 00001 for further requirements.

### **3.02 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- A.** The **CONTRACTOR** shall coordinate a list of required submittal packages with the **ENGINEER** prior to any submittals being made, beyond those described in Section III, Article 5 as Required Bid Submittals.
- B.** The **CONTRACTOR** shall coordinate with the **ENGINEER** the transmittal form and content prior to any submittals.

**\* END OF SECTION \***

## SPEC 00006

### FIELD OFFICES

#### 1. GENERAL

- A. The **CONTRACTOR** shall erect, furnish and maintain a field office with a telephone on the site of the work as approved by the **ENGINEER**, during the entire period of work. The **CONTRACTOR**, or an authorized agent, shall be present at his office at all times while his work is in progress. Readily accessible copies of both the Contract Documents and the latest approved working drawings shall be kept at his field office.
- B. The **CONTRACTOR** shall provide one separate and lockable field office at the site for the exclusive use of the **DEPARTMENT** and the **ENGINEER**.

#### 1.01 SUBMITTALS

- A. Submit the following in accordance with Section VIII, Articles 5.23-5.29 “Shop Drawings and Samples:”
  - 1. Floor plan of field office for **DEPARTMENT/ENGINEER** showing layout of rooms, furnishings, facilities and utilities.
  - 2. The **CONTRACTOR** shall submit for approval a plan for maintenance of the **DEPARTMENT**'s and the **ENGINEER**'s office facilities.

#### 1.02 SCHEDULING

- A. The Field Office Trailer shall be ready for occupancy within fourteen (14) days following the notice to proceed unless written approval of an alternate date is obtained by the **CONTRACTOR** from the **ENGINEER**, and shall be provided until substantial completion.

#### 2. PRODUCTS

The **DEPARTMENT**'s and the **ENGINEER**'s Field Office Trailer shall be furnished as stipulated herein and in a location directed by the **DEPARTMENT/ENGINEER**. All necessary installations shall be provided.

#### 2.01 OFFICE UNIT REQUIREMENTS

- A. The office unit shall be structurally sound and weathertight, with floors raised above ground and open to allow free circulation of air.
- B. Ceiling height: 7'0” minimum.

- C. Insulation: Minimum R-11 in floors, R-19 in ceiling.
- D. Exterior Doors: Minimum 2, with key in knob lock sets.
- E. Windows: Approximately 7% of exterior wall area with storm windows (or double glazing) and insect screens.
- F. Air conditioning system with sufficient capacity to maintain field office temperature below 75 degrees Fahrenheit.
- G. Heating system with sufficient capacity to maintain field office temperature above 70 degrees Fahrenheit.
- H. VCT or sheet vinyl floor finish.
- I. Wood paneled walls.
- J. Fluorescent lights in all rooms sufficient to maintain a minimum of 60 foot candles at desk top level.
- K. Bulletin board (4 feet x 6 feet) in meeting room.
- L. Insulated skirting from bottom of unit to grade, around entire unit.
- M. Electric energy for the duration of contract.
- N. Two full height partitioned offices with locking doors, each having a minimum of 96 square feet of floor area.
- O. A full height partitioned closet with door having a minimum 4 square feet of floor area.
- P. Meeting area having approximately 140 square feet of floor area.
- Q. One (1) mailbox.
- R. Sufficient supply of outlets.

## **2.02 FURNITURE AND EQUIPMENT**

- A. Furniture
  1. Two (2) two-drawer, fireproof, file cabinets with locks and keys.
  2. One drafting table, 48" x 89".
  3. Two (2) flat-top movable desks, 44" x 30", with lockable drawers.

4. One bookshelf, 3' x 4' or wall shelves with a total of 12 feet of shelf space.
5. Four (4) office chairs.
6. One drafting stool.
7. Three (3) large wastebaskets.
8. One office table with laminated top, two feet six inches by 10 feet (2.5' x 10').
9. Eight straight backed chairs.
10. 3'x8' carpet runners at entrances.

**B. Equipment**

1. One fax machine with a dedicated telephone line, built-in telephone, auto dial, and auto receive features. Supplies: 1 box of paper for every two months of project.
2. One photocopying machine with auto feed, 10 bin sorter and stand.
  - a. Supplies: 1 box of 8.5"x11" paper for every month of project.  
1 box of 11"x17" paper for every two months of project.
  - b. Service: Provide a service contract for duration of project.
3. One calculator with printing capability. Supplies: Tapes sufficient for project.
4. One ten (10)-pound class ABC fire extinguisher.
5. One refrigerated bottled water dispenser with hot and cold service, cups and bottled water for the duration of the project.
6. First aid kit (Bullard Mfg. Co., Model 136 or equal).

**C. Supplies:**

1. One box of printer paper for every two months of project.
2. One printer cartridge for every month of project.
3. One 10 pack of 100 MB zip disks.
4. One 10 pack of 700 MB CD ROMs.

## **2.03 TELEPHONE SERVICE, INTERNET SERVICE AND EQUIPMENT**

### **A. Service**

1. One direct line for exclusive use of the **DEPARTMENT**.
2. One direct line for exclusive use of the **ENGINEER**.
3. One direct line for the fax machine.
4. Full email and high speed internet services shall be provided and maintained by the **CONTRACTOR** for the Engineer's use throughout the construction period. The **CONTRACTOR** shall maintain ownership at the completion of the Contract.
5. Locate the service connects as directed by the **ENGINEER**. The **CONTRACTOR** shall be responsible for the cost of the internet service and long distance and local calls made from the **ENGINEER's/DEPARTMENT's** field office.

### **B. Equipment**

1. One phone with speaker capability for the **ENGINEER**.
2. One phone for the **DEPARTMENT**.
3. Two answering machines which can be internal or external to the phones.

## **2.04 DIGITAL CAMERA**

- A.** Provide one digital camera for use by the **DEPARTMENT** and **ENGINEER**.

## **3. EXECUTION**

### **3.01 INSTALLATION**

- A.** Install field offices in approved locations.
- B.** The office trailer shall be placed on concrete blocks and leveled, with adequate wooden steps and handrails provided at each exterior door. The trailer and associated equipment shall be new or recently renovated to a like-new condition subject to the **ENGINEER's** approval. The interior shall consist of a pastel-shade paneling and fluorescent ceiling lights. The office trailer shall be provided with proper safety features in accordance with applicable NFPA standards and shall meet the requirements of applicable building codes.

- C. Provide temporary utility service to field offices.
- D. The **ENGINEER's/DEPARTMENT's** trailer shall be located and installed in such a location as to provide free access for any individual wishing to communicate with the **ENGINEER** and/or **DEPARTMENT's** representative. The public access to this trailer shall be provided directly from the public road and shall be marked on both sides with an orange snow fence. The **CONTRACTOR** shall provide signage as necessary to direct visitors, mailpersons, and delivery persons to specific areas of the site as appropriate. The entrance for the public shall be clearly posted.
- E. No construction shall be started until the office trailer is installed, furnished as herein specified, and made available to the **ENGINEER/DEPARTMENT**.

### 3.02 SIGN

- A. A sign shall be furnished on the outside of the **DEPARTMENT/ ENGINEER's** Field Office. The sign shall be 2' x 3' x 3/4" thick marine plywood (or aluminum) with white background and black letters.
- B. The sign shall read as follows:

FIELD OFFICE  
NEW YORK STATE DEPARTMENT  
OF  
ENVIRONMENTAL CONSERVATION

Telephone: \_\_\_\_ - \_\_\_\_

Note: The **CONTRACTOR** shall include telephone number on the trailer sign, when available.

### 3.03 MAINTENANCE AND CLEANING

- A. Maintain and clean the field offices for the duration of the contract, including daily removal of rubbish, weekly sweeping and mopping of floors and weekly dusting of surfaces. The janitorial services shall be provided during the normal hours of operation for construction.
- B. Maintain approaches free of mud and snow.

### **3.04 OWNERSHIP**

- A.** All trailers and equipment supplied to the **ENGINEER** and **DEPARTMENT** will remain the **CONTRACTOR's** property, except for consumable supplies, including the following: all zip disks and CD-ROMs shall be retained by **ENGINEER** for transfer to the **DEPARTMENT** as part of the project records.

### **3.05 REMOVAL**

- A.** The **CONTRACTOR** shall remove and properly dispose of the stairs, platforms, plywood skirt, supports, telephone poles, electrical facilities and poles, garbage cans, dumpsters, etc. and remove the office trailer from the project site. The area will be restored to preexisting condition to the satisfaction of the **DEPARTMENT** and the **ENGINEER**.

**\* END OF SECTION \***

## **SPEC 00007**

### **PROJECT IDENTIFICATION AND SIGNS**

#### **1. GENERAL**

The sign shall be 4' high by 8' wide, and constructed of 3/4- to 1-inch medium density overlay plywood, with a resin coating on both sides. The edges shall be framed with a snap trim edge cap consisting of an aluminum channel with a polyvinyl coating. An aluminum sign of equal size may also be used. The sign's background will be painted with white exterior oil-based sign enamel. The fourth line will have green letters. The first, second and third lines will have blue letters. The NYSDEC logo will be painted as noted. All adhesives are solvent resistant.

No signs except those specified shall be displayed at the site.

##### **1.01 REFERENCES**

- A.** Lumber Standard: American Softwood Lumber Standard; U.S. Department of Commerce Product Standard PS20.
- B.** Softwood Plywood Standard: Construction and Industrial; U.S. Department of Commercial Product Standard PS1.

##### **1.02 QUALITY ASSURANCE**

- A.** Painter's Qualifications: All paint shall be applied by a professional sign painter.

#### **2. PRODUCTS**

##### **2.01 MATERIALS**

- A.** Posts: Standard Grade Douglas Fir, White Pine or Southern Pine; preservative treated; 4 inch x 4 inch x 12 feet long.
- B.** Plywood: Overlaid Plywood; MDO B-B EXT-APA; 3/4 to 1 inch.
- C.** Framing: Snap trim edge cap of polyvinyl coated aluminum channel.
- D.** Paint:
  - 1. Background Enamel: Exterior, alkyd, glass enamel with primer as recommended by finish coat manufacturer.



2. Lettering and Striping Enamel: Exterior, long oil, alkyd; high gloss enamel manufactured for lettering signs.

## **2.02 FABRICATION**

### **A. Painting:**

1. Paint both sides and all edges of signs with two coats of primer and one coat of background enamel.
2. Paint lettering and striping with two coats of lettering enamel.
3. Do not apply succeeding coat until previous coat has completely dried.
4. Apply even coats of uniform thickness without brush marks, runs or lap marks.
5. Lettering and striping shall be uniform with sharp, neat profiles.

## **3. EXECUTION**

### **3.01 INSTALLATION**

- A.** Install signs within two weeks of Notice to Proceed.
- B.** Install signs where directed by the **ENGINEER**.
- C.** Set posts plumb, 4 feet into the ground. Compact backfill around posts.
- D.** Fasten sign, in a level position, securely to posts. The center of the sign should be located approximately 6 feet from ground level.

### **3.02 MAINTENANCE AND REMOVAL**

- A.** Maintain the signs plumb and level for the duration of the work.
- B.** When directed, at the completion of the project, remove the signs.

**\* END OF SECTION \***

## SPEC 00008

### PROJECT RECORD DOCUMENTS

#### 1. GENERAL

##### 1.01 SUMMARY

###### A. This section includes:

1. Supplemental requirements to those stated in Section VIII, Article 5.19 for recording of field modifications made during construction, to be marked on a clean set of Contract documents by the **CONTRACTOR** (As-Built Documents) and for preparing Supplemental Record Drawings by the Surveyor to be submitted to the **DEPARTMENT** and **ENGINEER**. The As-Built Documents and Supplemental Record Drawings shall constitute the Project Record Documents.

##### 1.02 SUBMITTALS

###### A. As-Built Documents

1. Make available for review prior to submission of each monthly payment application.

###### B. Supplemental Record Drawings

1. See SPEC 00004.

###### C. Project Record Documents

1. Submit preliminary and final as specified in Part 3 of this section.

#### 2. PRODUCTS

##### 2.01 AS-BUILT DOCUMENTS

###### A. The **CONTRACTOR** shall clearly and neatly mark up in red ink one set of Contract Documents to show the record conditions.

###### B. These record marked documents (As-Built Documents) shall be kept current and available at all times for inspection by the **ENGINEER** and **DEPARTMENT**.

- C. All changes from the contract which are made in the work, or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes.
- D. The As-Built Documents shall be jointly inspected for accuracy and completeness by the **ENGINEER** and a responsible representative of the **CONTRACTOR** prior to submission of each monthly payment application.
- E. The documents shall include but not be limited to the following:
1. Installations of any kind or description known to exist within the construction area. The locations shall include dimensions to permanent features.
  2. The location and dimensions of any changes within the design features of any kind or description known to exist within the construction area. The locations shall include dimensions to permanent features.
  3. Correct grade or alignment of roads, structures, utilities, or project components.
  4. Correct elevations.
  5. Changes in details or dimensions.
  6. The topography and grades of all drainage structures installed or affected as part of the project construction.
  7. Additional information obtained from working drawings.
  8. Where contract drawings or specifications allow options, only the option selected for construction shall be shown on the As-Built Documents.
  9. Additional work as directed by the **ENGINEER** or **DEPARTMENT**.
  10. Depths of various elements of foundation in relation to datum.
  11. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvement.
  12. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.

## **2.01 SUPPLEMENTAL RECORD DRAWINGS**

- A.** The Surveyor retained by the **CONTRACTOR** shall prepare Supplemental Record Drawings (see SPEC 00004).
- B.** The Supplemental Record Drawings shall include but not be limited to the following:
  - 1. A topographic survey of the site prior to and following earthwork. The survey should, at a minimum, show ground surface elevations on the specified grid and at all grade changes and also indicate the thickness of cover layers. The survey should adequately extend beyond the limits of work to properly overlap existing conditions.
  - 2. Locations and elevations of all groundwater monitoring wells and/or piezometers.

## **3. EXECUTION**

### **3.01 MAINTENANCE OF DOCUMENTS**

- A.** Maintain in the **CONTRACTOR's** field office in clean, dry, legible condition complete sets of the following:
  - 1. Drawings
  - 2. Specifications
  - 3. Addenda
  - 4. Approved Shop Drawings
  - 5. Samples
  - 6. Photographs
  - 7. Change Orders
  - 8. Other modifications to Contract Documents
  - 9. Test Records
  - 10. Survey Data
  - 11. Field Orders
  - 12. Other documents pertinent to Contractor's work

- B.** Provide files and racks for proper storage and easy access.
- C.** File in accordance with filing format of Construction Specification Institute (CSI), unless otherwise approved by the **ENGINEER**.
- D.** Make documents available at all times for inspection by the **ENGINEER** and **DEPARTMENT**.
- E.** Record documents shall not be used for any other purpose and shall not be removed from the **CONTRACTOR**'s office without the **ENGINEER**'s approval.

### **3.02 PRELIMINARY SUBMITTAL**

- A.** The **CONTRACTOR** shall prepare two (2) copies of As-Built Documents and the Surveyor shall prepare two (2) copies of Supplemental Record Drawings. These documents (Project Record Documents) shall be submitted to the **ENGINEER** following substantial completion of the work (within 7 calendar days) for review and approval.
- B.** These documents shall be neat, legible and accurate.
- C.** If upon review, the documents are found to contain errors and/or omissions, they shall be returned to the **CONTRACTOR** and or Surveyor for corrections.
- D.** The **CONTRACTOR** and/or Surveyor shall complete the corrections and return the drawings to the **ENGINEER** within 10 calendar days for subsequent review.

### **3.03 FINAL PROJECT RECORD DOCUMENT PREPARATION**

- A.** These documents shall be part of the permanent records of this project.
- B.** Each document to be submitted by the **CONTRACTOR** shall be lettered or stamped with the words "RECORD DOCUMENT" in 1 inch high printed letters followed by the name of the **CONTRACTOR** and **ENGINEER**.
- C.** All original Contract Documents shall be marked by the **ENGINEER** either "Record," denoting no revisions on the sheet, or "Revised Record," denoting one or more revisions.
- D.** The Supplemental Record Drawings to be submitted by the Surveyor shall:
  - 1. Be stamped and signed by the Surveyor retained by the **CONTRACTOR**.
  - 2. Locate all work referenced to the limits of the project area.

3. Have all locations referenced to the site horizontal coordinate system.
  4. The grid coordinate system shall be shown on all record drawings.
  5. Elevations shall be referenced to the established vertical control.
- E.** The **CONTRACTOR** shall provide all site surveys and drawings in AutoCAD 2008 (or alternate versions as approved by the **DEPARTMENT**). Include electronic copies of all XREFs, attached data sets, fonts, plot styles, etc. used in preparation of the Record Drawings. The **CONTRACTOR** shall provide all survey coordinates in an Electronic Data Deliverable compatible with the **DEPARTMENT**'s EQUIS database and acceptable to the **DEPARTMENT**.
- F.** The **DEPARTMENT**'s checking and approval of plans will apply to content only. The **CONTRACTOR** shall be responsible for the accuracy and completeness of its work.
- G.** The **DEPARTMENT** will not approve the **CONTRACTOR**'s request for final payment until the required plans are received and approved.
- H.** Shop drawings will not be deemed acceptable as as-built drawings.

**\* END OF SECTION \***

## SPEC 00009

### TRAFFIC CONTROL

#### 1. GENERAL

This section covers minimum requirements for temporary traffic regulation and control during the course of the project.

##### 1.01 REFERENCES

- A. The publications listed below forms a part of this specification to the extent referenced. The publication is referred to in the text by basic designation only.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION  
MUTCD - Manual of Uniform Traffic Control Devices  
NYSDOT - Standard Specifications (17 NYCRR, Chapter V)

##### 1.02 SUBMITTALS

- A. Submit the following in accordance with Section VIII, Articles 5.23-5.29, "Shop Drawings and Samples."
- B. Traffic Control Plan: incorporate the anticipated impacts of traffic controls into the work plan for various work areas. The Plan shall include, but not be limited to:
1. Access routes for project traffic to each work area.
  2. Estimated daily project traffic flows for each phase of the work.
  3. Procedures for cleaning debris and spillage from public roads.
  4. This plan shall identify equipment and describe procedures to minimize the creation and dispersion of dust and the removal of earthen materials tracked onto the site and onto off-site roadways by construction vehicles. The plan shall address major construction activities that will contribute to these situations and the **CONTRACTOR**'s approach to control them.
- C. The **CONTRACTOR** shall notify the **DEPARTMENT** at least 72 hours prior to the closing of any portion of a road as might be necessary to perform the work and shall adequately describe the detour to be followed.

### **1.03 INTENT**

- A.** Maintain safe conditions for the **CONTRACTOR's** workers, the general public and all vehicles.
- B.** Minimize the inconvenience to the general public and adjacent property owners affected.
- C** Give the right of way to emergency vehicles in all situations.

## **2. PRODUCTS**

### **2.01 OWNERSHIP**

- A.** The products specified herein shall be leased or owned by the **CONTRACTOR** and will not become the property of the **DEPARTMENT**. All products specified herein shall be removed from the work site when no longer needed.

### **2.02 TRAFFIC CONTROL DEVICES**

- A.** All of the following items shall conform to NYSDOT Section 619-2 and MUTCD requirements:
  - 1. Flashing barricade lights
  - 2. Construction and maintenance signs
  - 3. Channelizing devices
  - 4. Arrow boards
  - 5. Barricades
  - 6. Traffic cones

### **2.03 MISCELLANEOUS EQUIPMENT**

- A.** Other items, which include orange safety vests, flags or signs for flagmen, and communication devices, shall be standard and adequate for their intended function. They shall be in accordance with the NYSDOT-MUTCD where applicable or as required by NYSDOT Work Permit.



### 3. EXECUTION

#### 3.01 GENERAL

- A. All work under this section shall be performed in accordance with NYSDOT Standard Specifications, the MUTCD, and as stated herein.
- B. Protect workers and provide for safe and convenient public travel by furnishing, erecting, and maintaining all signs, signals, markings, traffic cones, barricades, warning lights, flaggers, and other traffic control devices required for the type of operation being performed.
- C. Keep all roads free of debris and spillage from hauling equipment at all times. Haul routes shall be cleaned at least once per day to limit dust generation. Dry brooming is prohibited.
- D. All work related vehicles and non-operating equipment that are parked for a short period of time (2 hours or less) shall be parked at the support area. Longer periods of time shall be in accordance with requirements for non-working hours.
- E. Furnish the name of the individual in direct employ of the **CONTRACTOR** who is to be responsible for the installation and maintenance of the traffic control for the project. If the installation and maintenance are to be accomplished by a subcontractor, consent shall be requested of the **ENGINEER** at the time of the pre-construction conference. This shall not relieve the **CONTRACTOR** of the foregoing requirement for a responsible individual in his direct employ.
- F. Adequate provisions shall also be made for business and commercial establishments, schools, and public buildings.
- G. The **CONTRACTOR** shall generally maintain two-way traffic on streets where work is in progress and in no case shall he be permitted to work in adjacent streets.
- H. The **CONTRACTOR** shall maintain within the work limits the entire pavement, drainage and sewage facilities, and other street elements unless otherwise specified. The traveled way shall be kept well drained, reasonably smooth, cleaned and hard at all times. Foreign objects, sand, rocks and spillage of materials shall immediately be removed and the area cleaned to the satisfaction of the **DEPARTMENT**. Spillage outside the work limits is the **CONTRACTOR's** responsibility and the **DEPARTMENT** will entertain no claim for work necessary to clean the areas affected. The **CONTRACTOR** shall be required to remove snow on those streets where roads are not passable by snow plows due to the **CONTRACTOR's** operation.
- I. Traffic delays shall be kept to a minimum. A period of 5 minutes shall be considered the maximum time allowed for stopping traffic.

- J.** Detour signs, barricades, and other facilities shall be furnished and erected as called for on the approved plan and/or as directed by the **DEPARTMENT**. The route of the detour shall be clearly marked at the beginning and end with directions at intermediate points along its entire length.
- K.** The **CONTRACTOR** shall be responsible for notifying all interested agencies when detours or construction will interfere with the normal traffic flow. These agencies include, but are not limited to:
1. Local police
  2. Local fire departments
  3. Local traffic departments and Department of Public Works
  4. Sanitation companies
- L.** The **CONTRACTOR** will not be permitted to store spoil, materials, equipment, or supplies that will interfere with sight distances within thirty (30) feet of an intersection or areas where sight distance is critical.
- M.** When travel must be diverted from the accustomed traveled way on to some other area, the **CONTRACTOR** shall grade, repair, stabilize, and provide ramps if necessary to provide for the smooth flow of traffic. Upon completion of construction, the area utilized shall be restored to its original condition.
- N.** The **CONTRACTOR** shall construct and maintain, where called for on the plans or as directed by the **DEPARTMENT**, temporary bridges or bridging over excavations, obstructions, and newly laid pavements to provide access for pedestrian and vehicular traffic and access to fire hydrants. During construction, the **CONTRACTOR** shall take particular care to allow the ingress and egress of emergency vehicles from firehouses, police stations, hospitals, etc. Adequate provisions shall also be made for business and commercial establishments, schools, and for public buildings. Plating and/or bridging is required at all main intersections and heavily traveled crossings.
- O.** Street signs, route markers, and other signs that fall under public jurisdiction (e.g., bus stop, stop signs, parking signs, etc.) shall be protected and maintained or removed, stored, cleaned, and replaced when ordered by the **DEPARTMENT**. The **DEPARTMENT** may also order that these signs be temporarily relocated and then reinstalled in their original location.
- P.** The **CONTRACTOR** shall provide protection from damage to person or property by protective screens, fences, devices, or methods that are approved by the **DEPARTMENT**.
- Q.** All signs, lights, barricades, and other materials installed to direct or warn the traveling public shall be maintained, repaired, and replaced by the

**CONTRACTOR.** Vandalism or theft shall not preclude this requirement and special attention shall be given to traffic maintenance and protection during nonworking hours, weekends, holidays, and other periods or temporary shut-down of work.

- R.** Materials, equipment, and workmanship for lighted barricades shall be in strict compliance with the National Electric Code and only a licensed electrician may perform the work.
- S.** Signs or markers lost, damaged, or removed by the **CONTRACTOR** shall be replaced at no cost to the **DEPARTMENT**. Signs removed by the **CONTRACTOR** that are not to be replaced shall be cleaned and delivered to the **DEPARTMENT**.
- T.** Temporary reflectorized pavement markings shall be placed where existing markings are obliterated, whenever it is determined that the roadway would be void of traffic markings for 2 weeks or more, or as otherwise directed by the **ENGINEER**. The temporary markings shall provide the same number of through travel lanes as the previously existing markings.
- U.** Flagmen: Competent flagmen shall be provided by the **CONTRACTOR** when ordered by the **DEPARTMENT** or as directed by the specifications. These flagmen shall have no function other than the direction of traffic. They shall wear safety vests and shall direct traffic with a red flag as required by the New York State Manual of Uniform Traffic Control Devices.
- V.** The **CONTRACTOR** shall take necessary measures, in addition to those required by Federal, State and local laws and regulations, to minimize the migration of dust and earthen material from construction areas including the utilization of wind indicators and air monitoring.
- W.** Dust generating surfaces within the active work limits shall be sprayed with water to provide complete moistening of the ground, or as otherwise directed by the **ENGINEER**.
- X.** The **CONTRACTOR** shall be responsible for the removal and disposal of earthen material that is tracked onto the site and onto off-site roadways by construction vehicles. The **CONTRACTOR** shall continually inspect roadways and remove the materials immediately to maintain a clean and hazard free driving surface.

### **3.02 COORDINATION AND SCHEDULE**

- A.** No traffic shall be disrupted over holiday weekends.

- B.** Permits for work in all rights of way shall be prepared, submitted and accepted prior to any work in the areas affected.

**\* END OF SECTION \***

## SPEC 00010

### TEMPORARY FACILITIES AND CONTROLS

#### 1. GENERAL

##### 1.01 SCOPE OF WORK

- A. Provide temporary facilities or contingency equipment as required herein to properly carry out the Project scope of work.
- B. The **CONTRACTOR** shall initiate, establish and maintain use of each temporary facility, including telephone service, internet service, electrical power and lighting, and potable water, as required by the **CONTRACTOR**, throughout the performance of construction work and until the date of acceptance of construction by the **DEPARTMENT** or specifically directed otherwise by the **DEPARTMENT**.
- C. The **CONTRACTOR** shall install, operate, maintain and protect temporary facilities and utilities, including sanitary facilities, electrical power and lighting, and potable water, in a manner which will be safe, non-hazardous, sanitary and protective of persons and property. Temporary facilities shall be located within the contract limits and in accordance with the **CONTRACTOR's** prepared approved submittals.
- D. The **CONTRACTOR** shall be responsible for the operation and maintenance of all systems and temporary facilities to assure that necessary services are provided without disruption.
- E. The **CONTRACTOR** shall coordinate and install all temporary facilities and controls in accordance with the requirements of local authorities and utility companies having jurisdiction and in accordance with all federal, state and local codes, laws and regulations.
- F. At the completion of the work, or when the temporary facilities and controls are no longer required by the **CONTRACTOR**, subject to the approval of the **DEPARTMENT**, the temporary facilities and controls shall be removed and the facilities restored to their original conditions by the **CONTRACTOR**.
- G. All costs in connection with the temporary facilities and controls including but not limited to, installation, maintenance, relocation and removal shall be borne by the **CONTRACTOR** at no additional cost to the **DEPARTMENT**.
- H. All facilities, equipment and utilities furnished under this Spec shall be provided and maintained in good working order at all times.

## **1.02 SUBMITTALS**

- A.** Submit the following in accordance with Section VIII, Article 5.23-5.29, “Shop Drawings and Samples.”
  - 1. Temporary Electrical Facilities
    - a. Site plan locating padmount transformers, metering, related conduit and wiring for the temporary electrical facilities system.
    - b. Copies of all utility company correspondence.
    - c. Service capacity and electrical load of the facility.
  - 2. Records
    - a. Emergency services meeting minutes for the project record within seven days of the meeting.

## **2. PRODUCTS**

### **2.01 MATERIALS AND EQUIPMENT**

- A.** Provide new or used materials and equipment that are undamaged and in working condition.
- B.** Provide only materials and equipment that are recognized as being suitable for the intended use (through compliance with appropriate standards and regulations).

### **2.02 WATER SERVICE**

- A.** Provide valves with adequate temperature and pressure ratings for the intended use.
- B.** Provide back flow protection or adequate vacuum breakers.
- C.** Provide heavy duty, abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water system.

### **2.03 ELECTRICAL SERVICE**

- A.** Provide materials that comply with applicable NEMA, NECA, and UL standards and governing regulations of temporary electrical services.

- B. Provide grounded extension cords with waterproof connectors. Use “hard service” cords where there is exposure to abrasion and traffic.
- C. Provide general service lamps and guard cages or tempered glass enclosures where lamp is exposed to breakage by removal operations. Use liquid-tight enclosures or boxes for the devices.

### 3. EXECUTION

#### 3.01 GENERAL

- A. Use qualified tradesmen for installation of temporary utilities, facilities, and constructions. Provide utility services as required to perform the work for the duration of the project.
- B. Locate all temporary items where they are approved and in such a manner to cause minimum interference with the project work and operation of the other site activities. Locate services per approved work plan.
- C. Relocate, modify, and extend services and facilities as required to accommodate the Project, or as directed by the **ENGINEER**, throughout the course of the work.
- D. Install temporary utilities in accordance with the servicing utility’s requirements.
- E. Provide all temporary utilities and connections including electric, water, telephone and internet. Remove temporary utilities and connections upon completion of work. Obtain all necessary permits and permission prior to installation or connection.

#### 3.02 TEMPORARY UTILITIES

##### A. Temporary Power

1. The **CONTRACTOR** shall furnish and pay for all labor, material and equipment for the installation of the temporary electrical service facilities system. The installation shall comply with all applicable requirements of the National Electrical Code and any other codes or bodies having jurisdiction.
2. The **CONTRACTOR** shall pay for all labor, material and equipment for the maintenance of the temporary electrical facilities system.
3. The **CONTRACTOR** shall pay for labor, materials and equipment for removing and all temporary electrical facilities.
4. The **CONTRACTOR** shall be responsible for all electrical usage charges (energy and demand costs) related to the temporary electrical system.

Payments shall be made according to local utility service requirements on the basis of utility bills.

5. Temporary electrical facilities system shall be as herein specified, and shall be provided no later than 45 days after the date of Notice to Proceed with Construction.
6. Temporary Electric Service Point
  - a. The **CONTRACTOR** shall furnish and install metering equipment, distribution circuit breakers or fused switches, panelboards, poles for overhead lines, wire and conduit as required for the temporary electrical facilities. All work shall conform to the requirements of the National Electrical Safety Code and the National Electrical Code.
  - b. The **CONTRACTOR** shall furnish and install power feeds from the Temporary Electric Service Point as required for the **CONTRACTOR's** field offices and **ENGINEER's/DEPARTMENT's** office trailer.
  - c. Distribution circuit breakers or fused switches shall be furnished and installed for disconnection and overcurrent protection of the temporary electrical facilities fed from the service point.
  - d. At the completion of construction, as determined by the **DEPARTMENT**, the **CONTRACTOR** shall remove the temporary electric service point equipment in its entirety including all overhead lines and poles, wire and conduit.
7. The **CONTRACTOR** shall provide a weatherproof, grounded temporary electrical power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of the work.
8. The **CONTRACTOR** shall install overload protection and disconnect switches for each temporary circuit at the power source.
9. The **CONTRACTOR** shall install all cable or extension cords in the work area in such a manner that visual surveillance is easily accomplished.

**B. Temporary Light**

1. The **CONTRACTOR** shall provide temporary lighting adequate to provide sufficient illumination for safe work and traffic conditions in every area of work. Minimum lighting shall be five foot candles.



2. Wiring in the work area shall be in UL-approved cable and located in such a manner that visual surveillance is easily accomplished.

**C. Temporary Telephone and Internet Services**

1. Temporary phone and high speed internet services shall be provided for the field offices as outlined in Spec 00006.

**D. Temporary Water for Construction**

1. The **CONTRACTOR** shall install a temporary potable water service to adequately supply the temporary enclosure areas.
2. Limit the flow on each hot and cold water line to 10 gallons per minute.
3. Provide hot water at a minimum temperature of 100°F.
4. Maintain piping, hoses, connections, and valves in leak-proof condition. Where finished surfaces may be damaged by spillage or leakage, provide drip pans of suitable size. Drain water promptly from pans as it accumulates.
5. The **CONTRACTOR** shall obtain the necessary permission for source of water, make all connections, and remove same at completion of the work. Any damage to the existing system shall be repaired at no cost to this Contract.
6. If the water is obtained by connecting to the public water system, the connection shall include suitable back flow preventor and shall be appropriately decommissioned.

**3.03 TEMPORARY FACILITIES**

**A. Staging Areas**

1. Staging areas (if required) shall be located on the site in areas (exclusion zone) approved by the **ENGINEER** in order to minimize possible cross contamination.
2. The staging areas for waste materials shall have a lined bottom with a minimum 40-mil sealed, HDPE watertight liner. Remove the liners when the staging area is no longer needed, and dispose off-site.
3. Waste materials shall be covered at all times with a minimum 20-mil HDPE sealed, watertight liner to prevent contaminated runoff. Remove the liners when the staging area is no longer needed, and dispose off-site.

4. All staging areas shall be constructed to prevent the spread of any contamination to the surrounding soils, surfaces, and/or groundwater.
5. Water spray or equivalent shall be utilized as necessary to prevent dust generation. Monitoring shall be provided to ensure that unacceptable levels of dust generated from the movement and handling of soil do not migrate from the site.
6. The **CONTRACTOR** shall provide a drainage system, approved by the **ENGINEER** such that no ponding of water shall occur in the staging area and adjacent areas.
7. Shop Drawings of all staging areas shall be submitted by the **CONTRACTOR** to the **ENGINEER** for review and approval prior to the start of work.
8. The **CONTRACTOR** shall decontaminate staging areas on concrete pads as directed by the **ENGINEER**.
9. Clean soil staging areas: Can be located outside the exclusion zone. Cover staged clean materials with 10 mil liner. Dispose of cover when staging area is no longer needed.
10. Materials staging area: Provide and maintain material staging areas as needed in locations indicated on the **CONTRACTOR's** work site layout, or as approved by the **ENGINEER**.
11. The **CONTRACTOR** shall be responsible for repairs to existing fencing, grading, placing and maintaining crushed stone surfacing throughout staging areas or other work area as required.
12. After the completion of the construction work, as determined by the **DEPARTMENT** and the **ENGINEER**, the staging area shall be leveled, drained, graded and restored by the **CONTRACTOR**, as directed by the **DEPARTMENT** and **ENGINEER**.

**B. Parking, Storage and Work Areas**

1. The **CONTRACTOR** shall maintain suitable parking and storage areas for his/her use acceptable to the **DEPARTMENT** and the **ENGINEER** on and/or off the project site.
2. **CONTRACTOR** shall utilize the area designated by the **DEPARTMENT** as his/her specified work areas.

3. The **CONTRACTOR** will be required to arrange his/her work and dispose of his/her materials in such manner as to cause the least interference with the work and storage of materials of other **CONTRACTORS** working within the same area.
4. No **CONTRACTOR** shall claim exclusive occupancy of areas within or adjacent to the limits of his/her work under this Contract. The **DEPARTMENT** and its employees and the **CONTRACTORS** for other contracts shall also have access to these areas.
5. At the completion of the Work, the surfaces of the land used for storage areas shall be restored to elevations and conditions which existed prior to the start of construction by the **CONTRACTOR** to the satisfaction of the **DEPARTMENT** and the **ENGINEER**.

**C. Sanitary Facilities**

1. The **CONTRACTOR** shall provide self-contained chemical toilet units from mobilization to demobilization in an amount based on the total number of workers employed on the Project in accordance with the provisions of the Health and Sanitary Codes of the State of New York. A combination toilet/urinal unit shall count as one facility. The **CONTRACTOR** may locate some of them in the work area. Those that are located outside the work area shall be located where approved by **DEPARTMENT** and screened from public view. At the completion of the abatement work, units within the work area shall be decontaminated prior to their removal from the enclosures. Units shall be maintained throughout the work. Provide separate facilities for males and females. Include provisions for pest control and elimination of odors.

**D. Stabilized Construction Entrance**

1. A stabilized construction entrance shall be installed immediately after the initial site disturbance as shown and described on the Contract Drawings. The construction entrance shall be maintained in a condition which will prevent tracking or flowing of material onto public rights-of-way. This may require periodic dressing with additional stone or additional length as conditions demand and repair and/or cleanout of any measures used to trap material. All material spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately and collected for off-site transportation and disposal in accordance with all applicable federal, state and local regulations.

**E. Temporary Access Roads**

1. Construct and maintain temporary access roads for the duration of the contract as necessary to ensure unimpeded completion of this Contract.

This includes areas necessary for installation of the decontamination station, staging areas and all work site facilities.

### **3.04 TEMPORARY CONTROLS**

#### **A. Fire Prevention**

1. Take all precautions necessary and required to prevent fires.
2. Do not use or store flammable liquids, other than those specified, within a building or temporary facility.
3. Provide a minimum of two extinguishers for each separate and active enclosure. Locate one in the dirty room of the decontamination unit and one in the clean room.
4. The **CONTRACTOR** shall contact the local Fire Company, schedule and conduct a site visit for Fire Company personnel after mobilization is complete to ensure familiarity with the **CONTRACTOR's** operations. Discuss the operation plan and fire safety considerations. Provide minutes of the meeting for the project record.

#### **B. Noise, Vibration and Dust Control**

1. Conduct operations to cause least annoyance to residents in vicinity of work, and comply with applicable local ordinances.
2. Equip compressors, hoists and other apparatus with such mechanical devices as may be necessary to minimize noise, vibration and dust. Equip compressors with silencers on intake lines.
3. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.
4. Provide unpaved roads, detours, or haul roads used in construction areas with water treatment to minimize dust. No visible dust, as determined by the **ENGINEER**, will be permitted beyond the limits of the exclusion zone.
5. The **CONTRACTOR** is responsible for providing all sound barriers needed to meet the requirements of these specifications. The **CONTRACTOR** is responsible for all costs related to the manufacturer's representatives or consultants (contractors) who specialize in addressing such problems.

6. Control noise levels associated with site operations to not exceed the energy equivalent ambient sound level (Leq) of 35 dBA at the site perimeter.
7. Measure noise levels in decibels with a sound level meter conforming to the American National Standard Specification, S 1.4 (1971) Type S2A, and set to use the A-weighted network with slow meter response.
8. Measurements shall be made at site perimeter.
9. Measurements shall be continuous during the first week of construction activities. Additional measurements may be directed by the **ENGINEER** throughout the course of the project.
10. Measurements shall be documented and reported to the **ENGINEER**.
11. If the Leq levels are not maintained, the **CONTRACTOR** shall take appropriate measures to bring the noise under control at no additional cost to the **DEPARTMENT**.
12. Comply with NYSDEC's DER-10 "Technical Guidance for Site Investigation and Remediation."
13. No visible dust shall be permitted. Use work procedures and dust suppression techniques to achieve this, including such as the following:
  - a. Apply water or dust suppressants to exposed soil, haul roads or routes, and other areas disturbed by operations.
  - b. Provide a means of removing dirt or mud from vehicle wheels before they are permitted to exit the site.
  - c. Dry power brooming will not be permitted.
  - d. Only wet cutting of concrete will be permitted.
  - e. Do not unnecessarily shake bags of dry product such as cement, concrete mortar or fertilizer.
  - f. No oils, calcium chloride or contaminated liquids shall be used for dust control.

**C. Water Control**

1. The **CONTRACTOR** shall schedule and conduct all Work in a manner that will prevent the erosion of soils and release of soils and water from the Work area.
2. The **CONTRACTOR** shall provide methods to control surface water and water from excavation structures to prevent damage to the Work, the site or adjoining properties.
3. The **CONTRACTOR** shall provide, operate and maintain equipment and facilities of adequate size to control surface water.
4. The **CONTRACTOR** shall dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas and in conformance with all environmental requirements.
5. The **CONTRACTOR** shall exercise care in project drainage practices to prevent pollution of watercourses.
6. The **CONTRACTOR** shall be fully responsible for any and all damages to life and property that occur as a result of his activities. Damages resulting from polluting watercourses shall be repaired, restored, or compensated for by the **CONTRACTOR**.
7. The **CONTRACTOR** shall grade construction areas so as to minimize retention of rainwater, except as specified hereafter. Provide temporary rainwater runoff diversion around construction areas.
8. The **CONTRACTOR** shall comply with procedures outlined in NYSDEC Division of Water NYS Standards and Specifications for Erosion and Sediment Control and SPDES General Permit for Stormwater Discharge from Construction Activities GP-0-10-001.
9. Temporary erosion controls may include, but are not limited to, surface stabilization which shall be accomplished with vegetation and mulch, dewatering, erosion matting, temporary earthen diversion berms and ditches; and minimization of disturbed acreage. The **CONTRACTOR** is responsible for preventing excessive on-site erosion during construction as well as protecting the work included in this Contract.
10. Temporary sedimentation controls may include, but are not limited to, silt fences, traps, temporary earthen diversion berms and ditches, rock dams, stabilized construction entrance and appurtenances at the foot of sloped surfaces. The **CONTRACTOR** is responsible for preventing migration of sediment into wetland areas, streams, and adjacent properties during

construction. The performance of the **CONTRACTOR's** sedimentation controls is subject to approval by the **DEPARTMENT**.

11. Stockpiles shall be protected from transfer of material due to erosion by providing sedimentation controls along the toe of the slopes, seeding the side slopes (with the exception of soil-bentonite mixture stockpiles which shall be covered with plastic) and by maintaining stable slopes.
12. The **CONTRACTOR** shall be responsible for maintaining all temporary and existing permanent erosion control structures on the site. Maintenance shall include but not be limited to making all repairs necessary to maintain the structures, as well as remove all accumulated sediment as necessary to maintain the structures in proper working condition. The frequency of sediment removal from all on-site erosion control structures shall be bimonthly at a minimum. Silt fence shall be installed as needed to ensure against off-site runoff until all diversion structures are constructed and operational.
13. Should any of the temporary erosion and sediment control measures employed by the **CONTRACTOR** fail to produce results which comply with the requirements of the **DEPARTMENT**, the **CONTRACTOR** shall immediately take whatever steps are necessary to correct the deficiency at his own expense.

**D. Pollution Control**

1. Maintain work areas on-site and off-site free from further environmental pollution that would be in violation of any federal, state or local regulations.
2. Minimize air pollution by wetting down bare soils with clean water, requiring use of properly operating combustion emission control devices on construction vehicles and equipment used by the **CONTRACTORS**, and encouraging shutdown of motorized equipment not actually in use.
3. Any emissions during site activities that may have an adverse health effect on workers or the community shall be suppressed to the extent possible.
4. All **CONTRACTOR's** equipment used during construction shall conform to all current federal, state and local laws and regulations.
5. Chemicals used, whether herbicide, pesticide, disinfectant, polymer, reactant, or other classification, must be approved by either the USEPA or USDA or any other applicable regulatory agency and the **ENGINEER** and be used in a manner as their original purpose was intended.

6. Use of such chemicals and disposal of residues shall be in conformance with manufacturers' instructions.
7. Use of chemicals must be approved in advance by the **ENGINEER**.
8. Disposal of any fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer system or into streams or waterways is not permitted.
9. Any volatile wastes generated shall be characterized and managed in accordance with all applicable federal state and local regulations and shall be reported to the **DEPARTMENT**.
10. The **CONTRACTOR** shall provide that the generated project hazardous waste (if any) and any existing hazardous waste to be removed under this project be transported, manifested, and disposed in accordance with the current regulations.
11. Disposal of any debris, wastes, effluents, trash, garbage, oil, grease, chemical, etc., resulting from the Work on or adjacent to the site will not be permitted. If any waste material is placed in unauthorized areas, the **CONTRACTOR** shall remove the waste and restore the area to its original condition. If necessary, soil contaminated from such unauthorized disposal operation shall be excavated, disposed of as directed by the **DEPARTMENT**, replaced with general fill, compacted and restored to pre-disposal conditions at no additional cost to the **DEPARTMENT**.
12. The **CONTRACTOR** shall provide equipment and personnel and perform emergency measures required to contain any spillages and to remove contaminated soils or liquids resulting from the **CONTRACTOR's** operations.
13. The **CONTRACTOR** shall excavate and dispose of any contaminated soil off-site and replace it with suitable uncontaminated compacted fill.
14. More specific requirements are given in other sections of this document.

**E. Protection of Work and Materials**

1. During the progress of the Work and up to the date of Final Completion, the **CONTRACTOR** shall be solely responsible for the care and protection of all Work and materials covered by the Contract. In order to prevent damage, injury or loss, actions shall include, but not be limited to, the following:



- a. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that will not unduly interfere with the progress of the Work or the work of any others.
  - b. Provide suitable storage facilities for all materials which are subject to injury by exposure to weather, theft, breakage or otherwise.
  - c. Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.
  - d. Clean up daily all refuse, rubbish, scrap materials, and debris caused by the **CONTRACTOR's** operations, to the end that at all times the site of the Work shall present a safe, orderly and workmanlike appearance.
  - e. Provide barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways and other dangerous areas as deemed necessary by the **DEPARTMENT** and the **ENGINEER**.
2. The **CONTRACTOR** shall protect the existing Work and material from damage by his/her workmen and shall be responsible for repairing any such damage at no additional cost to the **DEPARTMENT** and the **ENGINEER**.
  3. The **CONTRACTOR** shall protect trees, shrubbery and other natural features or structures from being cut, trimmed or injured during completion of the Work, except as required to complete the Work, as specified herein and as shown on the Contract Drawings.
  4. All Work and materials shall be protected in accordance with the requirements of the Contract Documents and as specified and directed by the **DEPARTMENT** and the **ENGINEER**.

**F.** Maintenance of Egress

1. During the course of construction Work, the **CONTRACTOR** shall maintain and keep free of debris, materials or equipment points of egress at the site.

**G.** Protection of Existing Structures

1. Underground structures
  - a. Underground structures are defined to include, but not be limited to, all sewer, water, gas, and other piping, manholes, wells,

electrical and signal conduits, and other existing subsurface work located within or adjacent to the limits of the Work.

- b. Any utilities shown on the plans are for information only and have been obtained from available sources. The existence and location of any utilities indicated on the plans are not guaranteed and shall be investigated and verified in the field by the **CONTRACTOR** at no additional cost to the **DEPARTMENT**.
- c. The **CONTRACTOR** shall explore ahead of his/her trenching and excavation Work and shall uncover all obstructing underground structures sufficiently to determine their location, to prevent damage to them and to prevent interruption of the services which such utilities provide. If the **CONTRACTOR** damages an underground utility, he/she shall restore it to its original condition at his/her expense.
- d. Necessary changes in the location of the Work shall be submitted to the **ENGINEER** for approval to avoid unanticipated underground utilities.
- e. All utilities shall be protected at all times and the **CONTRACTOR** shall repair any damages caused by him/her at no additional cost to the **DEPARTMENT**.

- 2. Surface Structures: All existing surface facilities, including but not limited to, guard rails, posts, fences, guard cables, signs, poles, markers and curbs, which are temporarily removed to facilitate installation of the Work shall be replaced and restored to their original condition at the **CONTRACTOR's** expense.

**H.** Protection of Products

- 1. Control traffic to prevent damage to equipment, materials and surfaces.
- 2. Provide covering to protect equipment and materials from damage.

**I.** Rubbish Control (Uncontaminated)

- 1. All waste resulting from Work activities shall be removed and disposed of at an approved facility at no additional cost to the **DEPARTMENT** in accordance with all applicable federal, state and local laws and regulations, and the requirements of the Contract Documents. The **CONTRACTOR**, prior to requesting final acceptance of the Work, shall remove such materials from each work area.

2. Clean up the debris resulting from the Work at the end of each day and leave work areas broom clean. Locate containers where directed.
3. Remove debris from the site at least once a week or more often if it presents a fire hazard or becomes excessive. Burning of waste material will not be permitted.
4. Containers shall have secure tops.

**G. Pest and Rodent Control**

1. The **CONTRACTOR** shall provide rodent and pest control as necessary to prevent infestation of construction or staging areas.
2. The **CONTRACTOR** shall employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.

**3.05 PROTECTION OF NATURAL RESOURCES**

**A. General**

1. Preserve the natural resources within the project site that are not specified for removal or change.
2. Preserve the natural resources outside the project site impacted by the Work.
3. Conform to federal, state and local permitting requirements.
4. Restore disturbed resources to an equivalent or improved condition upon completion of Work.
5. Vehicles, equipment and machinery delivered or used at the site that have visible oil or hydraulic leaks will not be allowed on-site. Clean up any oil or hydraulic fluid spills immediately.

**B. Land Resources**

1. Except in areas specified to be cleared, do not remove, cut, deface, injure or destroy existing vegetation.
2. Protect vegetation that is to remain from damage by construction operations.

3. Vegetation, intended to remain, that is scarred or damaged by construction operations shall be removed and replaced with equivalent undamaged vegetation.
4. Removal of scarred or damaged vegetation shall be in accordance with the specifications.
5. Trees or shrubs with 30 percent or more of their root systems damaged shall require removal and replacement.
6. Replacement vegetation shall be approved by the **ENGINEER** before replacement.

**C.** Water Resources

1. Prevent oily or hazardous substances from entering the ground, drainage areas, or local bodies of water.
2. Provide secondary containment of temporary fuel oil, petroleum, or hazardous substance storage tanks of sufficient size and strength to contain the contents of the tanks plus suitable freeboard for precipitation, if the secondary containment is subject to the accumulation of precipitation.

**D.** Fish and Wildlife Resources

1. Do not alter or significantly disturb water flows on or adjacent to the project site, except as indicated or specified.
2. Do not significantly disturb native habitat on or adjacent to the project site, except as indicated or specified.

**3.06 PROTECTION OF EXISTING FACILITIES**

**A.** Fencing

1. Protect existing fencing from damage due to construction operations.
2. Where fences and posts are temporarily removed for access they shall be reinstalled or replaced with new.
3. Reuse of existing fence shall be allowed only if it can be reinstalled to the same or better condition than when it was removed as determined by the **ENGINEER**.

### **3.07 REMOVAL**

- A.** The **CONTRACTOR** shall maintain all temporary facilities and controls throughout the performance of construction work and until the date of acceptance of construction by the **DEPARTMENT** unless directed otherwise by the **DEPARTMENT**.
  
- B.** No erosion devices shall be removed and disposed without approval by the **DEPARTMENT**.

**\* END OF SECTION \***

## SPEC 00011

### SITE SECURITY

#### 1. GENERAL

##### 1.01 SUMMARY

- A. The **CONTRACTOR** is solely responsible for the security of the **ENGINEER's** and **CONTRACTOR's** work areas, equipment, materials, supplies and property from loss, theft, damage and vandalism provided under this contract until Substantial Completion.
- B. The **CONTRACTOR's** duty includes safely guarding the **DEPARTMENT's** property in the vicinity of the Work and Project, and other private property in the vicinity of the Project from injury and loss in connection with performance of the Project.
- C. If necessary, the **CONTRACTOR** shall employ watchmen to provide security and prevent unauthorized entry during non-working hours. 24-hour security shall be provided at any time when injection chemicals are stored on the site.

##### 1.02 SUBMITTALS

- A. Submit security firm experience and personnel resumes in accordance with Section VIII, Articles 5.23-5.29.
- B. Submit three copies of the site entrance/exit log and the watchman logs as part of the project record documents each month.

#### 2. PRODUCTS

##### 2.01 SITE ENTRANCE/EXIT LOG

- A. Log shall contain signed entry and exit record for project personnel and visitors.
- B. Log shall record time of entry and exit and firm of the individual.

##### 2.02 WATCHMAN LOG

- A. Log shall record all security checks performed by security personnel and shall contain date and time, problem notes and the **CONTRACTOR** personnel notified of problems. Allow inspection of log by the **ENGINEER** and/or the **DEPARTMENT**.

### 3. EXECUTION

- A.** The **CONTRACTOR** shall be responsible for the control of all persons and vehicles entering and leaving the project site, and shall:
1. Require personnel to print full name and employer and sign in upon entering the project site and to sign out when leaving and maintain the logs.
  2. Maintain a log of project-related vehicles and equipment entering and leaving the work areas.
  3. Persons not associated with the project will require the **ENGINEER's** acceptance to be admitted on site.
  4. Maintain a log of visitors, separate from the project personnel log.
- B.** The **CONTRACTOR** shall maintain a current list of authorized persons and shall submit copies of the updated list to the **ENGINEER**.
- C.** The **CONTRACTOR** shall ensure that all warning signs are in place and temporary fences around work areas are closed and any breaks or gaps are attended to immediately. The **ENGINEER** shall be informed immediately of any incident of vandalism in the work areas.
- D.** Report problems noted to the **CONTRACTOR's** authorized representative and expeditiously correct problems noted. Provide written report of problems and corrective actions to the **ENGINEER** within 24 hours of occurrence.
- E.** A log of all security incidents shall be maintained and furnished to the **ENGINEER** upon request.
- F.** The **CONTRACTOR** shall contact law enforcement officials, emergency medical care units, local fire departments and utility emergency teams to ascertain the type of response required in any emergency situation and to coordinate the responses of the various units. A standard operating procedure describing security force response to foreseeable contingencies shall be developed. The **CONTRACTOR** shall also prepare and update a list of emergency points of contact, telephone numbers, radio frequencies, and call signs to ensure dependable responses.
- G.** Security personnel shall record their presence while patrolling the site using a watchman's clock. The tapes or punch cards shall be delivered to the **ENGINEER** once a month.

- H.** Maintain security of the site such that site access is only granted for project personnel or approved visitors.
- I.** Maintain the security of materials, supplies, equipment and facilities at the site from theft or vandalism.

**\* END OF SECTION \***



## **SPEC 00013**

### **SAMPLING**

#### **1. GENERAL**

##### **1.01 SUMMARY**

- A.** This section includes requirements for sampling, analysis and reporting. Requirements for project sampling for chemical analysis are specified in the Supplementary Specifications.

##### **1.02 SPECIAL PROJECT PROCEDURES**

- A.** The **DEPARTMENT** retains the option to modify sampling procedures and frequency.

##### **1.03 SUBMITTALS**

###### **A. Plans**

- 1. Submit the following in accordance with Section III, Bidding Information and Requirements:
  - a. Sampling Plan; and
  - b. Quality Assurance Project Plan (QAPP)

###### **B. Results**

- 1. Submit the following in accordance with Section VIII, Articles 5.23-5.29, "Shop Drawings and Samples":
  - a. Analytical results
    - 1. Submit a hard copy of the analytical results from the laboratory, including QA/QC summaries, within the specified turnaround from verified time of sample receipt (VTSR).
    - 2. Submit the ASP Category B reporting and deliverable package within 30 days of VTSR.

## **2. PRODUCTS**

### **2.01 SAMPLING PLAN**

- A.** The Sampling Plan shall include the following:
1. A chart and/or map indicating the approximate number of samples to be collected and the matrices of each, including anticipated QA/QC samples.
  2. Procedures for sample collection.
  3. Description of sampling equipment and maintenance procedures for the equipment.
  4. Procedures for decontamination of sampling equipment.
  5. Sample handling, labeling and regulatory compliance procedures for shipping.
  6. Training requirements for environmental sampling for new employees and refresher training requirements for current employees.

### **2.02 QUALITY ASSURANCE PROJECT PLAN (QAPP)**

- A.** The QAPP shall be project specific and include the following:
1. Organizational chart, including a designated QA Officer (QAO).
  2. Data quality objectives for the site.
  3. A chart reflecting types of samples, approximate number of samples, matrices, holding times, analytical protocols and anticipated QA/QC samples to be collected or analyzed.
  4. Specific limits of concern for each analyte for each matrix to be sampled.
  5. The matrix specific method detection limit that must be obtained for each of the analytes and matrices listed.
  6. The analytical laboratory to be used and evidence of their certification for all subcategories of solid and hazardous waste under the NYSDOH ELAP.
  7. Criteria for laboratory selection and audits.
  8. Criteria for field sampling audits.
  9. Record maintenance and archive methods.

10. Review and checking procedures for the sampling plan and the analytical results reporting.
11. Copy of the QAO's resume and training certificates.

### **2.03 ANALYTICAL RESULTS**

- A. Results for all samples (characterization, verification, disposal, etc.) shall be submitted timely.
- B. Category B presentation of the reporting and deliverables package as per Volume I of the NYSDEC ASP is required.
- C. All analytical results for soils shall be reported on a dry weight basis.

## **3. EXECUTION**

### **3.01 PLAN PREPARATION**

- A. When preparing the QAPP, designate the analytical protocols by method number contained in the NYSDEC ASP.
- B. The designated QAO shall meet the following criteria:
  1. Is an employee of the firm generating the sampling plan and QAPP.
  2. Shall have no other position on the project that involves productivity or profitability as a job performance criteria.
  3. Shall not be the Contractor's Health and Safety Officer.
  4. Shall have a bachelor's degree in chemistry or natural science, with 20 credit hours in chemistry.
  5. Shall be proficient in analytical methodology, data interpretation and validation, the development of sampling plans, QC procedures and auditing procedures.
  6. Shall have a 40-hour OSHA safety training and be current in refresher training.
  7. The QAO shall be independent of the analytical laboratory.
- C. The QAO shall assist the project manager in the preparation of the sampling plan.
- D. The QAPP and all revisions to it must be signed by the QAO prior to submission.

- E. The method detection limit of the QAPP shall be one-fifth of the site-specific limit of concern (cleanup goal).

### 3.02 SAMPLING

- A. Collect samples as specified in the Supplementary Specifications. The **CONTRACTOR** shall provide a minimum 24-hour notice to the **ENGINEER** prior to sampling. Sampling and analytical methods and procedures for sampling shall be in accordance with the approved sampling plan and QAPP.
- B. Collect samples from the depths and locations identified in the Contract Specifications.
- C. Samples shall have VTSR at the laboratory within 48 hours of collection. Results shall be available within the specified turnaround time of VTSR and data packages within 30 days.

### 3.03 QUALITY CONTROL

#### A. Samples

1. Samples will be considered environmental samples, not waste samples, and require strict adherence to QA/QC requirements for environmental samples.
2. Laboratory QA/QC samples include analysis of one matrix spike/matrix spike duplicate (MS/MSD) set per 20 samples, per batch, or per samples collected within seven days, whichever is more frequent. One matrix spike blank analysis for every MS/MSD set is also required to substantiate any matrix interferences.
3. Field duplicates and field rinsate blank QC samples are required. Field duplicate samples shall be collected and analyzed at a rate of one per every 10 field samples. Field rinsate blank samples are not required if dedicated sampling equipment is used.

#### B. Results

1. Laboratory results that are not within acceptable QA/QC ranges as stated in the **CONTRACTOR's DEPARTMENT**-approved QAPP shall require resampling and reanalysis of the affected samples at no additional cost to the **DEPARTMENT**.
2. Resampling and reanalysis as stated in this paragraph shall not increase the contract time for completion of the work.
3. No deviations from analytical protocols approved in the QAPP shall be

made prior to notification to and acceptance by the **ENGINEER**.

4. QAO shall audit the laboratory during this project.

**\* END OF SECTION \***

**SPEC 00014**

**MINIMUM REQUIREMENTS FOR WORK PLAN**

**1. GENERAL**

This section includes the requirements for the **CONTRACTOR's** Work Plan.

**1.01 REFERENCES**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC)**

DEC-SCM                      1986 Stream Corridor Management: A Basic Reference Manual

SPDES GP-0-10-001        SPDES General Permit for Storm water Discharge from Construction Activities

NYSDEC                      April 1992 Reducing the Impacts of Storm water Runoff from New Development

**SOIL AND WATER CONSERVATION SOCIETY - EMPIRE STATE CHAPTER (SWCS)**

1991 (or latest version)    New York Guidelines for Urban Erosion and Sediment Control

**CODES, RULES, AND REGULATIONS OF THE STATE OF NEW YORK**

6 NYCRR Part 700        Definitions, Samples and Tests

6 NYCRR Part 360        Solid Waste Management Facilities

**LAWS OF THE STATE OF NEW YORK**

ECL Article 15            Water Resources

**1.02 SUBMITTALS**

**A.** Submit the Work Plan in accordance with the timing stated in Section III, Article 5. Submit in accordance with Section VIII, Articles 5.23 to 5.29.

## 2. PRODUCTS

### 2.01 WORK PLAN

A. The Work Plan shall, at a minimum, include:

1. An organization chart including subcontractors. The responsibilities of each individual in the organization shall be clearly defined in terms of project activities including, but not limited to, project management and coordination; scheduling and schedule control; quality control; sampling, measurement, analysis, and data management; and performing specific construction activities. In addition, the previous experience of each individual in the project organization shall also be submitted for review and approval. Credentials of new operators, quality control personnel, and supervisory engineering and technical staff shall be furnished to the **DEPARTMENT** for approval.
2. Procedures for implementation of the work as required by the Contract Documents, including a description of all manpower and equipment to be used; description of appropriate safety devices needed to undertake the work; and a contingency plan detailing procedures and methods to be employed to prevent, contain, and recover spills during the work.
3. Letters of Commitment shall be obtained by the **CONTRACTOR** from all waste haulers and from all transfer, treatment, storage and disposal facilities to which the **CONTRACTOR** intends to ship any and all waste and other materials generated by the Work. The letters of commitment shall specifically identify the types and quantities of waste that the facility will be able to accept from the **CONTRACTOR**, the permit numbers for all facilities at which the waste will be accepted and all waste characterization requirements. In the event that a facility (such as a privately owned treatment works) is prohibited from issuing a letter of commitment without a sample of the waste, a conditional type letter will be acceptable. Such a conditional letter shall specifically state the types and quantities of waste the facility will accept. In addition, the following information shall be submitted:
  - a. For each waste hauler:
    - 1) Name and federal and state identification/permit numbers.
    - 2) Address.
    - 3) Name, telephone number and address of responsible contact for the hauler.

- 4) List of types and sizes of all transport vehicles and equipment to be used.
  - 5) A description of proposed transportation route.
  - 6) Copies of all necessary permits and authorizations for each type of waste to be transported.
- b. For each transfer, treatment, storage and disposal facility:
- 1) General Information:
    - a) Facility name and federal and state identification/permit numbers.
    - b) Facility location/address.
    - c) Name, telephone number and address of responsible contact for the facility.
    - d) Signed letter of commitment to accept waste as specified.
    - e) Waste characterization/sampling requirements for material acceptance.
    - f) Unit of measure utilized at facility for costing purposes.
  - 2) If requested by the **DEPARTMENT**, copies of all permits, licenses, letters of approval, and other authorizations to operate, held by the proposed facility as they pertain to receipt and management of waste derived from this Contract.
  - 3) The **CONTRACTOR** shall identify the unit(s) (e.g., cell numbers) that the facility will use to manage the waste.
  - 4) The **CONTRACTOR** shall provide the names and telephone numbers of the primary regulatory agency contacts.
  - 5) List of all active (unresolved) compliance orders (or agreements), enforcement notices, or notices of violation issued to the permittees, owners and operators of each facility.
4. Identification of permits, approvals, licenses and notifications required to conduct the work.
  5. Worksite layout showing, drawn to scale, at a minimum, equipment and material staging areas, trailers, decontamination station, fencing, parking areas, site access and egress routes and staging procedures.



6. Detailed construction drawing(s) of the proposed decontamination station.
7. Procedures for excavating, handling, storing, and placing all waste materials.
8. Procedures for handling liquid wastes and groundwater.
9. Provisions for control of fugitive air emissions and dust control.
10. Description of planned security operations.
11. A description of the procedures and equipment to be used to identify and protect aboveground and underground utilities and structures to remain.
12. Other requirements necessary to provide security, staging, sampling, testing, removal, and disposal of wastes.
13. Procedures for completing any other major aspect of the work.
14. After approval of the Work Plan, the **DEPARTMENT** must be notified by the **CONTRACTOR** in writing a minimum of 14 calendar days prior to making any proposed changes or within 24 hours of making unavoidable changes to the Work Plan. All changes require the approval of the **DEPARTMENT**.

## **2.02 STORM WATER MANAGEMENT FOR EROSION CONTROL PLAN (SMECP)**

- A.** The **CONTRACTOR** shall include a site-specific SMECP with the Work Plan. The SMECP shall follow guidelines for structure and content contained in SPDES GP-0-10-001. The **CONTRACTOR** shall prepare and submit the SMECP in accordance with the requirements of the specifications, the Contract Drawings, as directed by the **DEPARTMENT** and as required by applicable federal, state and local codes and regulations. The SMECP shall include:
1. Describe the temporary structural and vegetative measures that will be used to control erosion and sedimentation for each stage of the project from land clearing to the finished stage.
  2. Information regarding site background, description of work, analysis of site limitations for storm water facilities, and potential impact to natural resources;
  3. Provide a map showing the location of erosion and sediment control measures.
  4. All calculations and assumptions used for the sizing and siting of proposed temporary erosion and sedimentation control facilities.

5. Information regarding maintenance needs and safety considerations of storm water management and erosion and sediment control facilities;
6. Implementation schedule for staging of storm water management facilities and conveyance systems;
7. Description of the coordination of staging of erosion and sedimentation control facilities and construction activities;
8. Identify temporary erosion and sediment control facilities which will be converted to permanent storm water management facilities.
9. Provide a maintenance schedule for soil erosion and sediment control facilities and describe maintenance activities to be performed.
10. Description of winterization provisions.

### **2.03 STORM WATER MANAGEMENT AND EROSION CONTROL**

- A.** The **CONTRACTOR** is responsible for utilizing a system of vegetation and structural measures which can be used to control the increased volume and rate of surface runoff during the project. Storm water management on this project is to include measures to mitigate pollutants carried by surface runoff.
- B.** Existing vegetation on the project site shall be retained and protected to minimize soil loss on the project site and to minimize erosion control costs.
- C.** Storm water management objectives for this project include:
  1. Prevent increased runoff from new land development to reduce potential flooding and flood damage.
  2. Minimize the erosion potential from the construction project.
  3. Enhance the quality of storm water runoff to prevent water quality degradation in receiving waterbodies; and
  4. Reduce stream bank erosion to maintain stream channels for their biological functions as well as for drainage.
- D.** Mitigation of storm water impacts shall:
  1. Provide for erosion and sediment control during all stages of development from the land clearing stage to the final stage;
  2. Provide for the attenuation of peak storm volume and discharge rate to prevent flooding.

3. Provide for reduce post development runoff volumes;
  4. Provide for safe conveyance of storm water on the project site;
  5. Provide for the protection of stream corridors; and
  6. Provide for the protection of water quality by treating the “first flush.”
- E.** Storm water management systems such as (a) infiltration, (b) retention, and (c) extended detention shall be used to capture and treat the “first flush.” Supplemental storm water management practices include water quality inlets, open vegetated swales, vegetated buffer zones and filter strips to provide water quality treatment by filtration, attenuation, buffering, sedimentation, biological removal and practical retention.
- F.** Three basic approaches for controlling erosion and sedimentation shall be employed: (a) soil stabilization - initially control sheet and rill erosion to prevent gully and channel erosion, (b) runoff control - then control gully, channel and stream erosion to prevent transport of sediment and (c) sediment control - then control sediment transport to protect off-site areas.
- G.** Erosion and sediment control measures shall be constructed prior to beginning any land disturbances. All runoff from disturbed areas shall be directed to the sediment control devices. These devices shall not be removed until the disturbed land areas are stabilized.
1. Sediment control practices and measures, where necessary, shall be designed to protect the natural character of rivers, streams, lakes, coastal waters or other waterbodies on-site and minimize erosion and sedimentation off-site from the start of land disturbance activities to establishment of permanent stabilization.
  2. The off-site impacts of erosion and sedimentation related to land clearing, grading and construction activities shall not be any greater during and following land disturbance activities than under pre-development conditions.
  3. Pursuant to 6 NYCRR Part 700:
    - a. Toxic and other deleterious substances shall not be discharged in amounts that will adversely affect the taste, color, or odor thereof, or impair the Waters of the State or their classified usages.
    - b. Suspended, colloidal and settleable solids shall not be discharged in amounts that cause substantial visible contrast to natural conditions, or cause deposition or impairs the Waters for their classified usages.

- c. Stream reaches on-site and downstream of construction areas shall not have substantial visible contrast relative to color, taste, odor, turbidity and sediment deposition from the reaches upstream of the construction area. Impacts such as these which result from construction or developmental activities are a violation of 6 NYCRR Part 700 water quality standards and may be subject to enforcement actions.

#### 4. Guidance

- a. Erosion Restrictions: No more than 5 acres of unprotected soil shall be exposed at any one time. Previous earthwork shall be stabilized in accordance with SWCS before additional area is exposed. Site factors including topography, soil erosion potential, proximity to wetlands and water courses may require limiting the amount of raw earth that can be exposed at any one time to less than 5 acres.
- b. Grading: Perimeter grading shall blend with adjoining properties.
- c. Vegetative Protection: Where protection of trees or other vegetation is required, the location of the site to be protected shall be shown on the erosion control plan. The method of protecting vegetation during construction shall conform to the design criteria in SWCS.
- d. Drainage control
  - 1) Surface runoff that is relatively clean and sediment free shall be diverted or otherwise prevented from flowing through areas of construction activity on the project site.
  - 2) A fill associated with an approved temporary sediment control structure or permanent storm water management structure shall not be created which causes water to pond off-site on adjacent property, without first having obtained ownership or permanent easement for such use from the owner of the off-site or adjacent property.
  - 3) Natural drainage channels shall not be altered or relocated without the proper approvals. Pursuant to ECL Article 15, a protected stream and the bed and banks thereof shall not be altered or relocated without the approval of the **DEPARTMENT**.

- 4) Runoff from any land disturbing activity shall not be discharged or have the potential to be discharged off-site or into storm drains or into watercourses unless such discharge is directed through a properly designed, installed and maintained structure such as a sediment trap, to retain sediment on-site. Accumulated sediment shall be removed when 60% of the storage capacity of the sediment retention structure is filled with sediment.
- 5) For finished grading, adequate gradients shall be provided so as to prevent water from standing on the surface of lawns for more than 24 hours after the end of a rainfall, except in a swale flow area which may drain for as long as 48 hours after the end of rainfall.
- 6) Permanent swales or other points of concentrated water flow shall be stabilized with sod, riprap, paving, or covered with approved erosion-control matting as provided for in the design criteria in SWCS.
- 7) Surface flows over cut and fill slopes shall be controlled as provided for in the design criteria for vegetating waterways in SWCS.

e. Timing.

- 1) Except as noted below, all sites shall be seeded and stabilized with erosion control materials such as straw mulch, jute mesh, or excelsior within 15 days of final grading. If construction has been suspended, or sections completed, areas shall be seeded immediately and stabilized with erosion control materials. Maintenance shall be performed as necessary to ensure continued stabilization.
  - a) For active construction areas such as borrow or stockpile areas, roadway improvements, and areas within 50 feet of a building under construction, a perimeter sediment control system consisting of silt fencing or hay bales shall be installed and maintained to contain soil.
  - b) On cut side of roads, ditches shall be stabilized immediately with rock riprap or other non-erodible liners, or where appropriate, vegetative measures such as sod. When seeding is approved, anchored mulch shall be used and soil shall be limed and fertilized in accordance with SWCS.

c) Permanent seeding shall optimally be undertaken in the spring from March 21 through May 20, and in later summer and early fall from August 25 to October 15. During the peak summer months and in the fall after October 15 when seeding is found to be impracticable, an appropriate mulch shall be applied. Permanent seeding shall be undertaken during summer if plans provide for adequate watering of the seedbed.

d) All slopes steeper than 3:1 (h:v), as well as basin or trap embankments and perimeter dikes shall, upon completion, be immediately stabilized with sod, seed and anchored straw mulch or other approved stabilization measures. Areas outside of the perimeter sediment control system shall not be disturbed. Maintain as necessary to ensure continued stabilization.

2) Temporary sediment trapping devices shall be removed within 30 calendar days following establishment of permanent stabilization in all contributory drainage areas. Storm water management structures used temporarily for sediment control shall be converted to the permanent configuration within this time period as well.

f. Stream Protection.

1) The bed and banks of all on-site and off-site streams that may be impacted by land clearing, grading, and construction activities shall be protected to prevent stream, river, lake or coastal sedimentation, streambank erosion, stream enlargement and degradation or loss of fisheries habitat. Measures for protecting the bed and banks of a stream include: riprap, log cribbing, and vegetative measures.

2) Where temporary work roads or haul roads cross stream channels, adequate waterway openings shall be constructed using spans, culverts, washed rock backfill or other acceptable, clean methods that will ensure that road construction and use do not result in turbidity and sediment downstream. All stream crossing activities and appurtenances shall be in compliance with a permit issued pursuant to ECL Article 15, and shall be carried out in conformance with the guidelines in DEC-SCM.

g. Maintenance.

1) An erosion control plan for the project site shall identify maintenance requirements for erosion and sediment control

practices utilized, and shall provide a maintenance schedule. All erosion and sediment control measures shall be inspected periodically and maintained in conformance with the schedule so as to ensure they remain in effective operating condition until such times as they are removed.

- 2) All points of construction ingress and egress shall be protected to prevent the deposition of materials onto traversed public thoroughfare, either by installing and maintaining a stabilized construction entrance, or by washing all vehicle wheels in a safe disposal area. All materials deposited onto public thoroughfares shall be removed immediately. Proper precautions shall be taken to ensure that materials deposited onto public thoroughfares are removed so that they do not enter catch basins, storm sewers, or combined sewers.
- 3) Accumulated sediment shall be removed when 60 percent of the storage capacity of the retention structure is filled with sediment.

**H.** The **CONTRACTOR's** bid price shall include all costs necessary to provide for storm water management and erosion and sedimentation control during construction. The **CONTRACTOR** is solely responsible for sizing and providing any and all storm water management and erosion control measures necessary to meet federal, state and local requirements and guidelines. The **CONTRACTOR** is responsible at the **CONTRACTOR's** own cost for any corrective measures required by the **CONTRACTOR's** failure to comply with these specifications or any federal, state or local requirements and guidelines.

### **3. EXECUTION**

- A.** The **CONTRACTOR** shall adhere strictly to the provisions of the Work Plan as approved and shall control and manage surface water in every area where his/her activities take place. The actual methods shall be selected by the **CONTRACTOR**; however, the **ENGINEER** must approve any method before construction begins.
- B.** Surface water from areas of the excavation which has not been disturbed shall be prevented from entering areas where construction or work is in progress or contaminated areas.
- C.** Surface water from known areas of contamination shall be collected prior to leaving those areas and transported or pumped through watertight pipes to a temporary storage tank for later treatment through the water treatment system. Disposal shall be in accordance with all federal, state and local regulations at **CONTRACTOR's** expense.

- D.** In the event surface runoff is the cause of existing clean areas, or subsequently cleaned areas, becoming contaminated, the affected areas shall be cleaned in accordance with instructions given by the **ENGINEER**. The **CONTRACTOR** shall be responsible for all costs associated with mitigating the affects of contaminated runoff migrating to clean areas or off-site during the duration of this Contract.
  
- E.** Groundwater which is visibly flowing from the excavation shall be collected at each exit point and piped or transported into a temporary storage facility for on-site treatment in accordance with Federal and State regulations.
  
- F.** The “CONTRACTOR/SUBCONTRACTOR SPDES PERMIT CERTIFICATION” shall be completed properly.

**\* END OF SECTION \***



## SPEC 00015

### OFF-SITE TRANSPORTATION AND DISPOSAL

#### 1. GENERAL

##### 1.01 SCOPE OF WORK

- A. The **CONTRACTOR** shall properly transport and dispose of all items, including solid and liquid hazardous and nonhazardous wastes removed from the site, to appropriate disposal facilities. This includes existing wastes as well as the wastes generated by the **CONTRACTOR**. The **CONTRACTOR** shall be responsible and will be held accountable for assuring that all sampling, analysis, transportation, and disposal requirements of the Treatment, Storage and Disposal Facility (TSDF), Solid Waste Management Facility (SWMF), Publicly Owned Treatment Works (POTW), reclamation or salvage facilities, and federal, state and local governments are complied with and properly documented.

##### 1.02 SUBMITTALS

- A. **Transportation Plan:** The **CONTRACTOR** shall submit a Transportation Plan to the **ENGINEER** prior to the start of work for review. This shall include:

1. Type and number of vehicles used;
2. Travel routes and times; and
3. Copies of transportation permits.

- B. **Disposal Facilities:** The **CONTRACTOR** shall submit to the **ENGINEER** information regarding proposed facilities for disposal of each type of waste. All proposed facilities must be permitted and/or registered to accept the type of waste designated for shipment to the facility. Information submitted shall include, but not be limited to:

1. Name;
2. Owner;
3. Type of facility/permit/registration;
4. Contact person and phone number;
5. Location;
6. Hours of operation; and

7. Copies of permits.

### **1.03 PERMITS AND REGULATIONS**

- A.** The **CONTRACTOR** shall comply with all federal, state, and local regulations regarding transportation and disposal of hazardous and nonhazardous material. These include, but are not limited to:
  1. Trucks used for transportation of hazardous material for disposal off-site shall be permitted pursuant to 6 NYCRR Part 364;
  2. Vehicle operator possession of a commercial driver's license with hazardous materials endorsement (if applicable);
  3. Registration of vehicle as a hazardous waste carrier (if applicable);
  4. Utilization of shipping papers and/or hazardous waste manifest (40 CFR 262.20);
  5. Proper marking and placarding of vehicles;
  6. Placement of emergency response procedures and emergency telephone numbers in vehicle, and operator familiarity with emergency response procedures (see Minimum Health and Safety Requirements in Spec 00003); and
  7. Compliance with load height and weight regulations.

## **2. PRODUCTS**

### **2.01 MATERIALS AND EQUIPMENT**

- A.** All equipment supplied shall be in good working condition. Equipment and machinery delivered to the site, including haul trucks, that have visible oil or hydraulic fluid leaks, will not be allowed on-site until satisfactorily repaired. The **CONTRACTOR** is responsible for the cleanup of any oil or hydraulic fluid spills at the **CONTRACTOR's** expense.
- B.** The **CONTRACTOR** shall not allow soil to be tracked off-site at any time during the Project. Visible soil tracks on streets will not be allowed. The **CONTRACTOR** shall take sufficient precautions to prevent loose soils from adhering to tire treads, wheel wells, etc. Any loose soil spread shall be cleaned up.

- C. Trucks used for transportation of material for off-site disposal shall be water tight and permitted pursuant to 6 NYCRR Part 364. All trucks shall be covered prior to leaving the site.

### 3. EXECUTION

#### 3.01 DECONTAMINATION

- A. Transport vehicles shall be decontaminated at the Decontamination Station (see Section 01658) upon leaving the Exclusion Zone at the site and again at the disposal facility as required.

#### 3.02 TRANSPORTATION

- A. Materials shall be transported only at the times and by the routes indicated in the approved Transportation Plan, unless permission is received from the **ENGINEER** to do otherwise. The **CONTRACTOR** shall observe the legal load limits.
- B. Prior to shipment of hazardous wastes off the site, the **CONTRACTOR** shall confirm by written communication from the designated TSDF that it is authorized, has the capacity, and will provide or assure that the ultimate disposal method is followed for the particular hazardous waste on the manifest. Additionally, the **CONTRACTOR** shall confirm by written communication from the designated transporter(s) that they are authorized to deliver the manifested waste to the designated TSDF or SWMF.

#### 3.03 SAMPLING

- A. The **CONTRACTOR** shall be responsible for all cost associated with sampling of wastes to be disposed of as may be required by the disposal facility.

#### 3.04 MANIFESTING

- A. The **CONTRACTOR** shall complete all required manifest forms and Bill of Lading forms for the **DEPARTMENT** for proper transportation and disposal of materials off-site. Since there is no responsible party to act as the generator at this inactive hazardous waste disposal site, the **DEPARTMENT** has obtained the USEPA-required generator identification number and the **DEPARTMENT** or its representative will sign all manifests for proper shipping. However, the **CONTRACTOR** shall be responsible and will be held accountable for assuring that all sampling, and analysis, transportation, and disposal requirements of the TSDF, SWMF, POTW, and federal, state, and local governments are complied with and properly documented.

\* END OF SECTION \*

## SPEC 00016

### QUALITY CONTROL

#### 1. GENERAL

##### 1.01 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References and Standards.
- C. Tolerances.
- D. Field samples.
- E. Inspection and testing services.
- F. Testing by the **CONTRACTOR**.
- G. Manufacturers' field services and reports.

##### 1.02 SUBMITTALS

- A. Manufacturers' instructions and certificates.

##### 1.03 QUALITY ASSURANCE/CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- D. Should manufacturers' instructions conflict with Contract Documents, request clarification from the **ENGINEER** before proceeding.
- E. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- F. Perform work by persons qualified to produce workmanship of specified quality.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

#### **1.04 REFERENCES AND STANDARDS**

- A.** Conform to reference standard by date of issue current on date for receiving bids, except where a specific date is established by code.
- B.** For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- C.** Should specified reference standards conflict with Contract Documents, request clarification from the **ENGINEER** before proceeding.

#### **1.05 TOLERANCES**

- A.** Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B.** Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from the **ENGINEER** before proceeding.
- C.** Adjust products to appropriate dimensions; position before securing products in place.

#### **1.06 FIELD SAMPLES**

- A.** Furnish field samples at the site as required by individual Specification sections for review.
- B.** Acceptable samples represent a quality level for the Work.
- C.** Where a field sample is specified in individual sections to be removed, clear area after field sample has been accepted by the **ENGINEER**.

#### **1.07 TESTING BY LABORATORY SERVICES**

- A.** The **CONTRACTOR** shall employ and pay for the services of an independent testing firm, acceptable to the **DEPARTMENT** and **ENGINEER**, to perform tests.
- B.** Independent testing firm shall:
  - 1. Perform tests and other services specified in the individual Specification sections and as required by the **ENGINEER** and **DEPARTMENT**.
  - 2. Prepare and submit reports to the **ENGINEER**, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

**C.** The **ENGINEER** will forward copy of report(s) to the **DEPARTMENT**.

**D.** The **CONTRACTOR** shall:

1. Cooperate with independent firm; furnish samples of materials; furnish design mix, equipment, tools, storage and assistance as requested.
2. Notify the **ENGINEER** and independent firm 48 hours prior to expected time for operations requiring services.
3. Make arrangements with independent firm and pay for additional samples and tests required for the **CONTRACTOR's** own use.

**E.** Retesting required because of non-conformance to specified requirements shall be performed, on instructions by the **ENGINEER**, by the same independent firm which performed the initial tests and inspections.

**F.** Payment for retesting will be the **CONTRACTOR's** cost with no change in the contract price.

**2. PRODUCTS (NOT USED)**

**3. EXECUTION (NOT USED)**

**\* END OF SECTION \***

## SPEC 00018

### ABBREVIATIONS

#### 1. GENERAL

##### 1.01 LIST OF ABBREVIATIONS

- A. The following is a list of abbreviations and acronyms that may be found in these specifications. Abbreviations and acronyms not included here are defined elsewhere in the specifications or are industry standard abbreviations.

ACGIH	-	American Conference of Governmental Industrial Hygienists
AMP	-	Air Monitoring Plan
AMS	-	Agricultural Marketing Service
ASP	-	Analytical Services Protocol
bgs	-	below ground surface
C&D	-	Construction & Demolition debris
CERCLA	-	Comprehensive Environmental Response, Compensation and Liability Act
CEM	-	Continuous Emissions Monitoring
CLP	-	Contract Laboratory Program
CSP	-	Certified Safety Professional
DDW	-	Decontamination derived wastes
DER	-	Division of Environmental Remediation
ELAP	-	Environmental Laboratory Approval Program
FID	-	flame ionization detector
FS	-	feasibility study
GCL	-	gas collection layer
HTW	-	hazardous and toxic waste
IDLH	-	immediately dangerous to life or health
MSDS	-	material safety data sheet
MSHA	-	Mine Safety and Health Administration
NAD	-	North American Datum
NFPA	-	National Fire Protection Association
NGVD	-	National Geodetic Vertical Datum
NIOSH	-	National Institute of Occupational Safety and Health
NTP	-	Notice to Proceed
NTU	-	nephelometric turbidity units
NYCRR	-	New York Codes, Rules and Regulations
O&M	-	operation and maintenance
PID	-	photoionization detector
PPE	-	personal protective equipment
QA/QC	-	quality assurance/quality control
QCP	-	quality control plan

RCRA	-	Resource Conservation and Recovery Act
RI	-	remedial investigation
ROD	-	Record of Decision
SAP	-	sampling and analysis plan
SCBA	-	self-contained breathing apparatus
SVOC	-	semivolatile organic compound
TLV	-	threshold limit value
TSCA	-	Toxic Substances Control Act
TSDF	-	treatment, storage and disposal facility
VOC	-	volatile organic compound
VTSR	-	verified time of sample receipt

**2. PRODUCTS (NOT USED)**

**3. EXECUTION (NOT USED)**

**\* END OF SECTION \***



## **SPEC 00019**

### **CLEARING AND GRUBBING**

#### **1. GENERAL**

##### **1.01 SUMMARY**

- A.** This section includes the requirements for clearing and grubbing.
- B.** The **CONTRACTOR** shall stake out the limits of the clearing and grubbing. Clearing and grubbing shall not proceed without the **DEPARTMENT**'s approval of the limits staked.

##### **1.02 SUBMITTALS**

- A.** Submit the following in accordance with Section VIII, Articles 5.23-5.29, "Shop Drawings and Samples."
  - 1. Tree pruning compound: submit samples in cans with manufacturer's label.

##### **1.03 PROJECT REQUIREMENTS**

- A.** No burn off is permitted.
- B.** Cleared and grubbed material will be disposed of on-site, unless otherwise specified.

#### **2. PRODUCTS**

##### **2.01 MATERIALS**

- A.** Tree pruning compound: waterproof, antiseptic, elastic and free of kerosene, creosote and other substances harmful to plants.

#### **3. EXECUTION**

##### **3.01 PREPARATION**

- A.** Protection:
  - 1. Keep roads and walks free of dirt and debris at all times.

2. Protection of land resources, utility lines and poles, and existing facilities shall be in accordance with SPEC 00010, “Temporary Facilities and Controls” and GC Articles 5.16, 5.17 and 5.18.
3. Protect existing utility lines and poles that are indicated to remain from damage.
4. Notify the **ENGINEER** immediately of damage to or an encounter with an unknown existing utility line.
5. Repair damage to existing utility lines at no additional cost to the **DEPARTMENT** or **ENGINEER**.
6. Notify the **ENGINEER** prior to interruption of utility services and be responsible for minimizing the time period of such interruption.
7. Protect those features, trees and vegetation to remain which have been designated by the **ENGINEER**. Trees, wetlands and other vegetation directed by the **ENGINEER** to remain shall be protected from damage by all construction operations by erecting suitable barriers, guards, and enclosures, or by other approved means. If damaged or destroyed, repair or replace in kind at the **CONTRACTOR**’s expense.
8. Maintain protection until all work in the vicinity of the work being protected has been completed.
9. Do not operate heavy equipment or stockpile materials within the branch spread of existing trees.
10. Immediately repair any damage to existing tree crowns, trunks, or root systems. Roots exposed and/or damaged during the work shall immediately be cut off cleanly inside the exposed or damaged area. Treat cut surfaces with an acceptable tree pruning compound and spread topsoil over the exposed root area.
11. When work is completed, all dead and downed trees shall be removed unless specified otherwise. Live trees shall be trimmed of all dead and diseased limbs and branches. All cuts shall be cleanly made at their juncture with the trunk or preceding branch without injury to the trunk or remaining branches. Cuts over 1-inch in diameter shall be treated with an acceptable tree pruning compound.
12. Restrict construction activities to those areas within the limits of construction designated on the Drawings, within public rights-of-way, and within easements provided by the **DEPARTMENT**. Adjacent properties

and improvements thereon, public or private, which become damaged by construction operations shall be promptly restored to their original condition, to the full satisfaction of the property owner by the **CONTRACTOR** at no cost to the **DEPARTMENT**.

### **3.02 CLEARING**

- A.** Clear debris, rubbish, light structures and living or dead vegetation growth where indicated or specified. Cut and remove timber, trees, stumps, brush, shrubs, roots, grass, weeds, rubbish, and any other objectionable material resting on or protruding through the surface of the ground.
- B.** Top and limb trees before felling, unless otherwise approved by the **ENGINEER**.
- C.** Cut stumps off flush with ground surface or below.
- D.** Preserve trees where practical and as identified by the **ENGINEER**.
- E.** Conduct the clearing in a manner that prevents, to the extent possible, soil or soil like material from being collected with the cleared material.
- F.** Clearing operations shall be conducted in a manner to prevent falling trees from damaging trees designated to remain or other existing features.

### **3.03 PRUNING**

- A.** Trim only those trees and other vegetation adjacent to cleared work areas and necessary to conduct the required work.
- B.** Trim and prune branches 1½ inches or more in diameter.
- C.** Neatly cut limbs and branches close to the bole of the tree or main branches.
- D.** Paint cuts more than 1¼ inches in diameter with tree pruning compound.

### **3.04 GRUBBING**

- A.** Grubbing shall only be performed in areas designated by the **ENGINEER**.
- B.** Contaminated areas shall not be grubbed. Stumps, roots and other subsurface vegetation in contaminated areas shall be excavated and handled in the same manner as the contaminated soils or sediments.

- C. All grubbing holes and depressions excavated below the original ground surface shall be refilled with suitable fill and compacted to a density conforming to the surrounding ground surface.

### 3.05 DISPOSAL OF CLEARED AND GRUBBED MATERIALS

#### A. On-Site Disposal

1. Chip and stockpile on-site in an uncontaminated area all tree trunks, limbs, brush, foliage and other vegetation free of soils and soil like materials unless otherwise directed.
2. Cover chipped material and protect until used.
3. Spread chipped materials in a thin layer prior to placement of topsoil.
4. Dumping of spoil material into any stream corridor, wetland, flood plain or surface water is prohibited.

- B. Consolidate rubbish/debris encountered during clearing and grubbing and dispose off-site, as directed by the **ENGINEER**.

- C. Stumps, tree trunks and limbs too large for chipping shall be appropriately disposed off-site by the **CONTRACTOR**.

- D. Remove all topsoil within the cut and fill sections of the construction limits to a maximum of 12 inches, or as directed by the **ENGINEER**. All surplus topsoil shall become the property of the **DEPARTMENT** and shall not be removed from the site. Surplus topsoil shall be stockpiled separately from common fill. Topsoil may be used in landscaping, loaming and seeding operations.

**\* END OF SECTION \***

## **SPEC 00021**

### **SUBMITTALS**

#### **1. GENERAL**

##### **1.01 DESCRIPTION**

- A.** The **CONTRACTOR** shall prepare and submit technical plans and drawings as listed below and as scheduled for **DEPARTMENT's** review.

##### **1.02 FIVE-DAY SUBMITTAL PACKAGE**

- A.** In accordance with Section III, Article 5, the Apparent Low Bidder shall, at a minimum, submit the following with the required 5-day submittal package, 5 days following the Notice of Apparent Low Bidder.
1. Off-site permitted facility to receive material along with a copy of the facility's permit.
  2. Health and Safety Plan (refer to Spec 00003 and Supplementary Specification 01392)
    - a. Health and Safety.
    - b. Decontamination of Equipment and Personnel.
    - c. Contingency Measures.
    - d. Community Air Monitoring.
    - e. Odor Control Plan.
  3. Work Plan (refer to Spec 00014 and Supplementary Specification 01653)
    - a. Quality Control.
    - b. Sequencing of Work.
    - c. Soil Erosion and Sedimentation Control Measures.
    - d. Transportation Plan.
    - e. Site Security.
    - f. Miscellaneous Requirements.

4. Sampling Plan (refer to Spec 00013 and Supplementary Specification 01652)
  - a. Sampling Procedures.
  - b. Analytical Methods.
  - c. Quality Assurance Project Plan.

### **1.03 REQUIRED FOR AWARD AND NOTICE TO PROCEED**

**A.** The **CONTRACTOR** shall submit the following plans for the Work by the time of the Notice to Proceed, following receipt of the Notice to Intent to Award:

1. Final Health and Safety Plan.
2. Final Work Plan.
3. Final Sampling Plan.
4. Shop Drawings, including the following:
  - a. Electrical Supply and Lighting.
  - b. Water Supply and Use Requirements.
  - c. Temporary Site Facilities.
  - d. Other shop drawings required by the specifications or as requested by the **ENGINEER**.

### **1.04 SUBMITTALS FOLLOWING NOTICE TO PROCEED**

**A.** Major submittal requirements identified in other sections of the Specifications are listed below, however, this list is not inclusive of all submittals required elsewhere:

1. Progress Schedule Submittal.
2. List of selected TSDFs.
3. Waste manifest forms and bills of lading.
4. Weigh Station tickets.
5. Meteorological monitoring results.
6. Security logs and tickets.

7. Identification of backfill suppliers.
  8. Samples and grain size analyses of backfill materials.
  9. Topsoil gradation, certification and testing results.
  10. Seed mix certification and analysis.
  11. Daily air monitoring logs and results.
  12. Laboratory results of documentation monitoring.
  13. Dust control and roadway maintenance plan.
- B.** Survey data (refer to Spec 00004)
- C.** Subcontractor Information (refer to Spec 00005)
- D.** Field Offices (refer to Spec 00006)
- E.** As-Built and Record Documents (refer to Spec 00008)
- F.** Traffic Control Plan (refer to Spec 00009)
- G.** Silt fence and erosion control matting (refer to Spec 00010)
- H.** Well Logs
- I.** Analytical Results
- J.** Transportation Plan and Disposal Records
- K.** All other submittals as required by the Specifications applicable to the Work being performed or as requested by the **ENGINEER**.
- 2. PRODUCTS (NOT USED)**
- 3. EXECUTION (NOT USED)**

**\* END OF SECTION \***

## SPEC 00022

### DEWATERING

#### 1. GENERAL

##### 1.01 SCOPE OF WORK

- A. The **CONTRACTOR** shall furnish all labor, tools, materials, equipment, and incidentals necessary for the proper dewatering as needed of work areas during excavation and backfill, and all related work as specified herein. Dewatering shall be coordinated with the storm water management plan.

##### 1.02 DESCRIPTION OF WORK

- A. The work involved with excavation dewatering shall include, but is not necessarily limited to, the following:
1. Dewatering as needed during excavation until after the verification sample is collected.
  2. Proper storage, treatment, and discharge or disposal of water removed.
  3. Proper dewatering as needed of materials to be disposed off-site.
- B. The actual dewatering methods shall be selected by the **CONTRACTOR**; however, the **ENGINEER** must approve any method before dewatering begins. The **CONTRACTOR** is responsible for handling water in accordance with Spec 00010, Temporary Facilities & Controls.

##### 1.03 RELATED SECTIONS

- A. Spec 00014 – Minimum Requirements for Work Plan.  
Spec 00015 – Off-Site Transportation and Disposal.  
Spec 02112 – Excavation, Removal and Handling of Contaminated Materials in Wetlands and Lake Areas.  
Spec 02240 – Excavation, Removal and Handling of Contaminated Materials.

##### 1.04 SUBMITTALS

1. Dewatering plan with (as part of) the work plan.
2. Shop drawings of dewatering details (e.g., well points, pump system, drain construction, contaminant tanks and other equipment necessary to complete the work).



3. Treatment System Design. Plans for start-up and performance testing of the treatment system shall be submitted to the **DEPARTMENT** at least two weeks prior to commencement of start-up operations.
4. Treatment System Demonstration Test Report including analytical results. During the start-up and testing, the **CONTRACTOR** shall make and submit daily log reports. A copy of the log shall be submitted to the **ENGINEER** each day. Upon completion, the reports shall be submitted to the **DEPARTMENT** in booklet form showing all field tests to adjust each component and all field tests performed to prove compliance with the specified performance criteria. Daily entries shall include process control procedures, equipment maintenance logs, general observations, and all monitoring activities. These monitoring activities shall include schedule process control monitoring, and performance-verification testing.
5. Certification by equipment suppliers of proper installation before start-up testing.

## 2. PRODUCTS

### 2.01 DEWATERING PLAN

- A. This plan shall include a 1-inch, 100-foot scaled site map locating proposed operations, list of required equipment and materials, contingency plans and actions and description of system operations addressing relation to excavation, backfilling, consolidation, collection, transport, storage and disposal operations. This plan shall include:
  1. Dewatering methods;
  2. Quantities anticipated by the **CONTRACTOR**;
  3. Maximum rates anticipated by the **CONTRACTOR**;
  4. Liquid handling methods;
  5. Phasing/scheduling of work;
  6. Contingencies;
  7. Effect on nearby wells;
  8. Off-site disposal facility; and
  9. Flow metering equipment.
- B. The dewatering plan shall anticipate and calculate the need for dewatering systems from Notice to Proceed until Substantial Completion. The calculations shall consider the Storm Water Management Plan's control of run-on and run-off of the work areas. Include assumptions and calculations.
- C. Provide flexibility in the plan to handle variations in conditions that will also minimize the quantities of groundwater.

## 2.02 TREATMENT SYSTEM FOR WATER FROM DEWATERED AREAS

- A. System shall provide sufficient capacity to support excavation and backfill operations.
- B. System design shall be capable of removing particulates and contaminants and be based on the effluent meeting New York State Water Quality Standards, SPDES permit standards or pre-treatment standards provided by off-site disposal facility.
- C. Vapor emissions from dewatering treatment system operation will be treated as necessary to meet the State air guidance criteria (Air Guide 1).
- D. Provide temporary on-site storage for dewatering wastes based on the **CONTRACTOR's** operations, while accounting for treatment system limitations, variations in volumes and approval of effluent sampling results.
- E. Dewatering treatment system must be operational prior to excavation. Install all equipment in accordance with manufacturer's instructions and as shown in approved shop drawings. Ensure all equipment and materials are compatible as a system.
- F. The treatment system shall be designed to adequately meet the groundwater treatment requirements and expected capacities and shall be sealed by a New York State Professional Engineer. It is anticipated that the treatment system may consist of oil/water separator; settling tanks; particulate filtration system; carbon adsorption; supplemental frac or polyethylene tanks for storage and other components necessary to meet applicable treatment standards.

## 3. EXECUTION

- A. The **CONTRACTOR** shall select a proposed method of dewatering that complements his plan of excavation.
- B. Excavation of material and placement of backfill will not be allowed while there is standing water in the excavation, except as allowed by **ENGINEER**.
- C. Dewatering wastes from the project that have been in contact with contaminated soils or groundwater shall require treatment or proper off-site disposal.
- D. All waters encountered within the excavation limits of contaminated areas will require treatment or off-site disposal unless otherwise directed by the **DEPARTMENT** or **ENGINEER**.

- E.** Dewatering systems must be operational prior to excavation work. Install all equipment in accordance with manufacturer's instructions and as shown in approved shop drawings. Ensure all equipment and materials are compatible as a system.
- F.** Control groundwater and run-on surface water within an excavation or backfill area by pumping or other methods to prevent softening of surfaces exposed by excavation.
- G.** Use filters on dewatering devices to prevent removal of fines from soils.
- H.** If on-site discharge of water is permitted, there can be no visible turbidity from the discharge.

### **3.01 DEWATERING TREATMENT SYSTEM STARTUP AND DEMONSTRATION**

- A.** Visually inspect all parts of the dewatering treatment system. Inspect inside of pipes, tanks, and equipment for debris and foreign objects. Correct any deficiencies found.
  1. Perform rotational checks of all equipment with moving parts (unpowered).
  2. Disconnect motor leads. Using control system sensors to the extent practical, activate sensors and test voltages to ensure control system is operating as intended. If sensors cannot be activated without water, use simulators to mimic sensor signals. Perform repairs as necessary.
  3. Using potable water, fill the system and check all components for leaks. Pressure test, at 25 psi above working pressure of the system, all components and piping for a period of two hours. For the equipment designed to operate at lower pressure, isolate them from the rest of the system and pressure test them at appropriate working pressure. After pressure testing, turn the power on while feeding clean water and check for leaks. Repair any leaks found.
  4. Empty clean water from process equipment.
  5. Connect liquid effluent discharge to temporary holding tank(s) to be provided by the **CONTRACTOR**. This storage facility shall have sufficient capacity for at least 8 hours of full capacity operation.
  6. Startup the system and make adjustment to the system as necessary to maintain smooth operation. Once all necessary adjustments are made, run the system continuously for 8 hours. Make sure that all valves open and close properly.

7. During the startup period, system influent and effluent samples will be collected after 4 hours of continuous operation. The effluent should be temporarily stored in a **CONTRACTOR** provided storage tank.
8. Air sampling of emission control/treatment elements of the dewatering system is required during the startup and demonstration.
9. After the samples are collected, shut down the dewatering treatment system until confirmed analytical results are received.
10. The effluent stored during system tests must meet analytical discharge requirements prior to being discharged.
11. Parameters for operation and maintenance of the dewatering treatment system shall be established during the startup and demonstration.
12. The **CONTRACTOR** shall provide all the required labor, project equipment and materials, tools, construction equipment, transportation, and test equipment for start-up and testing of the treatment system. Demonstration that the systems meet the performance requirements stated in these specifications and that the complete functioning unit meets the required performance objectives shall be the responsibility of the **CONTRACTOR**. The **CONTRACTOR** must provide all materials to allow the treatment system to operate effectively. This shall include valves, piping, or other items required to complete the process and utility systems.
13. The **CONTRACTOR** shall ensure that all treatment units and the associated piping is equipped with sufficient sampling ports to allow sampling to determine their performance. Sampling capability must be included at all pumps.
14. The **CONTRACTOR** shall provide any equipment or operational modifications required for the system to meet the performance requirements.

### 3.02 SYSTEM OPERATION AND MAINTENANCE

- A. Operate and maintain dewatering treatment system as long as necessary to complete the work.
  1. Dewatering Treatment Operation Processes:
    - A. During normal operation, grab samplings shall be collected from the effluent discharge(s) at the frequency specified in the SPDES

permit. Samples will be analyzed for the parameters identified in the SPDES permit.

- B. Flow rates and the cumulative total volume of water treated shall be recorded daily.
- C. Meet the specified sampling frequency and laboratory turnaround time.
- D. Follow the maintenance procedures specified in the manufacturer's manuals for all equipment.
- E. Replenish all spare parts or supplies with the same types and amounts used.

### 3.03 REPORTING

- A. A detailed startup and demonstration test report shall be submitted to the **DEPARTMENT/ENGINEER** for the approval prior to the commencement of source removal.
  - 1. Biweekly discharge reports shall be provided during the excavation dewatering period. These reports shall include the period covered and all data required at the frequencies required in the Effluent Limitations and Monitoring Requirements. Submit reports within 14 days of the end of the bi-weekly period being monitored.

**\* END OF SECTION \***

## SPEC 00023

### ACCESS ROADS

#### 1. GENERAL

##### 1.01 SCOPE OF WORK

- A. The **CONTRACTOR** shall furnish all labor, materials, equipment and incidentals required to construct access and service roads as shown on the Drawings.
- B. The **CONTRACTOR** shall maintain access roads under this Contract until project final completion and shall promptly refill and grade areas which have settled or are otherwise unsatisfactory for traffic. The **CONTRACTOR** shall take record photographs of access roads to be used by the **CONTRACTOR's** construction equipment and activities prior to the start of construction. After completion of all construction activities, the **CONTRACTOR** shall construct and restore access roads to condition or better that existed prior to the **CONTRACTOR's** use during construction.

##### 1.02 RELATED WORK NOT INCLUDED

- A. Not Used.

##### 1.03 REFERENCE SPECIFICATIONS

- A. Except as otherwise specified herein, the Standard Specifications for Roads and Structures as issued by the State of New York, Department of Transportation (NYDOT) shall apply to material requirements for access road construction.
- B. ASTM D1557 - Standard Test Method - Standard Test Method Laboratory Compaction Characteristics of Soil Using Modified Effort.
- C. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

##### 1.04 SUBMITTALS

- A. The **CONTRACTOR** shall submit two 75-lb samples of the proposed crushed stone paving material and the results of recent gradation and modified proctor test.

## 2. PRODUCTS

### 2.01 GEOTEXTILE

- A. Nonwoven Fabric
- B. The product shall be a nonwoven needle punched fabric consisting of polyester or polypropylene filaments formed into a stable network which retains its structure during handling, placement and long-term service. Geotextiles shall be capable of withstanding exposure to direct sunlight for 30 days with no measurable deterioration.
- C. The fabric shall be nonbiodegradable, nonreactive within a pH range of three to eleven, resistant to ultraviolet light exposure, and resistant to insects and rodents. Test results from any sampled roll in the lot, when tested in accordance with ASTM D4759, shall meet or exceed the values listed in Table 1 below.
- D. The material shall be Mirafi 180N manufactured by TC Mirafi of Pendergrass, GA, Geotex 861 manufactured by Synthetic Industries of Chickamauga, GA, or an approved equal.

**TABLE 1  
MINIMUM AVERAGE ROLL VALUES  
FOR GEOTEXTILE FABRICS**

<b><u>PROPERTIES</u></b>	<b><u>TEST METHOD</u></b>	<b><u>UNIT</u></b>	<b><u>MINIMUM AVERAGE ROLL VALUES</u></b>
Fabric Weight	ASTM D3776	oz./yd <sup>1</sup>	8
Thickness	ASTM D1777	mils	90
Grab Strength	ASTM D4632	lbs	220
Grab Elongation	ASTM D4632	%	50
Puncture Resistance	ASTM D4833	lbs	135
Mullen Burst Strength	ASTM D3786	psi	350
Permittivity	ASTM D4491	SEC-1	1.5
Coef. of Permeability	ASTM D4491	cm/sec	0.38
Apparent Opening Size	ASTM D4751	mm	80
Flow Rate	ASTM D4491	gpm/ft. 2	110
(AOS)	US Sieve No. 100	---	60
UV Resistance	ASTMD4355	%	70% <sup>1</sup>
Trapezoid Tear Strength	ASTMD4355	lbs	130

<sup>1</sup>. Value is percent of minimum grab tensile after conditioning.

## 2.02 STONE AGGREGATE

- A. A 6-inch thick layer of compacted AASHTO Coarse Aggregate No. 3 shall be constructed on top of the geotextile.

## PART 3: EXECUTION

### 3.01 GENERAL

- A. Materials for the perimeter access road shall be delivered, placed and compacted in accordance with the contract specifications and drawings.
- E. The **CONTRACTOR** shall perform all general unclassified excavation, rough or overall grading, borrow and fill, to the subgrades of the road, road shoulders and slopes to match the existing grades.
- F. Finished excavation and grading shall be uniformly smooth, well compacted, and free from irregular surface changes. The degree of finish shall be that obtainable from either blade-grader or scraper operations. The finished surface shall not be more than 0.10 ft above or below the new grade.

### 3.02 INSTALLATION

- A. Prior to placing crushed stone paving, the exposed subgrade shall be proofrolled. Proofrolling shall be performed with a loaded CAT D300D truck or equivalent or as directed by the **ENGINEER**.
- B. Soft, wet, organic, or other unsuitable materials identified during proofrolling shall be undercut and backfilled as directed by the **ENGINEER**.
- C. The crushed stone paving shall be placed where shown on the Contract Documents.
- D. Crushed stone paving shall be compacted to at least 100% of its modified Proctor (ASTM D1557) maximum dry density.

**\* END OF SECTION \***



**SPEC 00024**

**SHOP DRAWING PROCEDURES**

**1. GENERAL**

Shop Drawing procedures shall conform to requirements of Articles 5.23 – 5.29 of Section VIII, General Conditions and as described in this Spec.

Shop Drawings shall be submitted electronically (Portable Document Format). Hard copy (paper) versions of oversize documents or large submissions will be provided in addition to electronic files as required by the **ENGINEER**.

**1.01 PROCEDURE**

**A.** Submit Shop Drawings to the **ENGINEER**. Submit additional copies to the **DEPARTMENT** at address(es) provided by the **ENGINEER**.

**B.** A letter of transmittal shall accompany each submittal. If data for more than one Section of the Specifications is submitted, a separate transmittal letter shall accompany the data submitted for each Section.

**C.** At the beginning of each letter of transmittal, provide a reference heading indicating the following:

1. Owner's Name: \_\_\_\_\_
2. Project Name: \_\_\_\_\_
3. Contract No.: \_\_\_\_\_
4. Transmittal No.: \_\_\_\_\_
5. Section No.: \_\_\_\_\_

**D.** If a Shop Drawing deviates from the requirements of the Contract Documents, the **CONTRACTOR** shall specifically note each variation as required in Article 5.26 of the General Conditions.

**E.** All Shop Drawings submitted for approval shall have a title block with complete identifying information satisfactory to the **ENGINEER**.

**F.** All Shop Drawings submitted shall bear the stamp of approval and signature of the **CONTRACTOR** as evidence that they have been reviewed by the **CONTRACTOR**. All Shop Drawings submitted shall bear the certification required in Article 5.25 of the General Conditions. Submittals without this stamp

of approval will not be reviewed by the **ENGINEER** and will be returned to the **CONTRACTOR**. The **CONTRACTOR**'s stamp shall contain the following minimum information:

Project Name: \_\_\_\_\_

**CONTRACTOR'S** Name: \_\_\_\_\_

Date: \_\_\_\_\_

-----Reference-----

Item: \_\_\_\_\_

Specifications:

Section: \_\_\_\_\_

Page No.: \_\_\_\_\_

Para. No.: \_\_\_\_\_

Drawing No.: \_\_\_\_\_ of \_\_\_\_\_

Location: \_\_\_\_\_

Submittal No.: \_\_\_\_\_

Approved By: \_\_\_\_\_

- G.** A number shall be assigned to each submittal by the **CONTRACTOR** starting with No. 1 and thence numbered consecutively. Resubmittals shall be identified by the original submittal number followed by the suffix "A" for the first resubmittal, the suffix "B" for the second resubmittal, etc.
- H.** If hard copy (paper) versions are required by the **ENGINEER**, the **CONTRACTOR** shall initially submit to the **ENGINEER** a minimum of four copies. The **DEPARTMENT** shall receive two copies of each hard copy submittal.
- I.** After the **ENGINEER** completes his review, Shop Drawings will be marked with one of the following notations:
  - 1. Approved.
  - 2. Approved as Noted.

3. Resubmit with Revisions.
  4. Disapproved.
- J.** If a submittal is acceptable, it will be marked “Approved” or “Approved as Noted.” Two prints or copies of the submittal will be returned to the **CONTRACTOR**, two prints or copies will be forwarded to the **DEPARTMENT** and two prints or copies will be retained by the **ENGINEER** (one in the field office).
- K.** Upon return of a submittal marked “Approved” or “Approved as Noted”, the **CONTRACTOR** may order, ship or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated.
- L.** If a Shop Drawing marked “Approved as Noted” has extensive corrections or corrections affecting other Drawings or Work, the **ENGINEER** may require that the **CONTRACTOR** make the corrections indicated thereon and resubmit the Shop Drawings for record purposes. Such drawings will have the notation, “Approved as Noted - Resubmit.”
- M.** If a submittal is unacceptable, two copies will be returned to the **CONTRACTOR** with one of the following notations:
1. “Resubmit with Revisions”
  2. “Disapproved”
- N.** Upon return of a submittal marked “Resubmit with Revisions”, the **CONTRACTOR** shall make the corrections indicated and repeat the initial approval procedure. The “Disapproved” notation is used to indicate material or equipment that is not acceptable. Upon return of a submittal so marked, the **CONTRACTOR** shall repeat the initial approval procedure utilizing acceptable material or equipment.
- O.** Any related Work performed or equipment installed without an “Approved” or “Approved as Noted” Shop Drawing will be at the sole responsibility of the **CONTRACTOR**.
- P.** Shop Drawings shall be submitted well in advance of the need for the material or equipment for construction and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved. The **CONTRACTOR** shall assume the risk for all materials or equipment which are fabricated or delivered prior to the approval of Shop Drawings. Materials or equipment will not be included in periodic progress payments until approval thereof has been obtained in the specified manner.

- Q.** The **ENGINEER** will review and approve or disapprove Shop Drawings and samples within 14 days of receipt from the **CONTRACTOR**. The **ENGINEER** will process all submittals promptly, but a reasonable time should be allowed for this, for the Shop Drawings being revised and resubmitted, and for time required to return the approved Shop Drawings to the **CONTRACTOR**.
- R.** It is the **CONTRACTOR's** responsibility to review submittals made by his suppliers and Subcontractors before transmitting them to the **ENGINEER** to assure proper coordination of the Work and to determine that each submittal is in accordance with his desires and that there is sufficient information about materials and equipment for the **ENGINEER** to determine compliance with the Contract Documents. Incomplete or inadequate submittals will be returned for revision without review.
- S.** The **CONTRACTOR** shall furnish required submittals with complete information and accuracy in order to achieve required approval of an item within two submittals, in accordance with Article 5.27.3 of Section VIII, General Conditions. All costs to the **ENGINEER** involved with subsequent submittals of Shop Drawings, Samples or other items requiring approval, will be backcharged to the **CONTRACTOR**, at the rate equal to the **ENGINEER's** charges to the **DEPARTMENT** under the terms of the **ENGINEER's** agreement with the **DEPARTMENT**. In the event the **CONTRACTOR** fails to pay such costs within 30 days after receipt of an invoice from the **DEPARTMENT**, funds will be withheld from payment requests and at the completion of Work, a Change Order or proposed Change Order will be issued incorporating the unpaid amount, and the **DEPARTMENT** will be entitled to an appropriate decrease in Contract price. In the event that the **CONTRACTOR** requests a substitution for a previously approved item, all of the **ENGINEER's** costs in the reviewing and approval of the substitution will be backcharged to the **CONTRACTOR** unless the need for such substitution is beyond the control of the **CONTRACTOR**.

2. **PRODUCTS (NOT USED)**

3. **EXECUTION (NOT USED)**

**\* END OF SECTION \***

## SPEC 00025

### SCHEDULE OF VALUES AND BID BREAKDOWN

#### 1. GENERAL

##### 1.01 SUMMARY

###### A. Section Includes:

1. Procedures for preparation and submittal of Schedule of Values.

##### 1.02 RELATED SECTIONS

###### A. Agreement: Contract Sum/Prices, amounts of Progress Payments and Retainages

###### B. General Conditions: Progress Payments and Final Payment

###### C. Application for Payment

###### D. Submittals

###### E. Change Order Procedures

###### F. Project Schedules

###### G. Contract Close-out

##### 1.03 SUBMITTALS

###### A. Submit the bid breakdown to the **DEPARTMENT** within **FOURTEEN** days of Notice of Intent to Award in an electronic format acceptable to the **DEPARTMENT**.

###### B. Submit the initial Schedule of Values to the **DEPARTMENT** within **TEN** days after date of the Notice of Award in an electronic format acceptable to the **DEPARTMENT**.

##### 1.04 SUBSTANTIATING DATA

###### A. When the **ENGINEER** requires substantiating information, submit data justifying dollar amounts in question.

- B. Provide data with cover letter for each copy of submittal in an electronic format acceptable to the **DEPARTMENT**. Show Application number and date, and line item by number and description.

#### **1.05 BID BREAKDOWN**

- A. The bid breakdown shall be used as a basis for determining progress payments on a lump sum contract or any designated lump sum bid item. The bid breakdown shall be cost loaded construction activities equal, in total, to the lump sum bid and shall be in such form and sufficient detail to correctly represent a reasonable apportionment of the lump sum. Prior to submitting an invoice for payment, the **CONTRACTOR** shall have submitted a detailed bid breakdown and obtained approval from the **ENGINEER**.
- B. Each lump sum bid item on the schedule of Work and Prices, as set forth in the Bid must be broken down separately. The breakdown of each lump sum bid item must cover the cost of construction required by the Contract Drawings and Contract Documents for that item. The sum of the values for the construction activities, within a bid item, must equal the total bid amount for that item. The breakdown shall include subcontract amounts which shall not deviate from the amounts submitted in the Bid Proposal. The **CONTRACTOR** shall provide certification from the Subcontractors certifying the subcontract amounts.
- C. The bid breakdown will include all information required in the Measurement for Payment Section.
- D. A bid breakdown for unit price items will be submitted to the **ENGINEER** as requested or required by these Contract Documents.
- E. The bid breakdown will include labor, equipment and material costs (regardless if subcontracted or not) with markups as appropriate.

#### **1.06 SCHEDULE OF VALUES**

- A. Submit schedule on form approved by the **ENGINEER**. The **CONTRACTOR's** standard form or electronic media printout will be considered. All schedules shall be submitted in an electronic format acceptable to the **DEPARTMENT**.
- B. Format: List all major work activities indicated on the completed project schedule. Where appropriate, separate floors, phases and other easily recognized building divisions. Identify site mobilization, close-out, punch-list, demobilization, bonds and insurance as appropriate. Separate labor and materials for each item.
- C. Include Allowances specified in these Contract Documents. List separate line items for General, Mechanical, Electrical, and Service Equipment close-out and include the dollar amount equal to each portion of the Contract.

- D.** Revise schedule to list approved Change Orders, with each Application for Payment.
- E.** Identify “Separately Funded Work” and amounts separately.
- F.** For each unit of work where payment requests will be made on account of materials or equipment purchased/fabricated/delivered but not yet installed, show “separate line items” for “order and receive” and “installation” of that unit of work.
- G.** Show line items of indirect costs, and margins of actual costs, only to extent such items will be individually listed in payment requests. In general, establish each item in Schedule of Values (and in payment requests) to be completed with its total expenses and proportionate share of general overhead and profit margin.
- H.** Except as otherwise required, major cost items, which are not directly cost of actual work-in-place, such as distinct temporary facilities, may be either shown as line items in Schedule of Values or distributed as general overhead expense, at the **CONTRACTOR’s** option.
1. Each activity in the Schedule of Values shall delineate one construction activity. For example, the placement of concrete between construction joints, the construction of an electrical duct bank or pipeline between points A & B. The costing for each activity should include all costs for the labor and materials or equipment required to complete the activity. For example, concrete construction activities should include all costs for the forming, placing of reinforcement, placing concrete and curing. The cost for pipeline construction activities should include materials, equipment and installation including pipeline supports or thrust blocks. The excavation and backfill for a pipeline or structure may be separate activities. The Contract Price breakdown shall include the itemized costs for the plant establishment and any maintenance services to be performed before the final project acceptance is made. No non-construction activity shall be cost loaded.
  2. The **CONTRACTOR** shall use cost loaded construction activities from the Construction Schedule as a Schedule of Values. Each construction activity shall be encoded to its bid item and a sort provided for each bid item totaling the cost loaded amount. The total of the Cost Loaded amounts for each bid item shall equal the amount bid for that item. The total of the Schedule of Values shall equal the current Contract value at all times. At any time during the progress of the Work of the Contract the **ENGINEER** reserves the right to review the cost loading of the Schedules of Values and direct necessary revisions. When requested by the **ENGINEER**, the **CONTRACTOR** shall provide all information necessary to substantiate the cost loading.

**\* END OF SECTION \***

**ATTACHMENT 5**  
**SUPPLEMENTARY SPECIFICATIONS**



**GLENMERE LAKE PROPERTY  
CHESTER, NEW YORK**

**SUPPLEMENTARY SPECIFICATIONS**

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## **DIVISION 1 – SPECIAL CONDITIONS**

## SECTION 01010

### SUMMARY OF WORK

#### 1. GENERAL

##### 1.1 SCOPE OF WORK

- A. The Glenmere Lake Property Site is located on Pine Hill Road in Orange County, New York. The property is irregularly shaped and covers an area of approximately 9.9 acres. The Glenmere Lake Property is an overgrown parcel with four dilapidated buildings encompassing an estimated 20,000 square feet in floor area. The buildings include a house, a milk barn and two connected structures with another barn area and a garage area with below-grade stairs. In addition, a former concrete pump house and an uncontrolled dumping ground containing asbestos shingles are present at the site. The site was historically occupied by private owners and later used as a resort and golf course.
- B. The area of work is within a habitat for a New York State Endangered Species, specifically, the Northern Cricket Frog. As a result, special provisions have been included in this Work to protect the Northern Cricket Frog and its habitat, as described in more detail on the Contract Drawings and in the Supplementary Specifications. The intent of these precautions is to cause no harm to the Northern Cricket Frog. Additionally, the area of work includes a federal and New York State designated wetlands and a surface water utilized as a source of public drinking water. As a result, the Contractor shall cause no additional harm to these areas outside of the required Work described in these Contract Documents.
- C. The Contractor shall furnish all labor, equipment, materials, supplies, facilities, power and incidentals as necessary to fully complete the Work as shown, as specified and as directed by the Department. The Contractor shall be responsible for performing all the Work described in the Contract Documents, including items not specifically identified, as required to complete the Work.
- D. The type and quantity of Work specified are estimates that have been shown solely for the convenience of the Department, Engineer and Contractor, and may not necessarily include all of the items of Work required.
- E. All of the Work shall be performed in accordance with all applicable federal, state and local laws and regulations, and the approved submittals. If any law, regulation, the Contract Drawings and/or Contract Documents have contradicting requirements, then the most stringent requirement shall apply, as determined by the Department. Local laws shall include any Town, Village, City or other local regulatory authority having jurisdiction.

- F. The Contractor is restricted from performing any operation outside the Contract Limits, which are defined on the Drawings.
- G. Due to the presence of the Northern Cricket Frog on-site, demolition and remediation work in the upland areas shall be completed between June 1 and August 15. Remediation work in the water areas (wetland and lake) shall be completed between December 1 and March 15. Refer to the Contract Drawings for additional scheduling requirements. The Contractor is solely responsible for sequencing construction in an efficient manner within the allocated period. The Contractor's proposed sequence of construction shall be identified in the Work Plan and shall conform to the Contract Drawings.
- H. The Contractor shall be solely responsible for identifying, marking out and protecting all aboveground and underground utilities and structures.
- I. The Contractor shall identify, apply for and obtain, pay all fees for, and comply with all requirements of all issued licenses, permits, approvals and insurance required from federal, state and local government and public agencies and authorities as necessary to perform the Work. The Contractor shall provide indemnifications to public and private agencies and authorities as necessary to perform the Work.
- J. The Contractor shall acquire and complete all required manifest forms and bills of lading as required by applicable laws and regulations for transportation and disposal of materials off-site.
- K. The Contractor shall be responsible for protecting, securing and maintaining the Site during all time frames when work is not taking place at the site due to the phasing of the work due to the presence of the Northern Cricket Frog on-site.
- L. The principal features of the Work to be performed by the Contractor include, but are not limited to:
1. Preparation of, obtaining approval for and implementing the specified and requested submittals.
  2. Furnishing and installing temporary sediment and erosion control measures.
  3. Installation of a barrier silt fence for protection of the Northern Cricket Frogs inhabiting the site in accordance with the requirements specified in the Northern Cricket Frog Remediation and Conservation Plan for Glenmere Lake prepared by Herpetological Associates, Inc. A copy of this plan is included in the Limited Site Date Summary Report.

4. Furnishing and installing temporary facilities and controls in accordance with Standard Specification Section 00010 (“Temporary Facilities and Controls”).
5. Furnishing and installing temporary fence and gate.
6. Performance of an underground utility markout survey to locate and markout the location of all underground utilities and structures within the vicinity of the work, including all “approximate” utilities, as identified on the Contract Drawings.
7. Removal of existing yard waste and debris for off-site transportation and disposal in accordance with all applicable federal, state and local regulations.
8. Demolition, removal, transportation and off-site disposal of existing buildings, slabs and foundations. Buildings containing asbestos shall require removal using controlled demolition as specified in the New York State Department of Labor’s Industrial Code Rule (ICR) 56.
9. Excavation, temporary storage, transportation and off-site disposal of contaminated soil and waste materials.
10. Installation of a turbidity curtain and other mitigation measures to minimize the migration of sediments and turbidity during the removal of contaminated sediment from the lake bottom.
11. Excavation and disposal of contaminated wetland and lake sediments.
12. Backfilling, grading, compaction and plantings.
13. Removal of temporary facilities and controls, and site restoration.

The foregoing is a general description only and shall not be construed as a complete description of the Work to be performed for this project.

## **1.2 GENERAL**

- A. Where articles of other sections of the Contract Documents are repeated in Division 1 (“Special Conditions”), it is intended to elaborate or qualify such articles. It is not intended that other articles of the above documents shall be omitted or that additional requirements set forth in the above documents and noted herein shall be excluded from Contract requirements unless specifically noted as such hereinafter.

## **1.3 GENERAL ARRANGEMENT**

- A. The Contract Drawings indicate the extent and general arrangement of the Work. The specific equipment proposed for use by the Contractor on the project may

require changes in the construction detailed on the Contract Drawings, and all such changes shall be submitted to the Engineer for approval in accordance with the requirements of the Contract Documents and shall be made without additional cost to the Department.

#### **1.4 TIME OF WORK**

- A. The Contractor shall comply with all local requirements regarding noise generation and allowable construction work hours. The Contractor shall arrange and limit all vehicle movements, material deliveries, etc., to the specified hours of operation. Exception to this provision shall only be made with the expressed written approval of the Department.
- B. Unless otherwise specifically permitted, all work that would be subject to damage shall be stopped during inclement, stormy or freezing weather. Only such work as will not suffer injury to workmanship or materials will be permitted. The Contractor shall carefully protect the Work against damage or injury from the weather and, when work is permitted during freezing weather, shall provide and maintain approved facilities for heating the materials and for protecting the Work.

#### **1.5 ACCESS TO CONSTRUCTION SITE**

- A. Whenever construction work is in progress or preparation, the Contractor shall permit access and inspection and shall provide proper and necessary facilities to representatives of the Department, Engineer and regulatory agencies as specified in the Contract Documents.

#### **1.6 CONFINED SPACE ENTRY REQUIREMENTS**

- A. The Contractor shall be responsible for making determinations regarding confined spaces as defined by the federal and state regulations governing confined space entry and safety procedures in such areas. The Contractor shall be responsible for compliance with OSHA and all applicable provisions of federal, state and local laws and regulations pertaining to confined spaces in performing the Work.
- B. Provisions for confined space entry shall be included with the Contractor's Health and Safety Plan (see Spec 00003).

#### **2. PRODUCTS (NOT USED)**

#### **3. EXECUTION (NOT USED)**

**\* END OF SECTION \***

## SECTION 01011

### LOCATION OF WORK

#### 1. GENERAL

##### 1.1 DESCRIPTION

- A. The following description is provided for general information only, and may not represent the actual conditions to be encountered during the performance of the Work. The Contractor shall examine the Glenmere Lake Property Site in order to obtain an understanding of local and on-site conditions.
- B. The Department and/or its Engineer will not be responsible for any deductions, interpretations or conclusions drawn by the Contractor as to the nature of the site or the efforts required to perform the Work, that differ from the written description or the apparent conditions as determined by an on-site visit.

##### 1.2 ACCESS TO PROJECT SITE

- A. The Contractor's access to the project site shall be Pine Hill Road. Access to the site shall be limited to the hours of operation as specified in the General Conditions. The Contractor shall arrange and limit all vehicle movements, material deliveries, and all other related activities to the prescribed hours of operation. Exception to this provision shall only be made with the expressed written permission of the Department.

##### 1.3 CONTRACT LIMITS

- A. The lands upon which the Work is to be performed, rights of way for access thereto, and such other lands which are designated for the use of the Contractor are presented on the Drawings. For the purposes of these Contract Documents, the Contract Limits shall be as depicted on the Drawings.
- B. For the purpose of providing and connecting to utilities and related services (such as electric), it may be necessary for the Contractor to undertake work outside the Contract Limits. Such work areas shall be presented to the Department for written approval prior to undertaking said work. The Contractor shall be required to apply for and obtain all permits and approval from the utility companies, Villages, Towns, County of Orange and State of New York.
- C. The Contractor shall restore any and all existing above ground and below ground structures within the Contract Limits and on public and privately owned property which are removed, damaged or in any way altered by the Contractor.

- D. Access to the portion of the site where work is taking place shall be restricted at all times to authorized Contractor, Department and Engineer personnel.

#### **1.4 REFERENCE POINTS**

- A. The Department and Engineer shall provide established reference points which in the Department's and Engineer's judgment are necessary to enable the Contractor to proceed with the Work. The Contractor shall be responsible for laying out the Work, and shall protect and preserve the established reference points. The Contractor shall report to the Engineer whenever any reference point is lost or destroyed, or requires relocation because of necessary changes in grade or location. The Contractor shall be responsible for replacement or relocation of such reference points by professionally qualified survey personnel licensed in the State of New York. The Contractor shall keep neat, legible notes of all measurements and calculations made while surveying and laying out the Work, and two copies of all notes shall be furnished to the Engineer during progress of the Work. The location of existing reference points and their elevation are shown on the Contract Drawings.

#### **2. PRODUCTS (NOT USED)**

#### **3. EXECUTION (NOT USED)**

**\* END OF SECTION \***



## SECTION 01012

### CONTRACT DRAWINGS

#### 1. GENERAL

##### 1.1 DESCRIPTION

- A. The Contract Drawings which accompany and form a part of these Specifications bear the general title: Glenmere Lake Property, Building Demolition, Site Remediation and Site Restoration, General Construction, Contract No. \_\_\_\_\_, Site No. 336071. The Work shall conform to the following Drawings:

<b>Drawing No.</b>	<b>Title</b>
--	Cover Sheet
1.	General Notes, Symbols and Abbreviations
2.	Existing Conditions Survey
3.	Upland Areas – Site Preparation Plan
4.	Demolition Plan
5.	Upland Areas – Remediation Plan
6.	Water Areas – Site Preparation Plan
7.	Water Areas – Demolition Plan
8.	Site Restoration Plan
9.	Sediment Control Details
10.	Details I
11.	Details II

#### 2. PRODUCTS (NOT USED)

#### 3. EXECUTION (NOT USED)

**\* END OF SECTION \***

## **SECTION 01050**

### **FIELD ENGINEERING**

#### **1. GENERAL**

##### **1.1 SCOPE OF WORK**

- A. Provide civil, structural or other professional engineering services specified, or required to execute Contractor's construction methods.
- B. Develop and make all detailed surveys and measurements needed for construction including slope, stakes, batter boards, piling and pier layouts, and all other working lines, elevations and cut sheets.
- C. Arrange for utility markouts.
- D. Keep a transit and leveling instrument on the site at all times and a skilled instrument person employed or obtained whenever necessary for layout of the Work.
- E. Provide all material required for benchmarks, control points, batter boards, grade stakes, and other items.
- F. Be solely responsible for all locations, dimensions and levels. No data other than written order of the Engineer shall justify departure from the dimensions and levels required by the Drawings.
- G. The Contractor shall carefully preserve all existing benchmarks, and in the case of disturbance or destruction thereof caused by its Work, the Contractor shall be charged with the expense and damage resulting therefrom, and shall be responsible to correct any mistakes that may be caused by the loss or disturbance of such benchmarks at no additional cost to the Department.

##### **1.2 QUALIFICATIONS OF CONTRACTOR'S FIELD ENGINEER**

- A. The Contractor's field engineer and/or superintendent shall be a qualified engineer as demonstrated by the credentials required to be presented to the Engineer for approval as part of the Work Plan (see Standard Spec 00014 and Specification 01653 of the Supplementary Specifications).

## **2.0 PRODUCTS (NOT USED)**

### **3. EXECUTION**

1. A projection of work to be completed the following week must be submitted to the Engineer by 4:00 p.m. of the preceding Friday. This projection must include:
  - a. Location of all areas in which construction will be performed, including Contractor and his/her Subcontractors.
  - b. Major construction equipment utilized.
  - c. Equipment and materials to be installed.
2. Provide all surveying equipment required including transit, level, stakes and required surveying accessories.
3. Furnish all required lines and grades for construction operations. Check all form work, reinforcing, inserts, structural steel, bolts, sleeves, piping, and other materials and equipment.
4. Maintain field office files, Record Drawings and a complete, accurate log of all control and survey work as it progresses, and coordinate engineering services with Subcontractors. Prepare layout and coordination drawings for construction operations.
5. Check and coordinate Work for conflicts and interferences and immediately advise the Engineer of all discrepancies noted.
6. Cooperate with the Engineer in field inspections as required.
7. Follow without delay all instructions of the Engineer or his assistants in the prosecution and completion of the Work in conformity with this Contract. The Contractor's representative shall have full authority to supply labor and materials immediately.
8. The Contractor shall also have a competent representative available to receive telephone messages and provide a reasonable reply as soon as possible, but not later than 24 hours.

**\* END OF SECTION \***

## SECTION 01072

### REFERENCE STANDARDS

#### 1. GENERAL

##### 1.1 REFERENCE STANDARDS

- A. When a reference standard is specified, comply with the requirements and recommendations stated in that standard, except when they are modified by the Contract Documents, or when applicable laws, ordinances, rules, regulations or codes establish stricter standards. The latest provisions of applicable standards shall apply to the Work, unless otherwise specified. Reference standards include, but are not necessarily limited to, the following:

AMCA	Air Moving and Conditioning Association, Inc.
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ACIFS	American Cast Iron Flange Standards
AFBMA	Anti-Friction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturing Associations
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASP	Analytical Services Protocol
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society

AWWA	American Water Works Association
CFR	Code of Federal Regulations
CGA	Compressed Gas Association
CRSI	Concrete Reinforcing Steel Institute
CMAA	Crane Manufacturers Association of America
DIPRA	Ductile Iron Pipe Research Association
EEI	Edison Electric Institute
EJMA	Expansion Joint Manufacturers Association, Inc.
ELAP	Environmental Laboratory Approval Program
Fed Spec	Federal Specifications
FM	Factory Mutual
HMI	Hoist Manufacturers Institute
IEEE	Institute of Electrical and Electronic Engineers
IPCEA	Insulated Power Cable Engineers Association
NACE	National Association of Corrosion Engineers
NB	National Board of Boiler Pressure Vessels
NBS	National Bureau of Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NGWA	National Groundwater Association
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOT	New York State Department of Transportation
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
RMA	Rubber Manufacturers Association
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SPI	Society of the Plastics Industry
SSPC	Steel Structures Painting Council
STI	Steel Tank Institute
TSCA	Toxic Substances Control Act

UL Underwriters Laboratory

- B. The Contractor shall, when required, furnish evidence satisfactory to the Engineer that materials and methods are in accordance with such standards where so specified.
- C. In the event any questions arise as to the application of these standards or codes, copies shall be supplied on-site by the Contractor.

2. **PRODUCTS** (NOT USED)

3. **EXECUTION** (NOT USED)

**\* END OF SECTION \***

**SECTION 01392**

**MODIFICATIONS TO MINIMUM REQUIREMENTS  
FOR HEALTH AND SAFETY**

**1. GENERAL**

**1.1 SUMMARY**

This section modifies the Standard Specifications in Section X: Spec 00003, Minimum Requirements for Health and Safety:

- A. Delete the following from Section 1.13 (“Personnel Hygiene and Decontamination”):

“On-Site Hygiene Facility

The Contractor shall provide a hygiene facility on-site. The hygiene facility shall include the following:

- Adequate lighting and heat;
- Shower facilities for project personnel;
- Laundry facilities for washing work clothes and towels;
- Areas for changing into and out of work clothing. Work clothing should be stored separately from street clothing;
- Clean and ‘dirty’ locker facilities; and
- Storage area for work clothing, etc.”

- B. Section 1.17 (“Emergency Responses/contingency Plan and Procedures”): The Master Telephone list shall be revised as follows:

Fire Department	911
Police Department	911
Ambulance	911
Hospital/Emergency Care Facility	(845) 333-1000
Poison Control Center	(800) 222-1222
Chemical Emergency Advice (Chemtrec)	(800) 424-9300

NYSDEC (Albany Office)	Work Hours: (518) 402-9814  After Hours: (800) 342-9226 (leave message)
NYSDEC (Region 3 Office)	Work Hours: (845) 256-3000
Orange County Health Department	(845) 291-2332
New York State Department of Health, Division of Environmental Health	(800) 458-1158
New York State Department of Health Oneonta District	(607) 432-3911

2. **PRODUCTS** (NOT USED)

3. **EXECUTION** (NOT USED)

**\* END OF SECTION \***



**SECTION 01400**

**MODIFICATIONS TO PROJECT SIGN**

**1. GENERAL**

**1.1 SUMMARY**

A. This section modifies the Standard Specifications in Section X: Spec 00007, Project Identification and Sign.

**1.2 PERMITS AND REGULATIONS**

A. The Contractor shall obtain all necessary permits, variances and approvals for the Work as required by federal, state and local agencies.

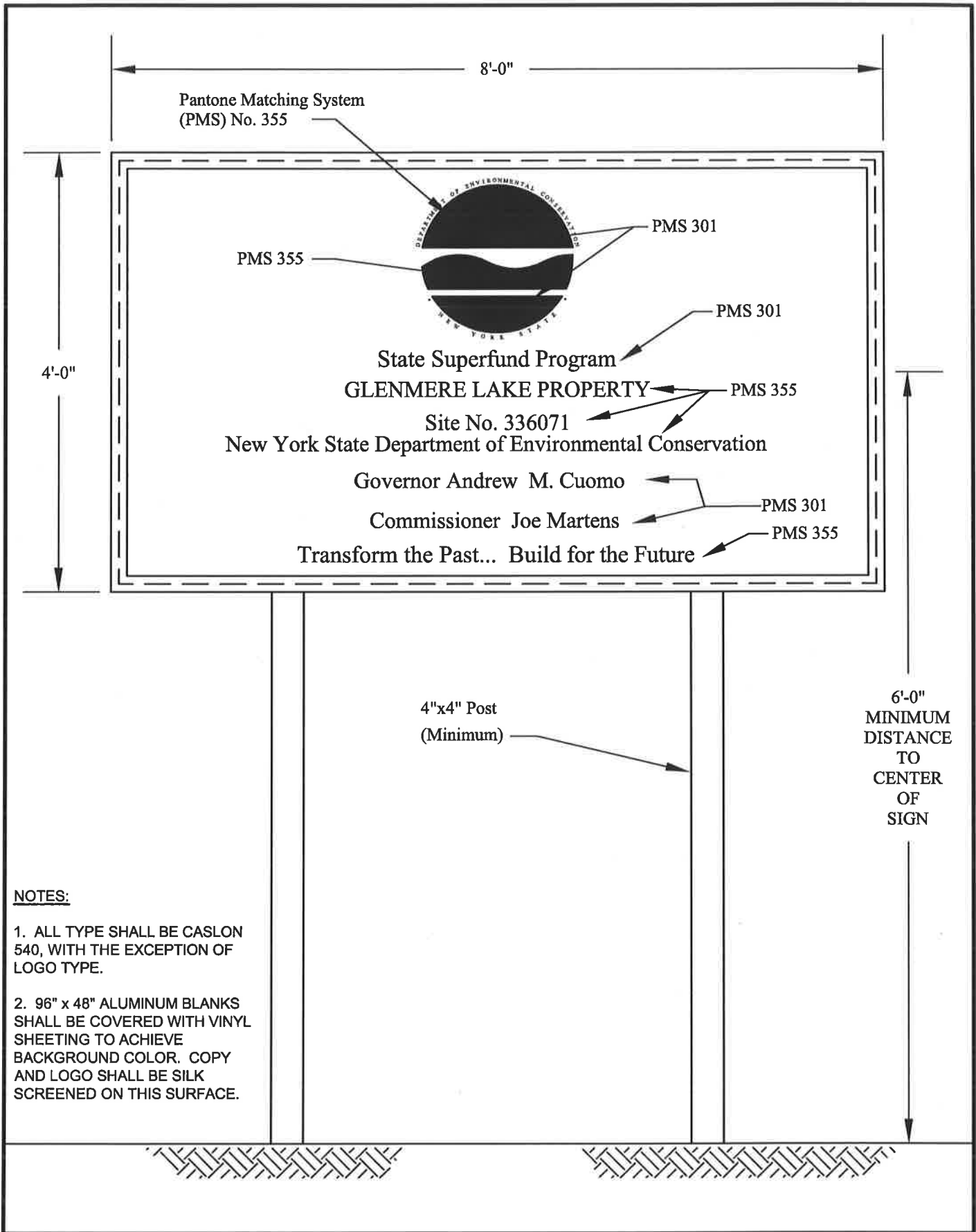
**2. PRODUCTS**

**2.1 PROJECT SIGN**

A. The Project Sign shall be as shown in attached Figure 1.

B. Copy surrounding NYSDEC logo shall be:

<u>Text</u>	<u>Pantone Matching System (PMS) Shade</u>
“NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION”	PMS 355 Green
NYSDEC logo	PMS 301 Blue PMS 355 Green
State Superfund Program	PMS 301 Blue Pantone Matching System (PMS)



**NOTES:**

1. ALL TYPE SHALL BE CASLON 540, WITH THE EXCEPTION OF LOGO TYPE.
2. 96" x 48" ALUMINUM BLANKS SHALL BE COVERED WITH VINYL SHEETING TO ACHIEVE BACKGROUND COLOR. COPY AND LOGO SHALL BE SILK SCREENED ON THIS SURFACE.

F:\3150\DWG\3150-05C.dwg, FIG1, 11/1/2013 2:27:08 PM, lgubiak

<u>Text</u>	<u>Shade</u>
Site Name, Site Number, Party Performing Remedial Activities	PMS 355 Green
Names of Governor, Commissioner, Municipal Executive	PMS 301 Blue
Transform the Past....Build for the Future	PMS 355 Green

- C. All type shall be Caslon 540, with the exception of the logotype. Form shall be: center each line of copy with small caps and initial caps.
- D. 96" wide x 48" high aluminum blanks shall be covered with vinyl sheeting to achieve background color. Copy and logo shall be silk screened on this surface.
- E. The legend, layout and text of the Project Sign shall be as indicated on attached Figure 1.

2. **PRODUCTS** (NOT USED)

3. **EXECUTION** (NOT USED)

**\* END OF SECTION \***

## SECTION 01450

### PROJECT MEETINGS

#### 1. GENERAL

##### 1.1 PRE-CONSTRUCTION MEETING

- A. No later than twenty (20) days after the Effective Date of the Agreement between the Department and Contractor, and prior to mobilizing to the site, a pre-construction meeting shall be attended by the Contractor. At a minimum, the Contractor's project manager, superintendent and Health and Safety Coordinator shall attend the meeting. This pre-construction meeting will be conducted by the Engineer and will include an overview of the construction activities that will be performed at the site, and a review of the responsibilities of the Engineer and Contractor. This meeting will be held at a to be determined location.
- B. The preconstruction meeting shall address procedures and processing of submittals, substitutions, change orders, applications for payment, proposals, field changes and contract closeout. The Contractor's schedule will also be reviewed. The pre-construction meeting shall also address specific requirements of the Department, including the limitations of use of the available facilities by the Contractor and access to the work by the Department.

##### 1.2 PROJECT MEETINGS

- A. Project meetings will be held once every week that Work is performed at the site.
- B. The purpose of the project meetings will be to discuss Work progress, plan work activities for the upcoming week and discuss any unanticipated site conditions encountered.
- C. The Engineer shall conduct the project meetings. The Contractor shall be responsible for attending all project meetings.
- D. The following is the suggested agenda for progress meetings:
  - 1. Review and approval of minutes of previous meeting.
  - 2. Review of work progress since the previous meeting.
  - 3. Field observations, problems and conflicts.
  - 4. Problems which impede construction and proposed corrective actions.
  - 5. Review of delivery and submittal schedules.

6. Revisions to the construction schedule.
  7. Anticipated progress during the succeeding work period.
  8. Coordination of schedule.
  9. Maintenance of construction quality, and health and safety standards.
  10. Identification of pending changes and substitutions, and review of pending changes for effect on construction and project completion date.
  11. Other matters, as appropriate.
- E. The Contractor's personnel must attend each project meeting and shall include, at a minimum, the Contractor's superintendent.
- F. If required by the Department or Engineer, a representative of any Subcontractor used by the Contractor shall attend any requested progress meetings.
- G. It is anticipated that in addition to the Engineer and Contractor personnel, the progress meetings may be attended by representatives of the Department.
- H. All progress meetings will be held at the project site.
- I. Site inspections may be performed as a component of the progress meetings.

**2. PRODUCTS (NOT USED)**

**3. EXECUTION (NOT USED)**

**\* END OF SECTION \***

## **SECTION 01510**

### **TEMPORARY FENCING**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. The Contractor shall furnish all labor, materials, supplies, equipment, power, facilities and incidentals necessary to install temporary fencing and a gate, as specified herein and as directed by the Department. Temporary fencing and gates shall be installed prior to starting any demolition or excavation work at the site and shall be maintained by the Contractor until Substantial Completion is achieved.
- B. The Work shall include, but not necessarily be limited to, furnishing and installing a temporary 6-foot high chain link fence and, at a minimum, one gate to secure the work area as shown on the Contract Drawings, as specified herein and as directed by the Department.
- C. The Contractor shall be responsible for maintaining and repairing the fence to the satisfaction of the Department.

##### **1.2 PERMITS AND REGULATIONS**

- A. The Contractor shall prepare all required submittals and obtain all necessary permits, variances and approvals for the Work as required by federal, state and local agencies.
- B. The Contractor shall be solely responsible for verifying all property boundaries and performing the Work within the limits of properties which access has been granted for.

##### **1.3 EXISTING CONDITIONS**

- A. The Contractor shall immediately notify the Engineer of any perceived differences in existing conditions, which may impact the Work.

##### **1.4 SUBMITTALS**

- A. The Contractor shall submit six copies of shop drawings showing layout, details of construction and erection of the temporary fence, gate and accessories.
- B. Temporary fencing and gates shall be as supplied by:
  - 1. National Rent-A-Fence Company (800-352-5675).
  - 2. Approved equal.

## **2. PRODUCTS**

### **2.1 FENCING PANELS**

- A. The temporary fencing shall consist of panels 6 feet in height and 12 feet in length. The framework for each panel shall consist of line poles, bottom rail, top rail, and vertical and horizontal crossbars each constructed of 15-gauge, 1.375-inch O.D. steel piping.
- B. Panels shall be secured at the tops and bottoms by means of 1.375-inch steel panel clamps.
- C. The fabric thickness shall be 11.5 gauge with a uniform square mesh. Fabric shall be fastened to the framework with steel ties.

### **2.2 GATES**

- A. The temporary gates shall be 6 feet in height and 12 feet in width. The framework for each gate shall consist of gate poles, bottom rail, top rail, and vertical and horizontal crossbars each constructed of 15-gauge, 1.375-inch O.D. steel piping.

### **2.3 PANEL STANDS**

- A. The fence and temporary gate shall be secured to the ground surface with panel stands. The panel stands shall be 3 feet in length and 1.5 feet in width, and shall consist of 15-gauge, 1.375-inch O.D. steel piping with 1-foot uprights. Panel stands shall be secured to the ground surface with 70-pound sandbags or approved equal.

### **2.4 LOCKS AND KEYS**

- A. Locks and keys shall be supplied by the Contractor and master keyed to the Department's specifications. The Contractor shall supply four sets of keys to the Department. Locks shall be four-pin tumbler brass construction Master Lock Model 2KA or approved equal.

## **3. EXECUTION**

- A. The temporary fencing, gates and accessories shall be installed in accordance with the Contract Drawings and Specifications in a workmanlike manner by skilled mechanics experienced in erection of this type of fence. The Contractor shall be responsible for erecting the temporary fencing and gates in the locations approved by the Engineer.

**\* END OF SECTION \***

## SECTION 01652

### SAMPLING PLAN

#### 1. GENERAL

##### 1.1 DESCRIPTION

- A. This Section specifies requirements for sampling and analysis of environmental media, such as materials to be excavated, removed and transported off-site, imported backfill materials and material to remain at the bottom of the excavation area. This section expands upon the requirements of Standard Spec 00013 (“Sampling”). Quality assurance/quality control requirements for materials to be furnished by the Contractor are specified in Standard Spec 00016 (“Quality Control”).
- B. The Contractor shall prepare and submit a site-specific Sampling Plan in accordance with the requirements of the Specifications and as directed by the Department.
- C. In preparing and submitting the Sampling Plan, the Contractor shall comply with the requirements of Spec 00021 (“Submittals”).
- D. The Sampling Plan shall provide a comprehensive description of the procedures to be used for collection and analysis of environmental samples. The Sampling Plan shall include, but not necessarily be limited to, procedures for sample collection, labeling, preservation, storage, Chain of Custody requirements and shipping; sample analysis including analytical methods and quality assurance/quality control; and data reduction, validation and reporting.
- E. For the purposes of this section of the Specifications, waste includes, but is not limited to, excavated soil, decontamination waste water, waste personal protective equipment, construction and demolition debris, and sediment drain water. The Contractor shall identify in the Sampling Plan any waste which will be generated during the Work and for which the Contractor has not provided sampling and testing. The rationale for not sampling and testing any waste which will be generated shall be explained in the Sampling Plan and be subject to the approval of the Engineer and the Department.

##### 1.2 PLAN CONTENT

- A. The Sampling Plan (SAP) shall include, at a minimum, the following:
  - 1. The number and type of each sample to be collected and analyzed.



2. A chart reflecting the number of samples to be collected, matrices, sample containers, holding times, analytical protocols to be used and anticipated QA/QC samples to be collected and analyzed.
3. A list of analytes to be identified and quantified during the analytical process.
4. The analytical protocols that shall be employed, including any special handling procedures that may be required. The statement "ASP" is insufficient. The Contractor shall designate by method number the specific protocols contained in the NYSDEC Analytical Services Protocol (ASP) which shall be used.
5. In accordance with ASP requirements, a table identifying the frequency and types of all required quality control samples including trip blanks, rinse blanks, field blanks, matrix spikes, matrix spike duplicates and matrix spike blanks.
6. The data quality objectives including precision, accuracy, representativeness, comparability, completeness and method sensitivity for the site and data uses.
7. The required deliverables and supporting documentation where these differ from or are not a part of the required analytical protocols.
8. The matrix specific detection limits that must be obtained for each of the analytes and matrices listed. (This value should be in the range of 1/5 the specific limit of concern.)
9. List of all field sampling equipment, including manufacturer, model number and equipment maintenance and calibration procedures, including the recommended frequency for calibration of all on-site equipment.
10. Description of sample collection methods for each sample matrix, including sample containers, sample custody, sample packaging, storage and shipping procedures.
11. Description of all sampling equipment decontamination procedures.
12. An organizational chart and the identity of the designated, qualified Quality Assurance (QA) Officer. The SAP shall include a copy of the QA Officer's résumé and signature page for the Quality Assurance Officer. The SAP and all revisions shall be signed by the Quality Assurance Officer prior to submission to the Department. The Quality Assurance Officer shall be independent of the analytical laboratory. Additional requirements for the Quality Assurance Officer are specified below.

13. The SAP shall include the name(s), address(es), telephone number(s) and qualifications of the laboratory(ies) to be used for this project for chemical analyses. The Contractor shall be required to obtain approval from the Department for all laboratories to be used on this project.
14. The SAP must state that prior to any deviations from the agreed program, the Department shall be notified and the deviation accepted by the Department. However, such an acceptance shall not limit the full responsibility of the Contractor to meet all requirements of the Contract Documents.

### **1.3 PLAN REQUIREMENTS**

#### **A. Sample Collection and Analysis**

1. Within the SAP, the Contractor shall include all applicable information with regard to sample collection for each of the matrices of concern.
2. Samples collected as part of the Work shall be analyzed in such a manner that the resulting data meets and supports data use requirements. The data shall be reported in a manner that assures that the precision, accuracy, representativeness, comparability and completeness requirements included in the approved SAP are achieved.
3. The SAP shall include sufficient direction and detail that by referring to the SAP, on-site personnel can perform all on-site activities, including instrument calibration, instrument maintenance, instrument use, sample collection, sample shipment, and data documentation and reporting.
4. Samples shall be collected as specified and as directed by the Department.
5. Waste generated on-site shall be sampled and analyzed in accordance with the approved SAP. The number of samples, sample collection methodologies, sample analysis methods and rationale for characterizing all waste shall be described in the SAP and shall be the responsibility of the Contractor. The Contractor shall be responsible for all sampling and analyses required by the disposal facilities, regulatory agencies and municipal authorities. Results of the analyses shall be provided to the Department prior to removal of waste from the site.

#### **B. Monitoring**

1. The manufacturer-supplied owner's manual for all instrumentation to be furnished by the Contractor and used on-site shall be included in the SAP.
2. In a separate section of the SAP, the Contractor shall provide a step-by-step description of the calibration and maintenance procedures for all

instrumentation, including the frequency for each procedure and separate forms to be completed each day to document calibration of equipment and recording of monitoring results.

3. The Contractor's approved QA Officer shall be responsible for calibration, maintenance and operation of all instrumentation.

#### **1.4 SAMPLE DESIGNATION**

A. Sample bottles (preserved, if necessary), labels, shipping containers, Chain of Custody forms, custody seals, trip blanks, and field blank water shall be provided by the analyzing laboratory. Soil sample containers shall be labeled with the following information:

1. site identification code;
2. sample type (media) identification code;
3. sample location identification code and field quality control (QC) identification code (if applicable);
4. sample depth identifier;
5. date and time of collection;
6. type of preservative added (if applicable); and
7. initials of sampling technician.

B. Liquid/water sample containers shall be labeled with the following information:

1. site identification code;
2. sample type (media) identification code;
3. sample location identification code and field QC identification code (if applicable);
4. date and time of collection;
5. field handling (e.g., filtration);
6. type of preservative added (if applicable); and
7. initials of sampling technician.

C. The sample identification codes provided on each sample label shall follow the coding system described below.

1. A designated sample location abbreviation shall be included as follows.
    - a. excavation = E followed by the designated excavation identification number
    - b. stockpile = SP followed by the designated stockpile identification number, as approved by the Engineer
    - c. decontamination pad = DP followed by designated decontamination pad number
  2. If appropriate, the depth of the sample shall be included in the sample number.
  3. QC identifiers shall be as follows:
    - a. Field duplicate = FD
    - b. Field blank = FB
    - c. Matrix Spike and Matrix Spike Duplicate = MS/MSD
    - d. Trip Blank = TB
  4. The date of sample collection shall be included in each sample identification code shown as month, day and year (e.g. 102313).
- D. A record of sequentially numbered samples for each media with corresponding sample designations shall be kept in the field book, which shall be provided to the Department upon request.

## **1.5 FIELD SAMPLE HANDLING AND SHIPMENT**

- A. All samples shall be collected and handled according to the appropriate analytical protocols for each matrix. The types of containers, volumes needed and preservation techniques for the proposed testing parameters, including geotechnical parameters, shall be identified in the SAP.
- B. All samples shall be delivered to the approved laboratory(s) within 24 hours of collection and shall be preserved appropriately from the time of sample collection. The following sample packing and shipping procedures shall be followed for samples requiring chemical analysis.

1. Prepare cooler(s) for shipment.
  - a. tape drain(s) of cooler shut;
  - b. affix “This Side Up” arrow labels and “Fragile” labels on each cooler; and
  - c. place mailing label with laboratory address on top of cooler(s).
2. Arrange sample containers in groups by sample number.
3. Verify that all bottle labels are completed correctly. Place clear tape over bottle labels to prevent moisture accumulation from causing the label to peel off.
4. Arrange containers in front of assigned coolers.
5. Seal sample containers within plastic zip-lock bags to prevent leakage.
6. Place packaging material at the bottom, sides and top of the cooler to act as a cushion for the sample containers.
7. Arrange containers in the cooler so that they are not in contact with the cooler or other samples.
8. Fill remaining spaces with packaging material.
9. Ensure all containers are firmly packed in packaging material.
10. If ice is required to preserve the samples, ice cubes should be packaged in double zip-lock bags, and placed on top of the packaging material.
11. Sign Chain of Custody form (or obtain signature) and indicate the time and date it was relinquished to carrier, as appropriate.
12. Separate copies of Chain of Custody forms. Seal proper copies within a large zip-lock bag and tape to inside lid of cooler. Retain copies of all forms.
13. Close lid and latch.
14. Secure each cooler using custody seals.
15. Tape cooler shut on both ends.
16. Relinquish to courier service as appropriate. Retain air bill receipt for project records. All samples shall be shipped for “Next Day” delivery.

17. Telephone laboratory contact and provide the laboratory with the following shipment information:
  - a. sampler's name;
  - b. project name;
  - c. number of samples sent according to matrix and constituents of analysis; and
  - d. air bill number.

## **1.6 NOTIFICATION OF CHANGES**

- A. After approval of the SAP, the Department must be notified by the Contractor in writing, a minimum of 14 calendar days prior to making any proposed changes or within 24 hours of making any unavoidable changes to the Plan. All changes shall require the approval of the Department.

## **1.7 LABORATORY REQUIREMENTS**

- A. The Contractor shall retain the services of an independent testing laboratory(ies) to perform the testing required of the Contractor.
- B. All laboratory analyses, and in particular all references to NYSDEC Superfund analytical chemistry, shall be in accordance with the most current edition of the NYSDEC Analytical Services Protocol (ASP). It is the Contractor's responsibility to obtain the services of a laboratory familiar with this document, and all procedures and deliverables pertaining to New York State Superfund work. All analyses must be performed by a laboratory currently certified by the New York State Department of Health Environmental Laboratory Approval Program (ELAP) in all categories required under this Contract. The SAP shall include a certification from the laboratory(ies) stating that the laboratory(ies) has reviewed the SAP and the requirements of the specifications concerning chemical analyses and the laboratory(ies) take no exceptions to the requirements of the SAP and the Specifications.
- C. The Contractor shall submit all data to the Department in NYSDEC EQuIS™ electronic data deliverable (EDD) format.
- D. The Contractor shall bear all costs associated with testing required to be performed by the Contractor in accordance with these specifications.
- E. The names, address(es), telephone number(s), qualifications and certifications of the laboratory(ies) shall be provided in the SAP. The SAP shall indicate the analyses to be performed by each laboratory.

## **1.8 QA OFFICER REQUIREMENTS**

- A. The Contractor's project Quality Assurance Officer (QAO) must have a minimum of a bachelor's degree in a relevant natural or physical science. Because on-site work is expected, verification of completion of the 40-hour OSHA hazardous waste site operations safety training course, 8-hour refresher and medical screening is required.
- B. The QAO must be proficient in analytical methodology, data interpretation and validation, sampling plan development, quality control procedures, and auditing requirements and techniques.
- C. The QAO shall assist the Contractor in the development of the SAP, perform field, laboratory and sampling audits, interface with the analytical laboratory to make requests and resolve problems, interface with the data validator, and develop a project specific data usability report.
- D. The QAO shall attend site meetings between the Contractor and the Department when requested by the Department.
- E. The QAO shall sign off on the site-specific SAP and all revisions.

## **1.9 DATA EVALUATION REQUIREMENTS**

- A. All data generated as part of this project shall be evaluated by the QAO. The QAO is required to identify to the Department in writing any and all problems or potential problems with regard to the validity of the data generated.
- B. The QAO shall provide with the final Category B data deliverable report submittal to the Department, a Data Usability Summary Report (DUSR), which evaluates the quality, validity and usability of the data provided with respect to the intended use. The DUSR shall follow the guidelines as specified in the Appendix 2B of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation").
- C. The QAO shall provide with the final Category A data deliverable report submittal to the Department, a Data Applicability Report (DAR). The DAR shall follow the guidelines as specified in the Appendix 2B of NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation").

## **1.10 DELIVERABLES**

- A. Forty-eight-hour the laboratory turnaround shall be provided for all samples.
- B. The results of the laboratory analyses shall be reported to the Department in writing and shall be transmitted in electronic portable document format (PDF)

within 5 days of the time of sample collection. The results shall be submitted to the Department in the form of typed summary tables. The summary tables shall provide the identification name and number of each location that each sample was collected from, the sample identification number, the date and time each sample was collected, the result of the analysis for each parameter, and applicable standards, guidance value or cleanup objective.

- C. Final analytical reports shall be ASP Category A or B deliverables, as noted, and shall be transmitted in NYSDEC electronic data deliverable (EDD) EQUIS™ format. Final analytical reports shall be provided to the Engineer within 28 calendar days from receipt of the sample by the laboratory, unless directed otherwise by the Department.
- D. Calibration records for all equipment and instrumentation for monitoring and sampling shall be provided in typed tabular summary format at the end of each week.

## **2. PRODUCTS (NOT USED)**

## **3. EXECUTION**

### **3.1 EXCAVATION CONFIRMATION SOIL SAMPLING PROGRAM**

- A. Confirmation samples shall be collected from the excavation areas in accordance with most recent version of the NYSDEC's DER-10.
- B. Soil samples shall be collected with a dedicated disposable polyethylene scoop and placed directly into laboratory supplied containers.
- C. The samples shall be sent to the laboratory for analysis via overnight shipment. The laboratory shall analyze the samples within 48 hours. The results of the analysis shall be emailed or faxed to the Contractor, who shall report the results to the Department within 4 hours after receipt.
- D. Samples shall be analyzed for arsenic and lead in accordance with USEPA SW-846 Method 6010B. ASP Category B or equivalent reporting and deliverables shall be required. Appropriate site-specific and laboratory QA/QC sampling, including, but not limited to, matrix spikes, matrix spike duplicates and trip blanks, in accordance with NYSDEC ASP requirements, shall be included as part of the sampling program.

### **3.2 WASTE CHARACTERIZATION SAMPLING**

- A. Waste characterization samples shall be collected in accordance with all applicable federal, state and local laws and regulations and the requirements of



the disposal facility. ASP Category A or equivalent reporting and deliverables shall be required.

### **3.3 BACKFILL**

- A. Samples shall be collected and analyzed in accordance with the NYSDEC's DER-10 Table 5.4(e)10 for TCL volatile organic compounds (VOCs) in accordance with NYSDEC ASP Method 8260B, TCL semivolatile organic compounds (SVOCs) in accordance with NYSDEC ASP Method 8270C, TCL pesticides/PCBs in accordance with NYSDEC ASP Method 8081A/8082, Target Analyte List (TAL) metals in accordance with NYSDEC ASP Method 6010B/7471A and cyanide in accordance with NYSDEC ASP Method 9010B. ASP Category A or equivalent reporting and deliverables shall be required.
- B. Additional testing requirements for backfill to be used in the upland areas and wetland/lake areas are included in Supplementary Specifications 02200 ("Backfill and Compaction") and 02488 ("Wetlands and Lake Bottom Restoration"), respectively.

### **3.4 DECONTAMINATION STATION SAMPLING PROGRAM**

- A. Samples shall be collected with disposable or decontaminated sampling equipment and analyzed for Resource Conservation and Recovery Act (RCRA) metals in accordance with NYSDEC ASP Method 6010B/7471A, total petroleum hydrocarbons in accordance with NYSDEC ASP Method 8015M, VOCs in accordance with NYSDEC ASP Method 8260B, SVOCs in accordance with NYSDEC ASP Method 8270C and TCL pesticides in accordance with NYSDEC ASP Method 8082. ASP Category A or equivalent reporting and deliverables shall be required.

**\* END OF SECTION \***

## SECTION 01653

### MODIFICATIONS TO MINIMUM REQUIREMENTS FOR WORK PLAN

#### 1. GENERAL

##### 1.1 SUMMARY

This Section modifies the Spec 00014 (“Minimum Requirements for Work Plan”):

A. Add the following requirements to Section 2.01:

1. Manpower, procedures and equipment to be used for installation of a barrier silt fence for protection of the Northern Cricket Frogs inhabiting the site in accordance with the requirements specified in the Northern Cricket Frog Remediation and Conservation Plan for Glenmere Lake prepared by Herpetological Associates, Inc. A copy of this plan is included with the Limited Site Data Summary Report.
2. Manpower, procedures and equipment to be used for furnishing and installing temporary sediment and erosion control measures.
3. Manpower, procedures and equipment to be used for furnishing and installing temporary facilities and controls in accordance with Standard Specification Section 00010, Temporary Facilities and Controls.
4. Manpower, procedures and equipment to be used for furnishing and installing temporary fence and gate.
5. Manpower, procedures and equipment to be used for sheeting, shoring and bracing as required to perform the Work.
6. Manpower, procedures and equipment to be used for removal of existing yard waste and debris for off-site transportation and disposal in accordance with all applicable federal, state and local regulations.
7. Manpower, procedures and equipment to be used for the demolition, removal, transportation and disposal of existing buildings, slabs and foundations.
8. Manpower, procedures and equipment to be used for excavation, temporary storage, transportation and off-site disposal of contaminated soil in accordance with all applicable federal, state and local regulations.
9. Manpower, procedures and equipment to be used for installation of a turbidity curtain and other mitigation measures to minimize the migration

of sediments and turbidity during the removal of contaminated sediment from the lake bottom.

10. Manpower, procedures and equipment to be used for excavation, management, temporary storage, transportation and disposal of contaminated wetland sediments and associated drain water.
11. Manpower, procedures and equipment to be used for backfilling of excavations, including filling, grading and compacting.
12. Manpower, procedures and equipment to be used for Site restoration, including upland planting and seeding and wetlands restoration.
13. Manpower, procedures and equipment to be used for removal of temporary facilities and controls, and site restoration.
14. Manpower, procedures and equipment to be used to protect, secure and maintain the site during any shutdown periods necessary due to the available work windows for this project given the presence of the Northern Cricket Frog on-site.

**2. PRODUCTS (NOT USED)**

**3. EXECUTION (NOT USED)**

**\* END OF SECTION \***

## SECTION 01655

### STORM WATER MANAGEMENT FOR EROSION CONTROL PLAN

#### 1. GENERAL

##### 1.1 DESCRIPTION

- A. The Contractor shall prepare and submit a site-specific Storm Water Management Erosion Control Plan (SMECP) prior to mobilization to the site. The SMECP shall be a component of the Contractor's work plan. This specification is meant to expand upon the requirements included in the Standard Spec 00014 ("Work Plan") related to the SMECP. The Contractor shall prepare and submit the SMECP in accordance with the requirements of the Specifications, the Contract Drawings, as directed by the Department and as required by applicable federal, state and local codes and regulations.
- B. In preparing and submitting the SMECP, the Contractor shall comply with the requirements specified in Spec 00021 ("Submittals") and Section III, Article 5.
- C. The SMECP shall be prepared by the Contractor to describe the storm water management systems to be implemented in complete detail pursuant to the requirements of the Contract Documents. No work shall be permitted until the SMECP has been approved. Any modifications to the SMECP which may become necessary, as a result of the Contractor's methods of working or which may be required by the Engineer shall be submitted to the Engineer for approval. The Contractor shall adhere strictly to the provisions of the SMECP as approved, and shall control and manage storm water in every area where work activities take place, and are impacted by water from work areas or other Contractor activities at the site.
- D. Design criteria and construction of all water management systems shall be in accordance with New York State guidelines and applicable federal, state and local requirements.
- E. Management and disposal of all water/liquids shall be in accordance with all federal, state and local laws and regulations.
- F. In the event surface runoff is the cause of existing clean areas or subsequently cleaned areas becoming contaminated, the affected areas shall be cleaned as directed by the Department at no additional cost to the Department. The Contractor shall be responsible for all costs associated with mitigating the effects of contaminated runoff migrating to clean areas or off-site during the duration of the Contract.

## 1.2 QUALITY ASSURANCE

- A. Reference Standards: The Work shall comply with applicable provisions and recommendations of the following, except where otherwise shown or specified:
1. New York State Department of Environmental Conservation (NYSDEC):
    - a. DEC – 2005 New York Standards and Specifications for Erosion and Sediment Control.
    - b. SPDES – SPDES General Permit for Storm Water Discharges from Construction Activities (Permit Number GP-0-10-001)
    - c. DEC-SCM – 1986 Stream Corridor Management: A Basic Reference Manual
  2. Soil and Water Conservation Society - Empire State Chapter:
    - a. SWCS – 1997 (or latest version) New York Guidelines for Urban Erosion and Sediment Control
  3. Codes, Rules, and Regulations of the State of New York:
    - a. 6 NYCRR Part 700 - Definitions, Samples and Tests
    - b. 6 NYCRR Part 360 - Solid Waste Management Facilities
  4. Laws of the State of New York:
    - a. ECL Article 15 - Water Resources

## 1.3 PLAN CONTENT

- A. The SMECP shall be prepared by a professional engineer licensed to practice in New York State and shall include, but not necessarily be limited to, the following in addition to the information listed in Standard Sec 00014 (“Work Plan”):
1. Drawings to scale showing the proposed locations and dimensions of all storm water management facilities, including, but not limited to on-site recharge facilities, turbidity curtain, sediment and erosion control facilities, storm water control structures and water storage facilities. The SMECP shall show and describe the storm water routes, collection and diversion features, and disposal or discharge locations for each phase of construction.

2. Identification of all permits, approvals, licenses, notifications, etc. required to complete the storm water management work, including but not limited to, NYSDEC SPDES permits and NYSDEC's Division of Water's Notice of Intent.
3. Procedures for handling all water/liquids generated including storm water, decontamination water, dust control water, sediment drain water, dewatering liquids, etc.
4. The SMECP shall show and describe measures to control storm water and to maintain separation of potentially contaminated water from uncontaminated water during each phase of construction. In addition, the SMECP shall show and describe the measures to control runoff from migrating off-site.
5. The SMECP shall describe the methods and equipment to be used to prevent storm water from entering open excavations during construction. The SMECP shall describe the sequencing of excavation work, in accordance with the Contract Drawings, and in conjunction with storm water management on site during construction.
6. The SMECP shall describe the means and methods to prevent storm water from contacting excavated soil and sediment stored on-site.
7. All calculations and assumptions used for the sizing and siting of proposed temporary erosion and sedimentation control facilities.

**2. PRODUCT (NOT USED)**

**3. EXECUTION (NOT USED)**

**\* END OF SECTION \***

## SECTION 01656

### CONTRACTOR'S EQUIPMENT AND TOOLS

#### 1. GENERAL

##### 1.1 DESCRIPTION

- A. The Contractor shall provide all equipment and experienced personnel necessary to complete the Work. The Contractor shall provide all materials, tools, equipment, accessories, fuel, power, and all other materials and services necessary for the satisfactory completion of all Work.
- B. The Contractor shall maintain the equipment in good operating condition for the life of the Contract. In the event that, during the course of the Work, the equipment, judged on the basis of Work completed to date is considered unsatisfactory to the Engineer or the Department, the Contractor shall, within 48 hours, unless otherwise approved by the Engineer or the Department, replace the unsatisfactory equipment with equipment which is satisfactory to the Engineer or the Department.
- C. The Contractor shall not be reimbursed for time lost due to breakage and/or maintenance of equipment.
- D. The Contractor shall furnish and keep on the site where Work is in progress, a completely equipped first-aid kit and shall provide ready access thereto at all times when workers are employed at the site in accordance with the Contractor's Health and Safety Plan.
- E. The Contractor shall store all of his equipment and tools in accordance with Spec 00011 ("Site Security"). The Engineer and the Department shall not assume liability for the security of said equipment and materials.

#### 2. PRODUCTS (NOT USED)

#### 3. EXECUTION (NOT USED)

**\* END OF SECTION \***

## **SECTION 01657**

### **STORAGE OF MATERIALS AND EQUIPMENT**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

- A. The Contractor shall place and store all equipment and materials to be used and incorporated in the Work so as not to injure, hinder, or unduly interfere with any part of the Work and so that free access can be had at all times to the site, facilities and Work areas. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to personnel entering the site and in areas approved by the Engineer and the Department. The Engineer and the Department shall not assume liability for the security of said equipment and materials.
- B. The Contractor shall take appropriate measures to ensure that no materials are stockpiled adjacent to excavation areas.
- C. Soil stockpiles shall be managed in accordance with the approved Work Plan and Section 02240 (“Excavation, Removal and Handling of Contaminated Materials”).
- D. The Contractor shall ensure that all containers used in the completion of Work are covered, stored on pallets (as appropriate) and labeled during the completion of Work.
- E. The Contractor shall store all materials and equipment in accordance with Spec 00011 (“Site Security”).

#### **2. PRODUCTS (NOT USED)**

#### **3. EXECUTION (NOT USED)**

**\* END OF SECTION \***



## SECTION 01658

### EQUIPMENT DECONTAMINATION

#### 1. GENERAL

##### 1.1 DESCRIPTION

- A. The Work covered by this Section consists of the decontamination of equipment.
- B. The Contractor shall furnish all labor, equipment, materials, supplies, facilities, power and incidentals needed for construction of a decontamination pad for the decontamination of equipment as specified and as directed by the Department.
- C. The Contractor shall minimize the use of water for decontamination purposes to the extent practicable.
- D. All decontamination waste liquids and solids shall be collected, managed and disposed of in accordance with applicable federal, state and local laws and regulations. Decontamination waste shall be containerized and disposed of off-site in accordance with all applicable federal, state and local codes.
- E. Refer to Standard Spec 00003 (“Minimum Requirements for Health and Safety”) for additional equipment decontamination requirements.

##### 1.2 SUBMITTALS

- A. The Contractor shall submit the following as part of the Health and Safety Plan:
  - 1. A description of decontamination methods consisting of:
    - a. The proposed equipment and methods to be used in the equipment decontamination procedures including dusting, brushing, water use, power requirements and detergents to be used.
    - b. Drawings showing construction details of the decontamination pad, spill prevention methods, and required storage methods and volumes for wastewater.
  - 2. A certificate signed by the Contractor stating that all vehicles and equipment shall be free of contamination prior to entering the site.
  - 3. A sample of the decontamination certificate, to be signed and submitted by the Contractor, for all construction vehicles and equipment leaving the site.

## **2. PRODUCTS**

### **2.1 EQUIPMENT/MATERIALS**

- A. All decontamination equipment, materials and supplies necessary for the performance of the Work shall be supplied by the Contractor.
- B. A decontamination pad(s) shall be constructed as necessary to support equipment loads in a manner that shall not compromise the impermeability of the pad. The decontamination pad shall be impermeable and sloped in such a way that decontamination water collects in a sump. Decontamination water collected in the sump shall be removed as necessary so that overflow is prevented. Water collected in the sump shall be managed and disposed in accordance with the Contractor's approved plans.

## **3. EXECUTION**

### **3.1 GENERAL REQUIREMENTS**

- A. The Contractor shall be required to collect one five-point composite soil sample (0-6" below the area where the decontamination pad is to be built) prior to the construction of the decontamination pad and after the decontamination pad has been removed. Refer to Section 01652 ("Sampling Plan") for additional sampling requirements. Should the sample results indicate contamination caused by the operation of the decontamination station, defined by an increase in concentrations from pre-construction to post-construction samples, the Contractor shall excavate, handle, transport and dispose of all contaminated soil and re-sample the area in accordance with the Contract Documents, as directed by the Department and at no additional cost to the Department.
- B. The Contractor shall minimize use of wash waters used for decontamination purposes.
- C. All decontamination wash waters and other wastes shall be managed and disposed of by the Contractor in accordance with all applicable federal, state and local laws and regulations.
- D. All safety equipment and other equipment used during performance of the Work shall be either decontaminated and salvaged, or contained and disposed of in accordance with all applicable regulatory requirements.
- E. The station shall, at a minimum, include shovels, brushes, power washers, a steam generator, detergent solutions and provisions to collect decontamination wastewaters.

- F. At the end of each work day, the Contractor shall remove all wastewater, precipitation and other materials which accumulate in the decontamination pad.

### **3.2 DECONTAMINATION OF EQUIPMENT, TOOLS AND FACILITIES**

- A. The Contractor shall erect decontamination facilities at location(s) selected by the Contractor and approved by the Department so that all heavy equipment is clean prior to leaving the site.
- B. All equipment used for excavation and other earthwork activities, including temporary sheeting, shall be decontaminated prior to:
  - 1. Crossing areas of the site which do not require remediation or have already been remediated;
  - 2. Handling clean fill materials; and
  - 3. Leaving the site.
- C. The Contractor shall not allow equipment to leave the site with water leaking or mud dripping or caked to the equipment. All equipment leaving the site shall be dry except during rainy or snowy weather, or with the Department's written consent for other exceptions.
- D. Final decontamination of equipment shall consist of using a hot water, powered or steam cleaning system (steam generator) capable of effectively removing all soil, residues and other debris adhering to equipment. Additives to the wash water shall be used when necessary and approved by the Department to enhance decontamination to levels acceptable to the Department.
- E. After completion of the Work, the Contractor shall remove and dispose of the decontamination pad in accordance with applicable federal, state and local laws and regulations. Approval from the Department shall be required prior to removal of the decontamination pad from the site. The Contractor shall remove any material from beneath the decontamination pad which is visibly contaminated as a result of the Contractor's operations as directed by the Department and at no additional cost to the Department.

**\* END OF SECTION \***

## **SECTION 01660**

### **SHUTDOWN PERIOD**

#### **1. GENERAL**

##### **1.1 SCOPE OF WORK**

- A. The Contractor shall furnish all labor, materials, equipment and incidentals necessary to prepare and maintain the site during any time when work will not be completed at the site for 30 consecutive days due to the work time frames specified in this Contract. The need for shutdown shall not be construed as the basis for an extension in contract time.
- B. The Contractor shall comply with all applicable specification sections in preparing the site for shutdown and securing the integrity of the constructed work.
- C. All damages associated with the shutdown, in accordance with these specifications, shall be repaired at no additional cost to the Department.
- D. The Contractor shall perform a comprehensive site inspection in the presence of the Department prior to the initiation of the shutdown to confirm that stabilization activities have been completed. The Contractor shall notify the Department in writing that the Northern Cricket Frog Shutdown Plan stabilization activities have been met and are in place.
- E. The Contractor shall be required to perform site security during the shutdown in accordance with Spec 00011 (“Site Security”).
- F. The Contractor shall be required to maintain necessary temporary facilities in accordance with Spec 00010 (“Temporary Facilities and Controls”). At a minimum, the Contractor shall maintain a site trailer, telephone service and internet service. Electrical power and lighting shall be provided, as required, to facilitate site inspections and perform any required work during the shutdown.
- G. Payments for Bid Item UP-1 (“Site Services”) shall be suspended during any period of shutdown.

##### **1.2 QUALITY ASSURANCE**

- A. The Contractor shall retain the services of a qualified professional to perform site inspections during the shutdown in accordance with the New York State Standards and Specifications for Erosion and Sediment Control.
- B. Reference Standards: Comply with applicable provisions and recommendations of the following except where otherwise shown or specified.

1. SPDES – State Pollutant Discharge Elimination System General Permit for Storm Water Discharges from Construction Activities (Permit Number GP-0-10-001).
2. New York State Standards and Specifications for Erosion and Sediment Control, August 2005.

### **1.3 SUBMITTALS**

- A. The Contractor shall submit a Northern Cricket Frog Protection Shutdown Plan, as part of the Plan of Operation (Work Plan) as specified in Section III (“Bidding Information and Requirements”), Article 5 (“Required Bid Submittals”), Paragraph b) that shall include:
  1. Description of remaining manpower, and temporary facilities, including utilities and equipment, to remain on-site during the shutdown.
  2. Procedures for performance of site inspections.
  3. Schedule for inspections to be performed during the shutdown.
- B. The Contractor shall submit an Erosion and Sediment Control Plan that shall include:
  1. All calculations and assumptions used for the sizing and siting of proposed temporary erosion and sedimentation control facilities during the shutdown;
  2. Information regarding maintenance needs and safety considerations of storm water management facilities and conveyance systems during the shutdown;
  3. Description of the coordination of staging of erosion and sedimentation control facilities during the shutdown;
  4. Description of temporary structural and vegetative measures that will be used to control erosion and sedimentation during the shutdown;
  5. Provide a map showing the location of erosion and sediment control measures for the shutdown;
  6. Provide dimensional details of proposed sediment control facilities as well as calculations used in the siting and sizing of sediment basins during the shutdown;
  7. Provide implementation schedule for staging temporary and permanent erosion and sediment control facilities during the shutdown;

8. Provide a maintenance schedule for soil erosion and sediment control facilities and describe maintenance activities to be performed during the shutdown.

## 2. PRODUCTS (NOT USED)

## 3. EXECUTION

- A. The Contractor shall have a qualified professional conduct a site inspection at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, unless otherwise approved by the Department. The Contractor shall notify the Department at least 72 hours in advance of any on-site inspection or maintenance activities, or, in the case of storm events, as soon as possible.
- B. All erosion and sediment controls must be installed and maintained according to the New York State Standards and Specifications for Erosion and Sediment Control. The Contractor shall implement the following:
  1. **Site Stabilization:** All bare/exposed soils shall be stabilized by an established vegetation, straw or mulch, matting, rock or other approved product such as rolled erosion control product. Seeding of areas along with mulching is encouraged, however seeding alone is not considered acceptable for proper stabilization. Seeding of areas must be performed during recommended planting seasons to allow for germination and growth prior to December 15.
  2. **Sediment Barriers:** Barriers shall be properly installed at all necessary perimeter and sensitive locations.
  3. **Slopes:** All slopes and grades shall be properly stabilized with approved methods. Rolled erosion control products must be used on all slopes greater than 3:1 (H:V), or where conditions for erosion dictate such measures.
  4. **Soil Stockpiles:** Stockpiled soils shall be protected by the use of established vegetation, an anchored-down straw or mulch, rolled erosion control product or other durable covering. A barrier shall be installed around the pile to prevent erosion away from that location.
  5. **Construction Entrance:** All entrance/exit locations to the site shall be properly stabilized and must be maintained to accommodate snow management as set forth in the New York State Standards and Specifications for Erosion and Sediment Control.
  6. **Snow Management:** Snow management shall not destroy or degrade erosion and sediment control practices.

- C. The Contractor shall check for damage during inspections and repair as necessary. This is especially important during thaws and prior to spring rain events. The Contractor shall notify the Department at least 72 hours in advance of any on-site maintenance activities.
- D. All stockpiled materials shall be suitably protected in accordance with manufacturer's recommendations in order to maintain the integrity of the materials during the shutdown.
- E. All exposed waste surfaces shall be covered with 6 inches of compacted general fill. No exposed waste surfaces will be permitted during the shutdown.
- F. All excavations shall be suitably protected in accordance with OSHA requirements.

**\* END OF SECTION \***

## **SECTION 01760**

### **PROJECT CLOSEOUT**

#### **1. GENERAL**

##### **1.1 FINAL CLEANING**

- A. At the completion of the Work, the Contractor shall remove all rubbish from and about the location of the Work, and all temporary structures, construction signs, tools, scaffolding, materials, supplies and equipment which he/she or any of his/her Subcontractors may have used in the performance of the Work. Contractor shall broom clean paved surfaces and rake clean other surfaces of grounds.
- B. The Contractor shall thoroughly clean all materials, equipment and structures so as to leave Work in a clean and new appearing condition.
- C. Remove spatter, grease, stains, dirt, labels, tags, packing materials and other foreign items or substances from exterior surfaces, equipment, signs and lettering.
- D. Remove paint, clean and restore all equipment and material nameplates, labels and other identification markings.
- E. The Contractor shall maintain cleaning until project, or portion thereof, is occupied and final acceptance by the Department is received.

#### **2. PRODUCTS (NOT USED)**

#### **3. EXECUTION (NOT USED)**

**\* END OF SECTION \***



## **DIVISION 2 – SITE WORK**

## SECTION 02081

### ASBESTOS REMOVAL

#### 1. GENERAL

##### 1.1 SCOPE OF WORK

- A. This asbestos abatement Project will consist of the removal and disposal of asbestos containing materials (ACM) at several collapsed structures and foundation structures scheduled for demolition. All removal of asbestos containing material (including asbestos contaminated debris) is to be performed by a New York State Department of Labor (NYSDOL) licensed asbestos abatement contractor.
- B. Refer to Section III of the Asbestos Survey Report prepared by Quest Quality Environmental Solutions & Technologies, Inc. (Quest) dated November 5, 2008 entitled, "Listing of Identified Asbestos-Containing Materials (ACM)", for the type and quantity of ACM on each collapsed structure or foundation. This report is included in the Limited Site Data Summary Report.
- C. All abatement work associated with the removal of collapsed structures determined to contain ACM (i.e., 1-North, 1-Middle, 1-South, 5 and 6) shall be performed in compliance with New York State Department of Labor (NYSDOL) Industrial Code Rule (ICR) 56, Section 11.5(a) through (c), entitled, "Controlled Demolition with Asbestos In Place", in addition to all other required federal and New York State regulations.
- D. The Contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the Work.
- E. All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent shall apply.
- F. Typical working hours are to be during normal daytime shift and shall be as required and approved by the Department. Asbestos abatement activities include, but are not limited to, erection of the decontamination facility (decon), work area preparation, gross removal, cleaning activities, and waste removal. The Contractor shall schedule and coordinate all Work with the Department.
- G. The Contractor shall prevent the migration of dust suppression water to areas outside the limits of the soil to be remediated, as shown on the Contract Drawings. The Contractor shall provide a detail indicating the location and design of the

berms, trenches, etc. required to prevent the migration of dust suppression water. Under no circumstances shall any water resulting from the controlled demolition activities be permitted to migrate to the on-site wetlands, lake or any other areas outside the limits of soil remediation.

## **1.2 SPECIAL JOB CONDITIONS**

- A. The Contractor shall be responsible to apply for and obtain any and all required variances.

## **1.3 PERMITS AND COMPLIANCE**

- A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, New York State and local rules, and regulations pertaining to Work practices, protection of Workers, authorized visitors to the site, persons, and property adjacent to the Work.
- B. Perform asbestos related Work in accordance with NYSDOL ICR 56, 40 CFR 61, and 29 CFR 1926, as specified herein. Where more stringent requirements are specified, adhere to the more stringent requirements.
- C. The Contractor must maintain current licenses as required by the NYSDOL and the Department for all Work related to this Project, including the removal, handling, transport and disposal of ACM.
- D. The Contractor must have and submit proof upon request that any person employed by the Contractor to engage in or supervise work on any asbestos project has a valid NYSDOL asbestos handling certificate pursuant to ICR 56. All persons employed by the Contractor to supervise any Work must have the applicable NYSDOL asbestos supervisor licenses.
- E. Failure to adhere to the Contract Documents shall constitute a breach of the Contract and the Department shall have the right to and may terminate the Contract. Failure of the Department to so terminate shall not relieve the Contractor from future compliance.

## **1.4 SUBMITTALS**

- A. Pre-Work Submittals: Within seven (7) days prior to the Pre-Construction Meeting, the Contractor shall submit three (3) copies of the documents listed below to the Department for review and approval prior to the commencement of Work

- 1. Contractor license issued by NYSDOL.

2. A list of projects performed within the past two (2) years. For each project, include the dollar value and references (address, contact and phone number) for the owner, consultant, and air monitoring firm.
3. Progress Schedule:
  - a. Show the complete sequence of abatement activities and the sequencing of Work within each building or building section.
  - b. Show the dates for the beginning and completion of each major element of work including substantial completion dates for each work area, building, or phase.
4. Project Notifications: As required by federal and state regulatory agencies together with proof of transmittal (i.e., certified mail return receipt).
5. Abatement Work Plan: Provide a detailed plan that clearly indicates the following:
  - a. All work areas/containments numbered sequentially.
  - b. Locations and types of all decontamination enclosures.
  - c. Entrances and exits to the work areas/containments.
  - d. Type of abatement activity/technique for each work area/containment.
  - e. Number and location of negative air units and exhausts, if applicable. Also provide calculations for determining number of negative air pressure units required.
  - f. Proposed location and construction of storage facilities and field office.
  - g. Location of water and electrical connections to building services.
  - h. Waste transport routes through the building to the waste storage container.
  - i. The location and construction of containment systems installed to prevent migration of dust suppression water, or any other water resulting from the controlled demolition activities or areas.
  - j. Soil sampling to demonstrate satisfactory removal of asbestos-impacted soil (as required by ICR 56 Section 11.5[c][12]) and soil waste characterization, all in accordance with the NYSDEC's

DER-10 (“Technical Guidance for Site Investigation and Remediation”).

6. Disposal Site/Landfill Permit from applicable regulatory agency.
  7. NYSDEC Waste Transporter Permit.
  8. Name and NYSDOH ELAP certificate from OSHA sample analytical laboratory.
- B. On-Site Submittals: Refer to Parts 3.1.C and D for all submittals, documentation, and postings required to be maintained on-site during abatement activities.
- C. Project Close-out Submittals: Within thirty (30) days of project completion, the Contractor shall submit the documents listed below to the Department.
1. Originals of all waste disposal manifests and disposal logs.
  2. OSHA compliance air monitoring records conducted during the Work.
  3. Daily progress log, including the entry/exit log.
  4. A list of all workers used in the performance of the Work, including name, social security number, NYSDOL certification number and type of certification (i.e. supervisor, asbestos handler, etc.).
  5. Disposal Site/Landfill Permit from applicable regulatory agency.
  6. Final project notifications and variances, as applicable.

## **1.5 PRE-CONSTRUCTION MEETING**

- A. Prior to start of preparatory Work under this Contract, the Contractor shall attend a Pre-Construction Meeting attended by the Department and the Engineer, who will serve as the asbestos Project Monitor.
- B. Agenda for the Pre-Construction Meeting shall include but not necessarily be limited to:
1. Contractor’s Scope of Work, Abatement Work Plan, and schedule to include number of workers and shifts.
  2. Contractor’s safety and health precautions including protective clothing and equipment and decontamination procedures.
  3. Engineer’s duties, functions, and authority.

4. Contractor's Work procedures including:
    - a. Methods of job site preparation.
    - b. ACM removal methods.
    - c. Respiratory protection.
    - d. Disposal procedures.
    - e. Cleanup procedures.
    - f. Fire exits and emergency procedures.
  5. Contractor's required pre-work and on-site submittals, documentation, and postings.
  6. Contractor's plan for twenty-four hour project security both for prevention of theft and for barring entry of unauthorized personnel into Work Areas.
  7. Temporary utilities.
  8. Handling of furniture and other moveable objects, if applicable.
  9. Temporary storage of removed ACM.
  10. Waste disposal requirements and procedures, including use of the Department supplied waste manifest and container seals.
- C. In conjunction with the Pre-Construction Meeting, the Contractor shall accompany the Department and Engineer on a pre-construction walk-through documenting existing condition of finishes and furnishings, reviewing overall work plan, location of fire exits, fire protection equipment, water supply and temporary electric tie-in.

## **1.6 APPLICABLE STANDARDS AND REGULATIONS**

- A. The Contractor shall comply with the following codes and standards, except where more stringent requirements are shown or specified:
- B. Federal Regulations:
  1. 29 CFR 1910.1001, "Asbestos" (OSHA)
  2. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
  3. 29 CFR 1910.134, "Respiratory Protection" (OSHA)

4. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
  5. 29 CFR 1926, "Construction Industry" (OSHA)
  6. 29 CFR 1926.1101, "Asbestos, Tremolite, Anthophyllite, and Actinolite" (OSHA)
  7. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)
  8. 40 CFR 61, Subpart A, "General Provisions" (USEPA)
  9. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (USEPA)
  10. 49 CFR 171-172, Transportation Standards (USDOT)
- C. New York State Regulations:
1. 12 NYCRR, Part 56, "Asbestos", Industrial Code Rule 56 (NYSDOL)
  2. 6 NYCRR, Parts 360 through 364, Disposal and Transportation (NYSDEC)
  3. 10 NYCRR, Part 73, "Asbestos Safety Program Requirements" (NYSDOH)
- D. Standards and Guidance Documents:
1. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection
  2. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems
  3. EPA 560/585-024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)
  4. EPA 530-SW-85-007, Asbestos Waste Management Guidance
  5. ASTM Standard E1368 "Standard Practice for Visual Inspection of Asbestos Abatement Projects."

## 1.7 NOTICES

- A. The Contractor shall provide notification of intent to commence asbestos abatement activities as indicated below.

1. At least ten (10) business days prior to beginning abatement activities, send written notification to:

U.S. Environmental Protection Agency  
Region 2  
Air Branch  
290 Broadway, 21<sup>st</sup> Floor  
New York, NY 10007-1866

2. At least ten (10) calendar days prior to beginning abatement activities send written notification to:

New York State Department of Labor  
Division of Safety and Health, Asbestos Control Program  
State Office Campus  
Building 12 - Room 161B  
Albany, NY 12240

- B. The Contractor is required to send notifications to regulatory agencies via mail or package delivery service that will provide proof of delivery and receipt.

## **1.8 PROJECT MONITORING AND AIR SAMPLING**

- A. The Engineer shall serve as the asbestos Project Monitor and Air Sampling Technician on the project. The Engineer shall serve as the Department's representative in regard to the performance of the Work and provide direction as required throughout the abatement project period.
- B. The Contractor is required to ensure cooperation of its personnel with the Engineer for the air sampling and project monitoring functions described in this Section. The Contractor shall comply with all direction given by the Engineer during the course of the Work.
- C. The Engineer shall provide the following administrative services:
  1. Review and approve or disapprove all submittals, shop drawings, schedules, and samples.
  2. Ensure that all notifications to regulatory agencies by the Contractor are submitted in a timely manner and are correct in content.
- D. The Engineer shall staff the Work with a trained and certified person(s) to act on the Department's behalf at the job site. The Engineer shall be certified by the NYSDOL as a Project Monitor (PM).



1. The PM shall be on-site at all times the Contractor is on-site. The Contractor shall not be permitted to conduct any Work unless the PM is on-site (except for inspection of barriers and negative air system during non-working days).
2. The PM shall have the authority to direct the actions of the Contractor verbally and in writing to ensure compliance with the Contract Documents and all regulations. The PM shall have the authority to stop work when gross work practice deficiencies or unsafe practices are observed, or when ambient fiber concentrations outside the removal area exceed 0.01 fibers per cubic centimeter (f/cc) or background level (whichever is greater).
  - a. Such stop work order shall be effective immediately and remain in effect until corrective measures have been taken and the situation has been corrected to the satisfaction of the PM.
  - b. Standby time required to resolve the situation shall be at the Contractor's expense.
3. The PM shall provide the following services:
  - a. Inspection of the Contractor's Work, practices, and procedures, including temporary protection requirements, for compliance with all regulations and Project specifications.
  - b. Provide abatement project air sampling as required by applicable regulations (i.e., NYSDOL and AHERA) and the Department. Sampling will include background, work area preparation, asbestos handling, and final cleaning and clearance air sampling.
  - c. Verify daily that all workers used in the performance of the Work are certified by the appropriate regulatory agency.
  - d. Monitor the progress of the Contractor's work, and report any deviations from the schedule to the Department.
  - e. Monitor, verify and document all waste load-out operations.
  - f. Verify that the Contractor is performing personal air monitoring daily, and that results are being returned and posted at the site as required.
  - g. The PM shall maintain a log on site that documents all project related and Engineer and Contractor actions, activities and occurrences.

4. The following minimum inspections shall be conducted by the PM. Additional inspections shall be conducted as required by Work conditions. Progression from one phase of Work to the next by the Contractor is only permitted with the written approval of the PM.
  - a. Pre-Construction Inspection: The purpose of this inspection is to verify the existing conditions of the work areas and to document these conditions.
  - b. Pre-Commencement Inspection: The purpose of this inspection is to verify the integrity of each containment system prior to disturbance of any ACM. This inspection shall take place only after the work area is fully prepped for removal.
  - c. Work Inspections: The purpose of these inspections is to monitor the work practices and procedures employed on the project and to monitor the continued integrity of the containment system. Inspections within the removal areas shall be conducted by the PM during all preparation, removal, and cleaning activities at least twice every work shift. Additional inspections shall be conducted as warranted.
  - d. Pre-Encapsulation Inspection: The purpose of this inspection is to ensure the complete removal of asbestos-containing material (ACM), from all surfaces in the Work Area prior to encapsulation.
  - e. Visual Clearance Inspection: The purpose of this inspection is to verify that: all materials in the scope of work have been properly removed; no visible asbestos debris/residue remains; no pools of liquid or condensation remains; and all required cleanings are complete. This inspection shall be conducted before final air clearance testing.
  - f. Post-Clearance Inspection: The purpose of this inspection is to ensure the complete removal of ACM, including debris, from the Work Area after satisfactory final clearance sampling and removal of all isolation and critical barriers and equipment from the Work Area.
  - g. Punch List Inspection: The purpose of this inspection is to verify the Contractor's certification that all Work has been completed as contracted and the existing condition of the area prior to its release to the Department.
- E. As stated in Section 1.8(D) above, the Engineer shall provide abatement Project air sampling and analysis as required by applicable regulations (i.e., NYSDOL ICR 56).

1. Unless otherwise required by applicable regulations, the Engineer shall have samples analyzed by Phase Contrast Microscopy (PCM). Results shall be available within twenty four (24) hours of completing the sampling.
2. Samples shall be collected as required by applicable regulations (e.g., NYSDOL) and these specifications.
3. If the air sampling during any phase of the abatement project reveals airborne fiber levels at or above 0.01 fibers/cubic centimeters or the established background level, whichever is greater, outside the regulated work area, Work shall stop immediately and corrective measures required by applicable federal and New York State regulations shall be initiated. Notify all employers and occupants in adjacent areas. The Contractor shall bear the burden of any and all costs incurred by this delay.
4. If requested by the Department, the Engineer shall submit copies of all elevated air sampling results collected during abatement and all final air clearance results to the Commissioner of Labor.

## **1.9 CONTRACTOR AIR SAMPLING**

- A. In addition to the requirements of OSHA 1926.1101, the Contractor shall be required to perform personal air monitoring every work shift in each work area during which abatement activities occur in order to determine that appropriate respiratory protection is being worn and utilized.
- B. The Contractor shall conduct air sampling that is representative of both the 8-hour time weighted average and thirty (30) minute short-term exposures to indicate compliance with the permissible exposure and excursion limits.
- C. The Contractor's laboratory analysis of air samples shall be conducted by an NYSDOH ELAP certified laboratory, subject to approval of the Engineer.
- D. Results of personnel air sample analyses shall be available, verbally, within twenty-four (24) hours of sampling and shall be posted upon receipt. Written laboratory reports shall be delivered and posted at the Work site within five (5) days. Failure to comply with these requirements may result in all Work being stopped until compliance is achieved.

## **1.10 PROJECT SUPERVISOR**

- A. The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:

1. The Project Supervisor shall hold NYSDOL certification as an Asbestos Supervisor.
  2. The Project Supervisor shall meet the requirements of a “Competent Person” as defined by OSHA 1926.1101 and shall have a minimum of one year experience as a supervisor.
  3. The Project Supervisor must be able to read and write English fluently, as well as communicate in the primary language of the workers.
- B. If the Project Supervisor is not on-site at any time whatsoever, all Work shall be stopped. The Project Supervisor shall remain on-site until all Work is complete. The Project Supervisor cannot be removed from the project without the written consent of the Department and the Engineer. The Project Supervisor shall be removed from the Project if so requested by the Department.
- C. The Project Supervisor shall maintain the bound Daily Project Log that also includes the entry/exit logs as required by NYSDOL and Section 2.3 of this Specification and the Waste Disposal Log.
- D. The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Project Supervisor shall be the primary point of contact for the Engineer.

## **1.11 MEDICAL REQUIREMENTS**

- A. Before exposure to airborne asbestos fibers, provide workers with a comprehensive medical examination as required by 29 CFR 1910.1001, and 29 CFR 1926.1101.
1. This examination is not required if adequate records show the employee has been examined as required by 29 CFR 1910.1001, and 29 CFR 1926.1101 within the past year.
  2. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos fibers and within thirty (30) calendar days before or after the termination of employment in such occupations.

## **1.12 TRAINING**

- A. As required by applicable regulations, prior to assignment to asbestos work instruct each employee with regard to the hazards of asbestos, safety and health precautions, and the use and requirements of protective clothing and equipment.

- B. Establish a respirator program as required by ANSI Z88.2 and 29 CFR 1910.134, and 29 CFR 1926.1101. Provide respirator training and fit testing.

### **1.13 RESPIRATORY PROTECTION**

- A. Select respirators from those approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.
- B. Respirators shall be individually fit-tested to personnel under the direction of an Industrial Hygienist on a yearly basis. Fit-tested respirators shall be permanently marked to identify the individual fitted, and use shall be limited to that individual. Fit-test records shall be maintained on site for each employee.
- C. Where fiber levels permit, and in compliance with regulatory requirements, Powered Air Purifying Respirators (PAPR) are the minimum allowable respiratory protection permitted to be utilized during gross removal operations of OSHA Class I or OSHA Class II friable ACM.
- D. No respirators shall be issued to personnel without such personnel participating in a respirator training program.
- E. High Efficiency Particulate Air (HEPA) respirator filters shall be approved by NIOSH and shall conform to the OSHA requirements in 29 CFR 1910.134 and 29 CFR 1926.1101.
- F. A storage area for respirators shall be provided by the Contractor in the clean room side of the personnel decontamination enclosure where they will be kept in a clean environment.
- G. The Contractor shall provide and make available a sufficient quantity of respirator filters so that filter changes can be made as necessary during the work day. Filters will be removed and discarded during the decontamination process. Filters cannot be reused. Filters must be changed if breathing becomes difficult.
- H. Filters used with negative pressure air purifying respirators shall not be used any longer than one eight (8) hour work day.
- I. Any authorized visitor, worker, or supervisor found in the Work Area not wearing the required respiratory protection shall be removed from the project site and not be permitted to return.
- J. The Contractor shall have at least two (2) Powered Air Purifying Respirators stored on site designated for authorized visitors use. Appropriate respirator filters for authorized visitors shall be made available by the Contractor.

#### **1.14 DELIVERY AND STORAGE**

- A. Deliver all materials to the job site in original packages with containers bearing manufacturer's name and label.
- B. Store all materials at the job site in a suitable and designated area.
  - 1. Store materials subject to deterioration or damage away from wet or damp surfaces and under cover.
  - 2. Protect materials from unintended contamination and theft.
  - 3. Storage areas shall be kept clean and organized.
- C. Remove damaged or deteriorated materials from the project site. Materials contaminated with asbestos shall be disposed of as asbestos debris as herein specified.

#### **1.15 TEMPORARY UTILITIES**

- A. Shut down and lock out all electrical power to the asbestos Work Areas.
- B. Provide temporary 120-240 volt, single phase, three wire, 100 amp electric service with Ground Fault Circuit Interrupters (GFCI) for all electric requirements within the asbestos Work Area.
  - 1. Where available, obtain from Department's existing system. Otherwise provide power from other sources (e.g., generator).
  - 2. Provide temporary wiring and "weatherproof" receptacles in sufficient quantity and location to serve all HEPA equipment and tools.
  - 3. Provide wiring and receptacles as required by the Engineer for air sampling equipment.
  - 4. All power to the Work Area shall be brought in from outside the area through GFCIs at the source.
- C. Provide temporary lighting with "weatherproof" fixtures for all Work Areas including decontamination chambers.
  - 1. The entire Work Area shall be kept illuminated at all times.
  - 2. Provide lighting as required by the Engineer for the purposes of performing required inspections.

- D. All temporary devices and wiring used in the Work Area shall be capable of decontamination procedures including HEPA vacuuming and wet-wiping.
- E. Contractor shall provide water to perform the work as required. Provide hot water heaters with sufficient capacity to meet project demands. The Department shall approve the source of all water used on the project.

## **2. PRODUCTS**

### **2.1 PROTECTIVE CLOTHING**

- A. Provide personnel utilized during the Work with disposable protective whole body clothing, head coverings, gloves and foot coverings. Provide disposable plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber for comfort, but shall not be used alone. Make sleeves secure at the wrists and make foot coverings secure at the ankles by the use of tape, or provide disposable coverings with elastic wrists or tops.
- B. Provide sufficient quantities of protective clothing to assure a minimum of four (4) complete disposable outfits per day for each individual performing abatement Work.
- C. Eye protection and hard hats shall be provided and made available for all personnel entering any Work Area.
- D. Authorized visitors shall be provided with suitable protective clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

### **2.2 SIGNS AND LABELS**

- A. Provide warning signs and barrier tapes at all approaches to asbestos Work Areas. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.
  - 1. Provide danger signs in vertical format conforming to 29 CFR 1926.1101, minimum 20 inches by 14 inches displaying the following legend.

DANGER  
ASBESTOS CANCER AND LUNG DISEASE HAZARD  
AUTHORIZED PERSONNEL ONLY  
RESPIRATORS AND PROTECTIVE CLOTHING  
ARE REQUIRED IN THIS AREA

2. Provide 3-inch wide yellow barrier tape printed with black lettered, "DANGER ASBESTOS REMOVAL." Locate barrier tape across all corridors, entrances and access routes to asbestos Work Area.
- B. Provide asbestos danger labels affixed to all asbestos materials, scrap, waste, debris and other products contaminated with asbestos.
1. Provide asbestos danger labels of sufficient size to be clearly legible, displaying the following legend:

DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD

2. Provide the following asbestos labels, of sufficient size to be clearly legible, for display on waste containers (bags or drums) which will be used to transport asbestos contaminated material in accordance with United States Department of Transportation 49 CFR Parts 171 and 172:

RQ HAZARDOUS  
SUBSTANCE  
SOLID, NOS  
ORM-E, NA 9188  
ASBESTOS

3. Generator identification information shall be affixed to each waste container indicating the following printed in indelible ink:
  - a. Generator Name
  - b. Facility Name
  - c. Facility Address

### **2.3 DAILY PROJECT LOG**

- A. Provide a Daily Project Log. The log shall contain on title page the project name, name, address and phone number of Department; name, address and phone number of Engineer; name, address and phone number of Abatement Contractor; emergency numbers including, but not limited to local Fire/Rescue department; and all other NYSDOL requirements.
- B. All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.



- C. All persons entering and exiting the Work Area shall sign the log and include name, social security number, and time.
- D. The Project Supervisor shall document all Work performed daily and note all inspections required by Code Rule 56, i.e., testing and inspection of barriers and enclosures.

## **2.4 SCAFFOLDING AND LADDERS**

- A. Provide all scaffolding and/or staging as necessary to accomplish the Work under this Contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding and ladders shall comply with all applicable OSHA construction industry standards.
- B. Provide scaffolding and ladders as required by the Engineer for the purposes of performing required inspections.

## **2.5 SURFACTANT (AMENDED WATER)**

- A. Wet all asbestos-containing materials prior to removal with surfactant mixed and applied in accordance with manufacturer's printed instructions.
- B. Approved Manufacturers:
  - 1. International Protective Coatings Corp.: Serpiflex Shield
  - 2. American Coatings Corp.: EPA 55 Asbestos Removal Agent
  - 3. Certified Technologies: CerTane 2075 Penetrating Surfactant

## **2.6 ENCAPSULANT**

- A. Encapsulant shall be tinted or pigmented so that application when dry is readily discernible.
- B. Approved Manufacturers:
  - 1. International Protective Coatings Corp.: Serpiflex Shield
  - 2. American Coatings Corp.: FNE High Temperature Sealant
  - 3. Certified Technologies: CerTane 1000 Post Removal Encapsulant

## **2.7 DISPOSAL BAGS, DRUMS, AND CONTAINERS**

- A. Provide 6-mil polyethylene disposal bags printed with asbestos caution labels. Bags shall also be imprinted with U.S. Department of Transportation required markings.
- B. Provide 30 or 55 gallon capacity fiber, plastic, or metal drums capable of being sealed and water tight if asbestos waste has the potential to damage or puncture disposal bags. Affix asbestos caution labels on lids and at one-third points around drum circumference to ensure ready identification.
- C. Containers and bags must be labeled accordance with 40 CFR Part 61 (“NESHAPS”) and Industrial Code Rule 56. When the bags/containers are moved to the lockable hardtop dumpster from the waste decontamination system washroom, the bags must also be appropriately labeled with the date they are moved on the bag/container in waterproof markings.
- D. Labeled ACM waste containers or bags shall not be used for non-ACM waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not, shall be handled and disposed of as ACM waste.

## **2.8 HEPA VACUUM EQUIPMENT**

- A. All dry vacuuming performed under this contract shall be performed with High Efficiency Particulate Absolute (HEPA) filter equipped industrial vacuums conforming to ANSI Z9.2.
- B. Provide tools and specialized equipment including scraping nozzles with integral vacuum hoods connected to a HEPA vacuum with flexible hose.
- C. Approved Manufacturers:
  - 1. Hako Minuteman
  - 2. Micro-Trap Inc.
  - 3. Control Resource Systems, Inc.

## **2.9 POWER TOOLS**

- A. Any power tools used to drill, cut into, or otherwise disturb asbestos material shall be manufacturer equipped with HEPA filtered local exhaust ventilation.

## **2.10 POLYETHYLENE SHEETING**

- A. All polyethylene (plastic) sheeting used on the project (including but not limited to sheeting used for critical and isolation barriers, fixed objects, walls, floors, ceilings, waste container) shall be at least 6-mil fire retardant sheeting.
- B. Decontamination enclosure systems shall utilize at least 6-mil opaque fire retardant plastic sheeting. At least two (2) layers of 6-mil reinforced fire retardant plastic sheeting shall be used for the flooring.

## **3. EXECUTION**

### **3.1 GENERAL REQUIREMENTS**

- A. Should visible emissions or water leaks be observed outside the Work Area, immediately stop Work and institute emergency procedures per all applicable regulations. Should there be elevated fiber levels outside the Work Area, immediately stop Work, institute emergency procedures per all applicable regulations, and notify all employers and occupants in adjacent areas. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Department.
- B. Medical approval, fit test reports, and NYSDOL certificates shall be on-site prior to admittance of any Contractor's employees to the asbestos Work Area.
- C. The following submittals, documentation, and postings shall be maintained on-site by the Contractor during abatement activities at a location approved by the Engineer:
  - 1. Contractor license issued by NYSDOL
  - 2. Certification, Worker Training, Medical Surveillance, Acknowledgments:
    - a. NYSDOL Asbestos Handler certification cards for each person employed in the removal, handling, or disturbance of asbestos.
    - b. Evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.
    - c. Documentation that workers have been fit tested specifically for respirators used on the project.
    - d. Worker's Acknowledgments: Statements signed by each employee that the employee has received training in the proper handling of

asbestos containing materials, understands the health implications and risks involved, and understands the use and limitations of the respiratory equipment to be used.

3. Daily OSHA personal air monitoring results.
  4. NYSDOH ELAP certification for the laboratory that will be analyzing the OSHA personnel air samples.
  5. NYSDEC Waste Transporter Permit.
  6. Project documents (specifications and drawings.)
  7. Notifications and variances (site specific and applicable). Ensure that the most up-to-date notifications and variances are on-site.
  8. Applicable regulations.
  9. Material Safety Data Sheets of supplies/chemicals used on the project.
  10. Approved Abatement Work Plan.
  11. List of emergency telephone numbers.
  12. Magnahelic manometer semi-annual calibration certification.
  13. Waste Disposal Log.
  14. Daily Project Log.
- D. The following documentation shall be maintained on-site by the Engineer during abatement activities:
1. Contractor license issued by New York State Department of Labor.
  2. Air Sample Log.
  3. Air sample results.
  4. Project Monitor Daily Log.
  5. Asbestos Survey Report.
  6. A copy of ASTM Standard E1368 “Standard Practice for Visual Inspection of Asbestos Abatement Projects.”
- E. The Work Area must be vacated by building occupants prior to decontamination enclosure construction and Work Area preparation.

### 3.2 PERSONNEL DECONTAMINATION ENCLOSURE

- A. Provide a personnel decontamination enclosure contiguous to the Work Area. The decontamination enclosure shall be attached to the Work Area and not located within it unless isolation barriers are installed. If the decontamination chamber is accessible to the public it shall be fully framed and sheathed to prevent unauthorized entry.
- B. Access to the Work Area will be from the clean room through an air-lock to the shower and through an air lock to the equipment room. Each airlock shall be a minimum of three (3) feet from door to door. Additional air locks shall be provided as required by Industrial Code Rule 56 for remote decontamination enclosures.
- C. The decontamination enclosure ceiling and walls shall be covered with one layer of opaque 6-mil polyethylene sheeting. Two (2) layers of reinforced polyethylene sheeting shall be used to cover the floor.
- D. The entrance to the clean room shall have a lockable door. Provide suitable lockers for storage of worker's street clothes. Storage for respirators along with replacement filters and disposable towels shall also be provided.
- E. Provide a temporary shower with individual hot and cold water supplies and faucets. Provide a sufficient supply of soap and shampoo. There shall be one shower for every six (6) workers. The shower room shall be constructed in such a way so that travel through the shower chamber shall be through the shower. The shower shall not be able to be bypassed.
- F. Shower water shall be drained, collected and filtered through a system with at least a 5.0-micron particle size collection capability containing a series of several filters with progressively smaller pore sizes to avoid rapid clogging of the system. The filtered waste water shall then be discharged in accordance with applicable codes and the contaminated filters disposed of as asbestos waste.
- G. The equipment room shall be used for the storage of tools and equipment. A walk-off pan filled with water shall be located in the Work Area outside the equipment room for Workers to clean foot coverings when leaving the Work Area. A labeled 6-mil plastic ACM waste bag for collection of contaminated clothing shall be located in this room.
- H. The personal decontamination enclosure shall be cleaned and disinfected minimally at the end of each Work shift and as otherwise directed by the Engineer.

### **3.3 WORK AREA ENTRY AND EXIT PROCEDURES**

- A. Workers shall sign the entry/exit log upon every entry and exit.
- B. The following procedures shall be followed when entering the Work Area:
  - 1. Before entering the Work Area, workers shall proceed to the clean room, remove all street clothes, and don protective clothing, equipment, and respirators.
  - 2. Workers shall proceed from the clean room through the shower room and the equipment room and into the Work Area.
- C. The following procedures shall be followed when exiting the Work Area:
  - 1. Before leaving the Work Area, gross asbestos contamination will be removed by brushing, wet cleaning and/or HEPA vacuuming.
  - 2. In the equipment room, workers shall remove disposable clothing, but not respirators, and shall place clothing in plastic disposal bags for disposal as contaminated debris prior to entering the shower room.
  - 3. Workers shall shower thoroughly while wearing respirators, then wash respirator with soap and water prior to removal.
  - 4. Upon exiting the shower, workers shall don new disposable clothing if the Work shift is to continue or street clothes to exit area. Under no circumstances shall workers enter public non-Work Areas in disposable protective clothing.
- D. If remote decontamination enclosures are permitted, workers shall wear two disposable suits for all phases of Work. Workers exiting the work area shall HEPA vacuum the outer suit, enter the airlock, remove the outer suit and then place it back into the Work Area. A clean second suit shall be donned before exiting the airlock and proceeding to the decontamination enclosure or another work area via the required designated pathway.

### **3.4 WORK AREA PREPARATION**

- A. All work procedures shall be conducted in accordance with NYSDOL's Industrial Code Rule 56, Section 11.5(c)(1) through (14). The Contractor's Abatement Work Plan shall demonstrate compliance with these regulations.

### **3.5 TRANSPORTATION AND DISPOSAL OF ASBESTOS WASTE**

- A. The Contractor's waste transporter and disposal facility shall be approved by the Department. These items should be specified in the Contractor's Abatement Work Plan.
- B. The Department shall be given twenty-four (24) hour notification prior to removing any waste from the site. Waste shall be removed from the site only during normal working hours unless otherwise specified. No waste may be taken from the site unless the Contractor and Engineer are present and the Engineer authorizes the release of the waste as described herein.
- C. All waste generated as part of the asbestos project shall be removed from the site within ten (10) calendar days after successful completion of all asbestos abatement work.
- D. Upon arrival at the Site, the transporter must possess and present to the Engineer a valid NYSDEC Part 364 Asbestos Hauler's Permit. The Engineer may verify the authenticity of the hauler's permit with the proper authority.
- E. The transporter, with the Contractor and the Engineer, shall inspect all material in the transport container prior to taking possession and signing the Asbestos Waste Manifests.
- F. Unless specifically approved by the Department, the Contractor shall not permit any off-site transfers of the waste or allow the waste to be transported or combined with any other off-site asbestos material. The transporter must travel directly to the disposal facility as identified on the notifications with no unauthorized stops.

### **3.6 WASTE STORAGE CONTAINERS**

- A. All waste containers shall be fully enclosed and lockable (e.g., enclosed dumpster, trailer, etc.). No open containers will be permitted on-site (e.g., open dumpster with canvas cover, etc.) unless specifically permitted by a Site-Specific Variance.
- B. The Engineer shall verify that the waste storage container and/or truck tags (license plates) match that listed on the NYSDEC Part 364 Permit. Any container not listed on the permit shall be removed from the site immediately.
- C. The container shall be plasticized and sealed with two (2) layers of 6-mil polyethylene. Once on-site, it shall be kept locked at all times, except during load out. The waste container shall not be used for storage of equipment or contractor supplies.

- D. While on-site, the container shall be labeled with EPA Danger signage:

DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD

- E. The NYSDEC Asbestos Hauler's Permit number shall be stenciled on both sides and back of the container.
- F. The container is not permitted to be loaded unless it is properly plasticized, has the appropriate danger signage affixed, and has the permit number appropriately stenciled on the container.
- G. Before an enclosed container is removed from the site for transportation to the disposal facility, a seal will be placed on the door(s) of the container by the Engineer. The door(s) shall also be locked. The seals and locks shall be removed at the disposal facility by the operator of the disposal facility and the seals shall be returned by the disposal facility to the Contractor.
- H. If a lined and sealed open-top container is used pursuant to a Site-Specific Variance, a seal is not required.
- I. The Department may initiate random checks at the disposal facility to ensure that the procedures outlined herein are complied with.

### **3.7 ASBESTOS WASTE MANIFEST**

- A. The asbestos waste manifest shall be completed by the Contractor and verified by the Engineer that all the information and amounts are accurate and the proper signatures are in place.
- B. The manifest shall have the appropriate signatures of the Engineer, the Contractor, and the transporter representatives prior to any waste being removed from the site.
- C. Copies of the completed manifest shall be retained by the Engineer and the Contractor and shall remain on site for inspection.
- D. Upon arrival at the disposal facility, the manifest shall be signed by the disposal facility operator to certify receipt of ACM covered by the manifest.
- E. The disposal facility operator shall return the original manifest and container seals to the Contractor.



- F. The Contractor shall forward copies of the manifest and the container seals to the Engineer within 14 days of the waste container being removed from the site. Failure to do so may result in payment being withheld from the Contractor.
- G. Originals of all waste disposal manifests, seals, and disposal logs shall be submitted by the Contractor to the Department with the final close-out documentation.

### **3.8 SOIL DISPOSAL**

- A. All soil located within the dust suppression water containment area, as well as any soil likely impacted by ACM during the abatement activities, as determined by the Engineer, shall be scraped clean of any residual asbestos contamination in accordance with NYSDOL's Industrial Code Rule 56 Section 11.5(c)(12). All removed soil must be characterized for asbestos prior to off-site disposal as part of the remediation activities. In the event that the laboratory analyses indicate that the soil contains asbestos, the selected disposal facility shall be authorized to manage asbestos waste in addition to any other special handling requirements necessary based on the full characterization of the waste. See Section 02260 ("Waste Transportation and Disposal") of these Specifications for more information on waste disposal. The Department shall approve the Contractor's characterization of the waste as well as the selected disposal facility. All soil sampling shall be conducted in accordance with the NYSDEC's DER-10 and Section 01652 ("Sampling Plan").

**\* END OF SECTION \***

## SECTION 02112

### EXCAVATION, REMOVAL AND HANDLING OF CONTAMINATED MATERIALS IN WETLANDS AND LAKE AREAS

#### 1. GENERAL

##### 1.1 SCOPE OF WORK

- A. The Contractor shall excavate, handle and store contaminated soil and material/sediment from wetlands and lake areas (water areas) as shown, specified and required to complete the Work. The Work shall generally consist of excavation, removal and handling of approximately 165 cubic yards of contaminated soil and sediment from within the wetland areas and approximately 160 cubic yards of contaminated sediment from within the lake areas. Characterization data on the nature and extent of the contaminated material is available in the reports specified in the Supplementary Conditions.
- B. Excavation limits are depicted on the Contract Drawings.
- C. The Contractor shall establish a 25-foot grid network within the Contract Limits for use during construction. At areas near the Contract Limits, extra nodes may be required by the Engineer to properly delineate the limits of excavation. A minimum of four temporary benchmarks shall be established by the Contractor outside the Contract Limits for use during the work. All survey work required by the Contract shall consist of the measurement of spot elevations at each node of the grid network. Aerial surveys shall not be acceptable. The Contractor shall utilize grade stakes at each node of the grid network to measure the depth of excavation as work proceeds. Where visibly uneven grades are observed by the Engineer between grid nodes, extra grade stakes may be required for further delineation, as directed by the Engineer. Grade stakes shall be labeled by the Contractor with cut line and shall remain in place to allow for field inspection of the excavation depths.
- D. The Contractor shall be responsible for ensuring compliance with permits applied for and held by the Department, including, but not necessarily limited to, wetland permits for clearing, excavation, grading, filling or construction in or within 100 feet of freshwater wetlands, pursuant to Articles 24 and 15 of the Environmental Conservation Law and the U.S. Army Corps of Engineers (Nationwide Permit 38 – “Cleanup of Hazardous and Toxic Waste”). The Contractor shall be responsible for ensuring compliance with all general conditions, specific conditions and notification requirements of issued permits.

- E. Related Work Specified Elsewhere:
1. Spec 00004 – Surveys.
  2. Spec 00015 – Off-site Transportation and Disposal.
  3. Spec 00019 – Clearing and Grubbing.
  4. Spec 00022 – Dewatering.
  5. Section 01050 – Field Engineering.
  6. Section 02120 – Demolition and Removals.
  7. Section 02121 – Removal of Yard Waste, Trees, Scrap Metal and Debris.
  8. Section 02200 – Backfill and Compaction.
  9. Section 02240 – Excavation, Removal and Handling of Contaminated Materials.
  10. Section 02260 – Waste Transportation and Disposal.
  11. Section 02488 – Wetland and Lake Bottom Restoration.
- F. All dewatering, sheeting and shoring, turbidity fence installation and other work necessary to complete the required excavation work shall be conducted by the Contractor in accordance with these Specifications and the Department's Standard Specifications.
- G. The Contractor shall submit a detailed plan for excavation and management of material in wetlands and lake areas. Plan shall include procedures for remediation and management of excavated materials, collection and management of sediment drain water, as well as procedures for restoring wetlands and lake areas. The Department has designated an area for the sediment handling activities, as shown on the Contract Drawings. The Contractor shall detail the construction of the sediment handling area to protect underlying soil and adjacent areas during the excavation, handling, management, transportation and off-site disposal of the removed sediment and associated drain water. All sediment drain water shall be collected for proper off-site disposal or on-site treatment and discharge in accordance with all applicable federal, state and local laws and regulations.
- H. Work shall follow the sequence of construction presented in the Contract Drawings and all of the Contractor's approved submittals unless approval for a modified sequence is granted by the Engineer.

## **1.2 JOB CONDITIONS**

### **A. General:**

1. The Contractor shall comply with the requirements of Section 02240 (“Excavation, Removal and Handling of Contaminated Materials”), Part 1, Paragraph 1.4.

## **2. PRODUCTS (NOT USED)**

## **3. EXECUTION**

### **3.1 EXCAVATION**

#### **A. General:**

1. The Contractor shall provide the Department with sufficient time and means to examine the areas and conditions under which excavating, filling and grading are to be performed. Work shall not proceed until all unsatisfactory conditions have been corrected in a manner acceptable to the Engineer.
2. The Contractor shall perform all excavation required to complete the Work as shown and specified. All material excavated shall be non-classified and shall include all materials such as earth, sand, clay, gravel, hardpan, boulders, organic materials, rock, rubbish and all other materials within the excavation limits except as otherwise approved by the Engineer.
3. Excavations shall be open type, shored and braced where necessary to prevent injury to workmen and to new and existing structures or pipelines.
4. All equipment shall be decontaminated and free from debris, caked soil, contamination, and any other foreign materials prior to mobilization to the site. Equipment utilized during the remediation shall be decontaminated in accordance with the Contractor’s Health and Safety Plan prepared for the project as well as the requirements outlined by Section 01658 (“Equipment Decontamination”).

#### **B. Contaminated Material Excavation:**

1. Prior to the excavation of any material from the wetlands or lake areas, a turbidity curtain must be installed surrounding the excavation area as shown on the Contract Drawings.

2. Excavation shall be made to the grades and extents shown on the Contract Drawings. Excavation shall be performed in a manner that will limit spills and the potential for contaminated material to be mixed with uncontaminated material. An excavation log describing visible signs of contamination encountered shall be maintained for each area of excavation. Excavation logs shall be prepared in accordance with ASTM D5434.
3. Excavation shall be accomplished by methods which preserve the undisturbed state of subgrade soils.
4. Excavation equipment shall be satisfactory for carrying out the work in accordance with the Specifications. Earth shall not be plowed, scraped, or dug with machines so near to the finished subgrade as to result in excavation of, or disturbance of material below grade.
5. When excavation has reached final depths, the Engineer shall be notified and will inspect conditions. If materials and conditions are not satisfactory to the Engineer, the Engineer will issue instructions as to the procedures for correction of the unsatisfactory condition. The Contractor shall demonstrate, to the satisfaction of the Engineer, that the final remediation depths specified on the Contract Drawings have been met.
6. Excavation confirmation soil sample locations shall be staked out for the Engineer's approval prior to sampling in accordance with the NYSDEC's DER-10 as follows:
  - a. For excavations 20 to 300 feet in perimeter:
    - 1) One sample will be collected from the top of each sidewall for every 30 linear feet of sidewall.
    - 2) One sample will be collected from the excavation bottom for every 900 square feet of bottom area.
  - b. For excavations greater than 300 feet in perimeter, the proposed sampling frequency considered adequate for documentation of the effectiveness of soil removal will consist of the following:
    - 1) One sample will be collected from the top of each sidewall for every 100 linear feet of sidewall.
    - 2) One sample will be collected from the excavation bottom for every 2,500 square feet of bottom area.

Upon approval from the Engineer, the Contractor shall collect the excavation confirmation soil samples. The Contractor shall notify the Department at least 72 hours in advance of any confirmation sampling activities.

7. The Contractor shall collect enough sample volume to split samples with the Engineer and/or Department, if requested.
8. The samples shall be sent to the laboratory for analysis via overnight shipment. The laboratory shall analyze the samples within 48 hours. The results of the analysis shall be emailed, telecopied or telephoned to the Contractor, who shall report the results to the Engineer within 4 hours after receipt. All samples shall be analyzed for lead and arsenic in accordance with USEPA SW-846 Method 6010B and with the Contractor's Department-approved Sampling Plan (refer to Section 01652).
9. Backfill and compaction shall not be conducted until satisfactory confirmation sample results, DUSR reports and surveyed excavation drawings are approved by the Engineer, unless otherwise shown or specified. The Contractor will be permitted to backfill excavation areas prior to obtaining the Engineer's approval; however, the Contractor does so at his/her own risk. If confirmation sample analyses indicate that contamination remains at levels exceeding soil cleanup criteria, additional material shall be excavated to the depths and extents specified by the Engineer and the Department. Additional confirmation sampling will be required at the frequency specified for excavation confirmation sampling (see 3.1.B.6 above).
10. The Contractor shall continue to work in other areas of the site while awaiting confirmation sample results. The Contractor shall make no claims due to stoppage of work as a result of confirmation sample results delivery or the Engineer's review of confirmation sample results, DUSR reports and surveyed excavation drawings.
11. During final excavation to subgrade level, take precautions required to prevent disturbance of subgrade material.
12. Soil which is excavated and removed in excess of the limits specified by the Contract Drawings as a result of the Contractor's error shall be handled, transported, disposed of off-site, and the excavation backfilled in accordance with the Specifications at no additional cost to the Department.

C. Management of Excavated Material:

1. Excavated soil will be either placed directly into the trucks to be utilized to transport the material off-site or will be stockpiled on site in a designated area. On-site stockpiles will be limited to 10 feet in height, and will be lined with and covered with a geomembrane material to prevent contact with precipitation and to minimize the transport of contaminated soil by wind erosion. The Contractor shall select either of the three options presented below for management of sediment excavated from the wetlands area and lake bottom:
  - a. Off-site transportation and disposal of the “wet” material in liquid-tight containers. Lined roll-off containers or like are not considered liquid tight.
  - b. On-site solidification of “wet” material, followed by off-site transportation for disposal using standard trucks or roll-off containers.
  - c. Dewatering the sediment using geotextile tubes or similar equipment and off-site transportation and disposal of the dewatered sediment.
  
2. The Contractor shall note the following with respect to the on-site sediment dewatering option:
  - a. The filtrate will be potentially contaminated with lead and arsenic due to the fact that it will be coming from the pore spaces of contaminated sediment. As a result, this water cannot be discharged back to the lake, which serves as a water supply for the Village of Florida. This water will likely need to be either transported off-site for disposal or treated prior to discharge.
  - b. Contractor shall account for all scheduling implications associated with the on-site sediment dewatering option. Extension of the Northern Cricket Frog work windows will not be granted to accommodate additional time necessary to dewater the sediment.
  - c. Some of the polymers and other agents that may need to be added to the sediment to enhance the dewatering process are not suitable for a discharge to surface water or a source of public drinking water.
  - d. Should the Contractor discharge filtrate from the dewatering process, all filtrate shall comply with the NYSDEC Division of Water discharge standards.

3. The Contractor shall submit a detailed work plan that will include, among other things, procedures for managing sediment and associated drain water. This plan shall include details of the sediment handling area and controls to prevent the discharge of drain water associated with the sediment. The plan shall also identify procedures for the collection, characterization and disposal of sediment drain water.

### **3.2 EXCAVATION DEWATERING**

- A. If the Contractor selects to dewater the excavations, the Contractor shall prepare a dewatering plan describing how the Contractor will dewater all excavation areas, in order to conduct the work. The plan shall be prepared as a part of the Work Plan (see Section 01653) and shall be submitted in accordance with the requirements of Spec 00021 (“Submittals”), and all specific and general requirements of the wetlands and surface water work permits.
- B. The Contractor shall provide all diking, sheeting and dewatering as required to lower the water in excavations to a level sufficiently below the bottoms of these excavations and to maintain such level so that the excavation of contaminated material can be completed. Dewatering shall be accomplished by wells, open sumps, or other methods approved by the Engineer. There shall be no additional compensation for any dewatering done or additional compensation for equipment and materials used in connection therewith under this Contract. Lowering of water to the injury or detriment of other structures shall be part of the Contractor’s risk and responsibility. Any structure injured or damaged as a result of the lowering of the water shall be repaired or replaced to the satisfaction of the Department at the expense of the Contractor and at no additional cost to the Department.
- C. No additional compensation will be given to the Contractor because of damage from flooding caused by surface waters rising above ground elevations.
- D. The Contractor shall be responsible for adhering to all provisions of necessary dewatering permits, as well as all other necessary permits, at no additional costs to the Department. Water shall not be permitted to be discharged without proper approval from regulatory agencies.
- E. All discharges from dewatering activities shall comply with the New York Standards and Specifications for Erosion and Sediment Control dated August 2005.
- F. The Contractor shall collect, containerize, sample and analyze all water generated by dewatering activities. Collected water shall be treated to



meet the discharge criteria established in the short-term discharge effluent criteria presented in Appendix A of this Specification. The Contractor shall be required to collect representative samples of the contained water prior to discharge and weekly during discharge until completion. All samples shall be analyzed for all discharge parameters in accordance with USEPA SW-846 Methods. All sampling shall be performed in accordance with the Contractor prepared Sampling Plan (refer to Section 01652).

- G. Turbidity of discharged water shall be monitored continuously during discharge. Turbidity of discharge shall not exceed 50 NTUs.
- H. Care shall be exercised to not damage or kill vegetation by excessive watering or by damaging silt accumulation in the discharge area. If discharges are sediment laden, techniques shall be employed to remove sediment prior to discharge. Any sediment collected shall be transported off-site and disposed of in accordance with all applicable federal, state and local regulations.
- I. The Contractor shall not restrict or close off the natural flow of water in such a way that ponding or flooding damage will occur to the surrounding environment, and shall at all times prevent flooding of public thoroughfares and private property. All damages resulting from construction-related flooding and restriction of flows shall be the sole responsibility of the Contractor, and shall be repaired by the Contractor at no additional expense.

### **3.3 SHEETING, SHORING AND BRACING**

#### **A. General:**

1. All sheeting, walers, shoring and bracing determined necessary by the Contractor shall be designed by a Professional Engineer licensed to practice in New York State. Drawings showing plans, sections and details shall be signed by the engineer performing the design and shall be submitted to the Engineer for his records.
2. If sheeting is used as a barrier to reduce infiltration in the excavation areas, the sheeting must be at least 10 feet beyond the areas designated for removal.
3. Sheeting, shoring and bracing shall be used where necessary to prevent injury to workmen, structures, or pipe lines. Jetting for sheeting installation is prohibited.
4. All municipal, county, state and federal ordinances, codes, regulations and laws shall be observed. All trenches shall be

shored with the minimal protection of sheeting listed in OSHA Regulations, 29 CFR, Part 1926, Subpart P (“Excavations”).

5. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
6. Unless otherwise shown, specified or ordered, all materials used for temporary sheeting shall be removed when work is completed. Such removal shall be made in a manner not injurious to the structure or its appearance or to adjacent Work.
7. The clearances and types of the temporary sheeting, insofar as they affect the character of the finished Work, will be subject to the approval of the Engineer, but the Contractor shall be responsible for the adequacy of all sheeting, shoring, bracing and other related Work.
8. Safe and satisfactory installation of the sheeting shall be the entire responsibility of the Contractor.
9. Remove sheeting and bracing from excavation, unless otherwise ordered in writing by the Engineer, following all site restoration activities. Removal shall be done so as to not cause injury to the Work. Removal shall be equal on both sides of excavation to ensure no unequal loads on piping or structures. Use of vibratory extractors is prohibited.

B. See Section 02350 (“Steel Sheet Piling”) for additional information.

### **3.4 CONTAMINATED MATERIAL STORAGE**

- A. Excavated material shall be placed in temporary storage or transported off-site for disposal immediately after excavation. Temporary storage areas shall be located within each excavation area, as approved by the Engineer and the Department and shown on the Contract Drawings (sediment handling area). Storage units shall be in good condition and constructed of materials that are compatible with the material or liquid to be stored. Each storage unit shall be clearly labeled with an identification number and a written log shall be kept to track the source of contaminated material in each unit.
- B. Storage of excavated material outside the approved soil staging areas is prohibited.
- C. The following methods of storage are acceptable:

## 1. Stockpiles

- a. Excavated materials shall be stockpiled in areas approved by the Engineer and the Department.
- b. Stockpiled soil shall be placed on a sealed geomembrane liner. The minimum thickness of the line shall be 40 mils.
- c. Stockpiles shall be constructed to isolate stored contaminated material from the environment. The maximum stockpile height shall be 10 feet. Each stockpile shall be labeled with an identification number identifying the material stored within the stockpile, as well as the grid area from which the soil was excavated.
- d. Diversion measures shall be employed, to prevent storm water run-on and run-off and shall be included as a part of the Storm Water Management for Erosion Control Plan (see Standard Spec 00014 "Work Plan" and Supplementary Specification 01655).
- e. A sealed geomembrane cover shall be used to prevent precipitation from entering the stockpile and emissions and dust from escaping. The minimum thickness of the membrane cover shall be 20 mils. Control measures such as wetting the stockpile surfaces shall be employed to suppress dust. Only potable water shall be used for this purpose.
- f. Stockpiles shall be covered at all times and the Contractor shall maintain the integrity of the cover for the duration of the project.

## 2. Roll-off Units

- a. Roll-off units or equivalent. A cover shall be placed over the units to prevent precipitation from contacting the stored material. Liquid which collects inside the units shall be removed, collected, sampled and disposed of in accordance with all applicable federal, state and local laws and regulations. Alternatively, the material may be solidified in a manner acceptable to the Engineer to render it suitable for storage and transportation in a lined roll-off container. Lined roll-off containers or the like are not considered liquid tight.

3. Liquid tight containers.
  4. Dewatering of sediments using geotextile tubes or similar, as approved by the Engineer.
- D. Storage and handling of contaminated sediment must comply with all applicable NYSDEC solid waste regulations (6NYCRR Part 360) and hazardous waste regulations (6 NYCRR Parts 370-376).
- E. The Contractor shall be responsible for ensuring that all stockpiled waste and all other waste generated during these activities meets the approved disposal facility's acceptance criteria, including, but not limited to, the absence of free liquids. The Contractor shall be responsible for all costs involved in the handling of any wastes deemed unacceptable by the approved disposal facility.
- F. All material used to protect underlying soil and adjacent areas during the sediment removal and handling activities must be properly characterized and removed for proper off-site disposal in accordance with all applicable federal, state and local laws and regulations following completion of these activities. The Contractor shall obtain the Department's approval of the waste characterization and the disposal facility prior to any waste being transported off-site.

**\* END OF SECTION \***

APPENDIX A

SHORT-TERM DISCHARGE EFFLUENT CRITERIA

*(TO BE PROVIDED BY THE NYSDEC)*

## SECTION 02113

### SOIL EROSION AND SEDIMENT CONTROL

#### 1. GENERAL

##### 1.1 DESCRIPTION

A. Work Included: Erosion control shall include all work, materials and measures necessary to control soil erosion and sedimentation resulting from construction operations, prevent flow of sediment from the construction site, and contain construction materials (including excavation and backfill) within protected working areas. In general, the work under this Section shall include, but not be limited to, the work shown on the sequence of construction and Sediment Control Details. The Work shall comply with the approved Storm Water Management Erosion Control Plan.

B. Related Work Specified Elsewhere:

1. Section 01655 - Storm Water Management Erosion Control Plan
2. Section 02114 - Erosion Control Materials

##### 1.2 QUALITY ASSURANCE

A. The Contractor shall comply with the requirements of the Department as they relate to erosion control.

#### 2. PRODUCTS (NOT USED)

#### 3. EXECUTION

##### 3.1 INSTALLATION

A. Proper collection, treatment and disposal of water from excavation dewatering operations shall be performed in accordance with the requirements of the Specifications and approved dewatering plan.

B. Settling basins, plastic filter fabrics, hay bales or other erosion and sediment control measures approved by the Engineer and the Department and as specified and shown on the Contract Drawings shall be used where necessary to protect vegetation, remediated areas, wetlands and wetlands buffer zones, and to prevent

sediment from either surface runoff or the dewatering operations from entering catch basins, surface waters, etc.

- C. All soil erosion and sediment control practices are to be installed prior to any major soil disturbance and shall be maintained until permanent protection is established. No soil erosion or sediment control devices shall be removed unless directed by the Engineer.
- D. A stabilized construction entrance shall be installed immediately prior to initial site disturbance as shown and described on the Contract Drawings. The construction entrance shall be maintained in a condition which will prevent tracking or flowing of material onto public rights-of-way. This may require periodic top dressing with additional stone or additional length as conditions demand and repair and/or cleanout of any measures used to trap material. All material spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately and collected for off-site transportation and disposal in accordance with all applicable federal, state and local regulations.
- E. Upon completion of construction activities, the area used for the construction entrance and the Contractor's/Engineer's staging and storage area shall be returned to elevations and conditions which existed prior to start of construction, and as shown on the Contract Drawings.
- F. The Contractor shall take necessary measures to maintain dust control. Dirt haul roads shall be sprinkled with water or given a surface of crushed stone or wood chips as required. Vehicles shall be cleaned, as necessary, prior to using public streets in accordance with Section 01658 ("Equipment Decontamination"). Paved roads shall be sprinkled with water and cleaned daily.
- G. Any changes to the approved soil erosion and sediment control plans will require the resubmission of Storm Water Management for Erosion Control Plan (see Section 01655) to the Engineer and the Department for reapproval. The revised plans must meet all current New York State soil erosion and sediment control practices. No extension of the Contract time will be given to the Contractor should resubmission be required.
- H. The Contractor shall obtain all required permits.
- I. Upon completion of the construction work and after final grading and when permanent stabilization has been established, the bales, silt fences, sediment filters, etc. will be removed by the Contractor. However, no soil erosion devices shall be removed and disposed without prior written permission of the Engineer.
- J. All excavated material will be removed from the site by the Contractor in accordance with the Contract Documents or as ordered by the Engineer.

- K. Conduit outlets and catch basin inlets must be protected prior to start of construction. The Contractor shall be responsible for the cleaning of all outlets and catch basins due to the malfunction of any protection devices.
- L. The Contractor shall provide a detailed sequence of construction operations conforming to the Contract Drawings for review and submittal to the Engineer.
- M. The Contractor shall meet the Engineer on-site to define those areas which will require soil erosion and sediment control facilities, discuss their construction and thereafter provide detailed plans for review of such facilities by the Engineer and the Department.
- N. All soil erosion and sediment control practices shall be left in place and maintained, including silt and sediment removal, until the Contract has reached substantial completion, the site is stabilized and the Engineer so directs, unless otherwise specified.
- O. The Contractor shall restrict his/her operations to the areas of construction as shown on the Contract Drawings. Any encroachment outside the areas of construction shall be the Contractor's responsibility and he/she shall assume all costs for repairing any damage caused by his/her operations.

**\* END OF SECTION \***



## SECTION 02114

### EROSION CONTROL MATERIALS

#### 1. GENERAL

##### 1.01 SUMMARY

- A. Work Included: Under this Section, the Contractor shall provide all labor, equipment and material necessary to furnish and install erosion control materials as shown on the Contract Drawings, as specified and as directed by the Engineer.
- B. General:
1. Erosion control materials shall be installed on sideslopes to provide soil erosion resistance, as shown on the Contract Drawings and/or as directed by the Engineer.
  2. Erosion control materials shall be installed in seeded drainage channels, swales and sideslopes to provide permanent soil erosion resistance and vegetation reinforcement, as shown on the Contract Drawings and/or as directed by the Engineer.
  3. Erosion control materials shall be installed to stabilize any areas temporarily sealed or that otherwise require temporary stabilization until permanent vegetative stabilization is going to be established.
- C. Related Work Specified Elsewhere:
1. Section 02112 – Excavation, Removal and Handling of Contaminated Materials in Wetlands and Lake Areas.
  2. Section 02113 – Soil Erosion and Sediment Control.
  3. Section 02200 – Backfill and Compaction.
  4. Section 02240 – Excavation, Removal and Handling of Contaminated Materials.
  5. Section 02485 – Seeding.
  6. Section 02487 – Planting.
  7. Section 02488 – Wetland and Lake Bottom Restoration.

## **1.02 QUALITY ASSURANCE**

- A. The manufacturer of the erosion control materials shall be a specialist in the production of the specified materials and the proposed materials shall be a standard product of its manufacture.

## **1.03 SUBMITTALS**

- A. Submit shop drawings in accordance with Standard Spec 00021 (“Submittals”).
- B. Submittal shall include, but not be limited to, manufacturer’s data, specifications, samples, installation instructions and a list of previous installations identifying the name of the owner, the project, Engineer (with telephone number and contact name), quantity of material furnished and its intended purpose.
- C. The Contractor shall furnish a notarized affidavit signed by an authorized representative of the manufacturer certifying that the proposed materials comply with the requirements specified herein and are suitable for the intended purpose.
- D. No material shall be shipped to the project site until the affidavit is submitted to and approved by the Engineer.

## **2. PRODUCTS**

### **2.01 EROSION CONTROL FABRIC**

- A. The short-term single net erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of up to 12 months.
- B. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat.
- C. The blanket shall be covered on the top side with a 100% biodegradable woven natural organic fiber net.
- D. The netting shall consist of machine directional strands formed from two intertwined yarns with across directional strands interwoven through the twisted machine strands (commonly referred to as a Leno weave) to form approximate 0.50 x 1.0 in. (1.27 x 2.54 cm) mesh.
- E. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread.
- F. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

- G. The blanket shall meet Type 2.C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17. T
- H. Erosion control blanket shall be North American Green S75BN, or approved equal, and shall have the following physical properties:

<b>Material Content</b>		
Matrix	100% straw fiber	0.5 lbs/sq yd (0.27 kg/sm)
Netting	Top side only: Leno woven 100% biodegradable natural organic fiber	9.3 lbs/1000 sq ft (4.5 kg/100 sm)
Thread	Biodegradable	
<b>Standard Roll Size</b>		
Width	6.67 ft (2.0 m)	
Length	108 ft (32.92 m)	
Weight +/- 10%	46.4 lbs (21.05 kg)	
Area	80 sq yd (66.9 sm)	
<b>Design Permissible Shear Stress</b>		
Unvegetated Shear Stress		1.60 psf (76 Pa)
Unvegetated Velocity		5.00 fps (1.52 m/s)
<b>Index Property</b>	<b>Test Method</b>	<b>Typical</b>
Thickness	ASTM D6525	0.29 in. (7.37 mm)
Resiliency	ECTC Guidelines	81.4%
Water Absorbency	ASTM D1117	440%
Mass/Unit Area	ASTM D6475	9.12 oz/sy (310 g/sm)
Swell	ECTC Guidelines	15.7%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	6.92 oz-in
Light Penetration	ASTM D6567	9.1%
Tensile Strength - MD	ASTM D6818	146.4 lbs/ft (2.17 kN/m)
Elongation - MD	ASTM D6818	10.9%
Tensile Strength - TD	ASTM D6818	109.2 lbs/ft (1.62 kN/m)
Elongation - TD	ASTM D6818	14.3%
Biomass Improvement	ASTM D7322	398%

- I. Erosion control fabric shall be secured in place using heavy duty metal staples. The metal staples shall be U-shaped, a minimum of 12 inches long (each leg) and shall be fabricated from 9 gauge or greater diameter metal wire. The metal staples shall be furnished by the manufacturer of the erosion control fabric and shall be suitable for the installed product and consistent with the manufacturer's recommendations.

## **2.02 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Each roll of erosion control material delivered to the site shall be labeled by the manufacturer identifying the manufacturer's name, product identification, roll dimension and direction for unrolling. Each roll of erosion control material shall be supplied wrapped in a relatively watertight and opaque protective cover.
- B. All erosion control material shall be properly stored to protect the materials from ultraviolet degradation, precipitation or other inundation, mud, dirt, dust, puncture, cutting, extreme heat caused by direct sunlight or any other damaging or deleterious conditions.
- C. Materials which are damaged during shipment, storage, handling or installation shall be rejected, removed from the job site and replaced at no additional cost to the Department. The Contractor shall take special care to ensure that the integrity of the protective wrapping on each roll is maintained until the time of installation.

## **3. EXECUTION**

### **3.01 GENERAL**

- A. The erosion control materials shall be installed over the prepared seedbed which has been constructed in accordance with the requirements of these Specifications.
- B. Prior to the placement of the erosion control materials in an area, the Contractor and the Engineer shall examine the prepared seedbed to ensure that it is smooth, stable, firm, evenly graded, free of protrusions, sharp stones, vehicle imprints or other damaging objects, properly and evenly seeded and free of erosion. The Contractor shall immediately repair any damage or defect in the prepared seedbed, including reseeded if necessary, prior to the installation of the erosion control materials.
- C. The Contractor shall handle and install the erosion control materials in such a manner to ensure that the material is not damaged in any way.
- D. The protective wrapping on each roll shall not be removed sooner than one hour prior to unrolling. Unused portions of rolls, which are not used in the same day that they are unwrapped, shall be rewrapped and properly stored. Unused portions of rolls which are shorter than 33% of the manufactured roll length shall be discarded unless specifically approved by the Engineer for a particular application.

- E. In the presence of wind, the erosion control material shall be weighted with sandbags or the equivalent. Such sandbags shall be installed during placement and shall remain in place until the installation of the erosion control material is completed. The sandbags shall not be left in place, incorporated into the work, or their contents deposited on the work.
- F. The erosion control materials shall be cut using approved cutting instruments as recommended by the manufacturer. The method of cutting shall result in a neat, clean, controlled cut which does not cause pulling or unraveling of the material components.
- G. The erosion control materials shall be installed on the prepared seedbed within 36 hours of the placement of the seed and landscaping materials.
- H. Apply erosion control materials with the length of roll laid parallel to the flow of the water in swales and channels or along the direction of slope for crown and sideslope areas.
- I. Sideslope Installation:
  - 1. The erosion control fabric shall be installed on the sideslope areas in accordance with the manufacturer's recommendations as specified and as directed by the Engineer.
  - 2. The erosion control fabric shall be installed vertically downslope in the direction of water flow.
  - 3. Anchor fabrics at top of slope in a 6-inch by 6-inch anchor trench, and staple fabric in anchor trench on 3 feet centers. Backfill, compact and hand reseed trench areas.
  - 4. Overlap fabric edges at least 3 inches and secure with staple at least 3 feet on centers.
  - 5. Do not pull the erosion control fabric taut during installation. The erosion control fabric must be in intimate contact with the underlying soil surface. If trampolining is experienced, install additional staples to secure the fabric to the soil.
  - 6. Staple the erosion control fabric to the underlying soil using a uniform stapling pattern which will provide a staple (field) density of at least two staples per square yard.
  - 7. Install check slots every 50 feet by placing a fold at least 8 inches vertically into the soil. Staple the fabric in the check slot on 3 feet centers and at each edge. Backfill, compact and hand seed the check slots.

8. Overlap successive lengths of erosion control fabric at least 1-foot shingle style, with upslope layer on top. Staple overlapped area on 1-foot centers.
  9. Anchor the downslope ends of the fabric in an anchor slot at least 8 inches deep. Secure the fabric in the anchor slot with staples 3 feet on center and at each edge. Backfill, compact and hand seed the anchor slot.
- J. The Contractor shall exercise extreme care during the placement and installation of the erosion control materials so as to minimize the disturbance to the prepared seedbed. The Contractor shall repair any damage to the prepared seedbed to the satisfaction of the Engineer.

**\* END OF SECTION \***

## SECTION 02120

### DEMOLITION AND REMOVALS

#### 1. GENERAL

##### 1.1 DESCRIPTION

###### A. Scope:

###### 1. General:

- a. The Contractor shall furnish all labor, materials, equipment and incidentals required for demolition, removals and disposal of:
  - 1) The existing buildings as shown on the Contract Documents and as directed by the Department.
  - 2) The existing piles of debris as shown on the Contract Documents and as directed by the Department.
- b. The work under this Section shall include, but not be limited to, demolition and removals of existing structures, materials, equipment, and work necessary to perform the Work as specified. The Work includes, but may not be limited to, masonry, piping, mechanical, structural, plumbing, electrical, asphalt, concrete, and other elements as shown, specified, or required to complete the Work.
- c. Demolitions and removals specified or required under other Sections shall conform to the requirements of this Section.
- d. The Contractor shall be responsible for any damage to adjacent wells, equipment, fencing, public sidewalks and/or roadways abutting or adjacent to the demolition work resulting from the execution of the demolition work. The Contractor shall be responsible for the repair/replacement in kind of existing wells, equipment, fencing, sidewalks and pavement in accordance with authorities having jurisdiction, including, but not limited to, Orange County, and as directed by the Department. The cost of repair or replacement shall be considered incidental to the Work and the Contractor shall obtain all permits and pay any fees.
- e. For the buildings and waste piles containing asbestos-containing materials (ACM) as indicated on the Contract Drawings and in the reports included in the Limited Site Data Summary Report. In addition to this Section, the Contractor shall also follow the

requirements of Section 02081 (“Asbestos Removal”) of these Specifications.

- f. Lead-Based paint (LBP) has been identified on various components throughout the buildings scheduled for demolition. Refer to the Lead-Based Paint Survey Report prepared by Quest Quality Environmental Solutions & Technologies, Inc. (Quest) dated January 19, 2009. This report is included in the Limited Site Data Summary Report. The Contractor shall comply with all applicable requirements of 29 CFR 1926.62 (OSHA Lead in Construction Standards). All demolition work specified in all areas of these Specifications impacting LBP components shall be conducted within an established lead control (regulated) area with a remote hand wash facility/decontamination system in accordance with the OSHA Lead in Construction Standards. Engineering controls and work practices shall be utilized to prevent the spread of lead dust and debris beyond the work area and limit the generation of airborne lead. All demolition debris shall be properly characterized prior to disposal. Refer to the Contract Drawings, Standard Spec 00015 (“Off-Site Transportation and Disposal”) and Section 02260 (“Waste Transportation and Disposal”) of the Supplementary Specifications for specific waste characterization and off-site transportation and disposal requirements.

## 1.2 REFERENCES

- A. American National Standards Institute (ANSI) - ANSI A10.6 “Safety Requirements for Demolition for Construction and Demolition Operations.”
- B. New York State Department of Environmental Conservation: 6 NYCRR:
  - 1. Part 360, Solid Waste Management Facilities;
  - 2. Part 364, Waste Transporter Permits;
  - 3. Part 370, Hazardous Waste Management Systems – General;
  - 4. Part 371, Identification and Listing of Hazardous Wastes;
  - 5. Part 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities; and
  - 6. Part 373, Hazardous Waste Management Facilities.
- C. NYSDEC DER-10 “Technical Guidance for Site Investigation and Remediation.”



### 1.3 SUBMITTALS

The Contractor shall submit the following Lead-Based Paint Activity Submittals:

- A. Written Compliance Program: The Contractor shall submit for approval a Written Compliance Program that complies with 29 CFR Part 1926.62.
- B. Exposure Assessment: The Contractor shall submit an exposure assessment plan per 29 CFR 1926.62 and objective data demonstrating that the demolition operation(s) cannot result in employee exposure to airborne lead at or above the action level. The Contractor shall ensure that workers are not exposed to lead at concentrations greater than the Permissible Exposure Limit (PEL) of 50 micrograms per cubic meter ( $\text{ug}/\text{m}^3$ ) over an eight-hour time weighted average (TWA). The Contractor shall provide the name of the individual(s) or firm conducting the exposure monitoring and the laboratory providing analytical services. The laboratory must be certified by the NYSDOH Environmental Laboratory Approval Program (ELAP).
- C. Personal and Area Air Sampling:
  - 1. Personal air sampling (OSHA required monitoring) activities must be conducted by the Contractor or his duly authorized representative during any lead-based paint hazard control work or any other work involving lead containing materials. The results of such sampling shall be posted and provided to individual workers within the 5-day OSHA required timeframe. The Contractor must ensure analytical result receipt no later than 3 calendar days after sample collection.
  - 2. The Contractor's air sample testing laboratory shall be a completely and totally independent third-party firm and shall be a successful participant in the National Lead Laboratory Accreditation Program (NLLAP). Air sample collection and analyses shall at least meet the intent of NIOSH Method 7082.
  - 3. Personal air samples shall be collected so as to at least meet the requirements of OSHA. Personal air samples must also be collected every time there is a change in the work operation, either in terms of the type of work, method of hazard control, method of engineering control/work practice control/administrative control, or other change in the hazard control process that might affect the worker's exposure to lead. Sampling will be used to determine eight-hour Time-Weighted Averages (TWA). Personal air sampling will be conducted as outlined in NIOSH Method 7082 and 29 CFR 1926.62. Among other considerations, the laboratory results of the air sampling will determine the need for medical monitoring, the need for and the types of PPE required, the degree of respiratory protection and decontamination required, subject to the

regulations. The results will also help determine other safety requirements for the workers, as well as the engineering controls, work practice controls and administrative controls that are required. The results will help evaluate the effectiveness of engineering controls, work practice controls, administrative controls and worker protection measures. All air sampling will be solely at the Contractor's expense.

#### **1.4 RELATED WORK SPECIFIED ELSEWHERE**

- A. Spec 00003 – Minimum Requirements for Health and Safety.
- B. Spec 00013 – Sampling.
- C. Spec 00015 – Off-Site Transportation and Disposal.
- D. Section 01652 – Sampling Plan.
- E. Section 02081 – Asbestos Removal.
- F. Section 02200 – Backfill and Compaction.
- G. Section 02240 – Excavation, Removal and Handling of Contaminated Materials.
- H. Section 02260 – Waste Transportation and Disposal.

#### **1.5 JOB CONDITIONS**

- A. Protection:
  - 1. The Contractor shall execute the demolition and removal Work to prevent damage or injury to adjacent structures, existing building services, occupants thereof and adjacent features which might result from falling debris or other causes, and so as not to interfere with the use, and free and safe passage to and from adjacent structures.
  - 2. The Contractor shall provide shoring, bracing and support to prevent movement, settlement, or collapse of existing adjacent structures or facilities. The Department assumes no responsibility for the actual condition of the structures or facilities adjacent to the Work.
  - 3. Closing or obstructing of roadways and passageways adjacent to the Work by the placement or storage of materials will not be permitted, and all operations shall be conducted with a minimum interference to vehicular or pedestrian traffic.
  - 4. The Contractor shall erect and maintain barriers, lights, and other required protective devices.

5. The Contractor shall repair damage caused by his operation to facilities to remain, or to any property belonging to the Department, utilities, or occupants of the facilities.
6. The Contractor shall design, erect, install and maintain temporary partitions and enclosures required to eliminate dust, noise and debris from impacting adjacent properties, buildings and occupants in accordance with applicable federal, state and local codes and regulations.
7. The Work shall comply with the applicable provisions and recommendations of ANSI AIO.2, (“Safety Code for Building Construction”), all governing codes and as hereinafter specified.
8. The Contractor shall exercise precautions for fire prevention. Burning of debris shall not be permitted.
9. Existing structures on the site may not be structurally sound and may be unsafe for occupancy. The Contractor shall enter structures at his own risk.

**B. Scheduling:**

1. The Contractor shall carry out all operations so as to avoid interference with operations of the Department and local utility companies and to minimize impact on nearby residents.
2. Any structures, equipment, utilities, facilities, etc., removed without proper authorization, shall immediately be replaced to the satisfaction of the Department at no cost to the Department.

**C. Notification:** At least 48 hours prior to commencement of a demolition or removal, the Contractor shall notify the Department in writing of his proposed schedule therefor. No removals shall be started without the permission of the Department.

**D. Explosives:** Do not bring explosives on-site. No explosives will be permitted for this Contract.

## **1.6 PERMITS AND REGULATIONS**

- A. The Contractor shall prepare all submittals and obtain all necessary permits and approvals for the Work. The Contractor shall obtain permits and approvals, pay all fees, abide by the permit requirements, and maintain all insurance as required by federal, state and local agencies, including Orange County, for completion of the Work.
- B. The Contractor shall perform all Work in strict compliance with all applicable requirements of governing and public agencies and authorities having jurisdiction.

- C. The Contractor shall provide all required notifications to federal, state and local agencies prior to the Work. Copies of all notifications shall be transmitted to the Department at the time of issuance by the Contractor.

## **2. PRODUCTS (NOT USED)**

## **3. EXECUTION**

### **3.1 GENERAL**

#### **A. Disposition of Materials and Equipment:**

1. All materials and equipment removed from existing work that is not wanted by the Department shall become the property of the Contractor.
2. The Contractor shall dispose of all materials, equipment, debris, and all other items not to remain as property of the Department, off the site at Department approved disposal areas and in conformance with all existing applicable laws and regulations of Orange County, the Department and any other regulatory agency having jurisdiction.

#### **B. Pollution Controls:**

1. The Contractor shall prevent the release of vapors, odors and dust during demolition and removal activities. The Contractor shall comply with governing regulations pertaining to environmental protection. Monitoring for vapors, odors and dust shall be performed in accordance with the Minimum Requirements for Health and Safety provided in Section X, Standard Specifications, Spec 00003.
2. Dirt and dust controls shall be applied immediately after razing and before removal from the site.
3. Clean adjacent structures, facilities, and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to conditions existing prior to the start of the Work.

- C. The Contractor and Department shall jointly survey the condition of the nearby structures prior to the execution of the work. Photographs and records shall be made of any prior settlement or cracking of surrounding structures, and the like, that may become the subject of possible damage claims.

- D. The Contractor shall be responsible for supplying all photographic equipment, film, negatives, prints, film developing, print holders and miscellaneous film folders for recording preconstruction conditions. Three sets of preconstruction photograph

documents shall be assembled; two shall be transmitted to the Department and one set shall be retained by the Contractor.

### **3.2 STRUCTURAL DEMOLITION**

- A. All demolition shall be conducted in accordance with all applicable federal, state and local laws and regulations, including safety and health standards.
- B. The Contractor shall take precautions to protect public and adjacent properties from flying or falling debris. No blasting or burning will be permitted on the demolition site or any adjoining property.
- C. The Contractor shall take precaution to protect existing groundwater monitoring wells and piezometers throughout the performance of the Work. Any damage to existing monitoring wells and piezometers resulting from the Work shall be corrected by the Contractor at no additional cost to the Department. Repair or replacement of damaged well(s) shall be solely at the Department's discretion.
- D. The Contractor shall remove the existing buildings/foundations, concrete slabs and asphalt pavement necessary to perform the work as shown, regardless of thickness or composition. The Contractor shall be responsible for any waste characterization analysis required by the disposal facility. The concrete and asphalt shall be tested, containerized, stored, labeled, transported and disposed off-site, in accordance with applicable federal, state, and local laws and regulations.
- E. Building 1-N contains a basement. Following controlled demolition of the building in accordance with Section 02081 ("Asbestos Removal"), the Contractor shall remove all asbestos waste and decontaminate the basement to render it asbestos free. The Contractor shall then cut the walls of the foundation to 2 feet below surrounding grade and remove the cut concrete for proper off-site disposal in accordance with all applicable federal, state and local laws and regulations. The Contractor shall install drainage openings in the basement floor as detailed on the Contract Drawings.
- F. For buildings other than Building 1-N, following building removal and decontamination of the slab (controlled demolition only), the Contractor shall remove the slab and foundation to 2 feet below surrounding grade. The Contractor shall properly dispose of the removed concrete off-site in accordance with all applicable federal, state and local laws and regulations.

### **3.3 CLEANUP**

- A. The Contractor shall remove from the site all debris resulting from the demolition operations as it accumulates. Upon completion of the Work, all materials, equipment, waste, and debris of every sort shall be removed and the premises shall be left, clean, neat and orderly.

**\* END OF SECTION \***

## SECTION 02121

### REMOVAL OF YARD WASTE, TIRES, SCRAP METAL AND DEBRIS

#### 1. GENERAL

##### 1.1 DESCRIPTION

- A. The Contractor shall furnish all labor, materials, supplies, services, equipment, power, facilities and incidentals necessary to remove and dispose off-site all yard waste, tires, scrap metal, debris and other waste material existing at the site to the limits necessary to provide access for excavation, proper grading, and location of all Contractor's and Engineer's/Department's construction office trailers, and staging of materials, tools and equipment within the Contract Limits as specified and as directed by the Department.
- B. The Work includes, but is not limited to, removal and proper transportation and off-site disposal of trash, trees, vegetation, yard waste, soil stockpiles, tires, scrap metal, concrete debris, wood debris, rebar, construction and demolition debris, concrete, and asphalt, if present.
- C. Other material to be removed includes all material regardless of type, character, composition, size, weight, moisture or condition.
- D. Any and all excavation required to complete the Work specified in this Section shall be performed, backfilled and restored in accordance with the requirements of these Specifications.
- E. All Work shall be performed in accordance with all applicable federal, state and local laws and regulations. The Contractor shall obtain all permits and approvals required to perform the Work. The Work shall be performed in accordance with all approved submittals, plans and permits. Before any materials are removed from the site, prior approval of the waste characterization and disposal facility shall be required from the Engineer and the Department.
- F. Related Work Specified Elsewhere:
  - 1. Section 00015 – Off-Site Transportation and Disposal
  - 2. Section 02112 – Excavation, Removal and Handling of Contaminated Materials in Wetlands and Lake Areas
  - 3. Section 02240 – Excavation, Removal and Handling of Contaminated Materials
  - 4. Section 02120 – Demolition and Removals

5. Section 02260 – Waste Transportation and Disposal

**1.2 EXISTING CONDITIONS**

- A. The Contractor shall immediately notify the Engineer of any perceived differences in existing conditions that may impact the Work.
- B. The Contractor shall be solely responsible for locating, marking out and protecting all underground and aboveground utility lines and structures on-site to remain and coordinating the Work with utility companies.
- C. There is no guarantee that any materials of value now exist on the site and that any materials to be removed will be present at the time the Contractor begins the Work. The Contractor shall have no claims against the Department because of a decrease in or loss of salvage value of any materials on the site.

**2. PRODUCTS (NOT USED)**

**3. EXECUTION**

- A. Removal of yard waste, tires, scrap metal, debris and other material shall be limited to the Contract Limits and confined to the limits of the area required for location of the specified office trailers, lay down of materials, tools and equipment, and excavation of contaminated soil.
- B. Excavations of partially buried materials shall be backfilled, graded and compacted following removal of contaminated material in accordance with the requirements of these Specifications.
- C. No blasting or burning shall be permitted on the site or on any adjoining property.
- D. Materials to be removed shall be staged for off-site disposal in an area designated by the Contractor and approved by the Engineer and the Department.
- E. All waste shall be properly characterized in accordance with these Specifications. All building materials contained in the waste shall be additionally characterized for asbestos content. The Department shall approve all waste characterization prior to the Contractor removing that waste. All waste shall be properly managed according to its waste characterization as specified in these Specifications.

**\* END OF SECTION \***



## SECTION 02200

### BACKFILL AND COMPACTION

#### 1. GENERAL

##### 1.1 DESCRIPTION

###### A. Scope:

1. The Contractor shall furnish all labor, materials, supplies, equipment, power, facilities and incidentals necessary to perform all backfilling, compacting, grading and disposing of earth materials as shown, specified, and required to complete the Work as shown on the Drawings, as specified herein, and as directed by the Department.
2. Also included is earthwork necessary for repair and replacement of roads, walks, pavements, grading, structures and other facilities as required to complete the Work as shown and specified. All materials necessary for fill, backfill, granular embedment and crushed stone are included.
3. All necessary preparation of subgrade is included.
4. This Section is not applicable to the wetland and lake areas.

###### B. Sources of Materials:

1. All fill materials shall be obtained from approved off-site sources.

###### C. Related Work Specified Elsewhere:

1. Section 00015 – Off-Site Transportation and Disposal.
2. Section 02120 – Demolition and Removals.
3. Section 02240 – Excavation, Removal and Handling of Contaminated Materials.
4. Section 02260 – Waste Transportation and Disposal.

##### 1.2 QUALITY ASSURANCE

###### A. Permits and Regulations:

1. The Contractor shall perform Work in compliance with applicable requirements of governing authorities having jurisdiction. The Contractor shall apply for, obtain, pay all fees and comply with permits required.
  2. The Contractor shall not discharge any water to off-site areas, including storm water management systems.
- B. Reference Standards: Comply with applicable provisions and recommendations of the following except as otherwise shown or specified.
1. ASTM D422, Particle-Size Analysis of Soils.
  2. ASTM D1557, Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, using 10-pound (4.54 kg) Rammer and 18-inch (457 mm) Drop.
  3. ASTM D1556, Density and Unit Weight of Soil in Place by the Sand-Cone Method.
  4. ASTM D2922, Nuclear Density Gauge of Soils.
  5. ASTM D2167, Density and Unit Weight of Soil in Place by the Rubber Ballon Method.
  6. ASTM D751, Coated Fabrics (Modified).
  7. ASTM D3786, Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method.
  8. ASTM D1682, Breaking Load and Elongation of Textile Fabrics.
  9. NYSDEC DER-10 "Technical Guidance for Site Investigation and Remediation."
- C. Samples and Tests:
1. Materials used shall be subject to examination and tests before acceptance and during the duration of this Contract.
  2. Any material may be tested and no materials for which laboratory tests are required shall be used by the Contractor until the Contractor has received notification of acceptance from the Engineer, and then only as long as its quality remains equal to that of the accepted sample.
  3. Material rejected as the result of laboratory tests will not be resampled or retested unless otherwise directed by the Department.
  4. Results of the test of any material may be compared with records of similar materials in actual service, and when such service record is

unsatisfactory, use of the material will not be allowed even though the tests are satisfactory.

5. Testing of materials for approval shall include, but shall not be limited to, the following (all tests to be performed after screening or processing of the material).
  - a. Grain size distribution in accordance with ASTM D422, including hydrometer analysis.
  - b. Characterization in accordance with ASTM D2487.
  - c. Moisture/Density relationship in accordance with ASTM D698 (Standard Proctor).
  - d. Chemical Analysis – Chemical analysis of soil shall be performed in accordance with NYSDEC Division of Environmental Remediation DER-10 (“Technical Guidance for Site Investigation and Remediation”). Analysis shall include Target Compound List (TCL) volatile organic compounds (VOCs); TCL semivolatile organic compounds (SVOCs); TCL pesticides; TCL polychlorinated biphenyls (PCBs); Target Analyte List (TAL) metals; and cyanide. Sample collection and analysis shall be in accordance with the approved Sampling Plan. The results of the chemical analysis shall meet the requirements of the New York State Department of Environmental Conservation (NYSDEC) Unrestricted Use Soil Cleanup Objectives found at 6 NYCRR Part 375-6.8(a).
6. The Contractor shall assist the Engineer, as requested, in providing access to the Work, the taking and recovery of samples, the repair of the sampled areas, etc. No aspect of the Contractor’s involvement in providing assistance to the Engineer shall be construed by the Contractor as suitable grounds for claim of hardship, delay or additional compensation.
7. The Contractor shall prequalify soils to be used for the project. The prequalification process will require that the Contractor identify suitable material for use for the project. The Contractor shall obtain prequalification samples from each source and each soil stockpile in accordance with the NYSDEC DER-10 and approved Sampling Plan. The stockpile prequalification samples shall be obtained in at least two opposite locations to expose the core of the stockpile and allow the taking of representative samples or as approved by the Engineer. The Contractor shall have at least two samples (one for the Engineer, remainder for the Contractor) of material taken at each sampling location by an approved soils testing laboratory. The sampling shall be conducted in the presence of the Engineer. Each sample furnished to the Engineer shall be at least 50 pounds in weight and shall be

tested by the Engineer, at his/her discretion, for conformance testing of the prequalification process. The Contractor shall have each "Contractor Sample" tested by the approved soils testing laboratory as prescribed above. The Contractor shall submit certified copies of the test results and test methods to the Engineer for review and approval. If the test results are acceptable, the Contractor may proceed with the use of the prequalified source and the prequalified stockpile material may be incorporated into the Work. If the test results are not acceptable, the Contractor shall modify the proposed source as required to provide soil which satisfies the requirements of these Specifications and the Contractor shall repeat the prequalification process (using alternative material) as described above until acceptable test results are achieved. The Contractor shall not utilize unacceptable prequalification stockpiles in the prosecution of the work.

8. If directed by the Engineer, the Contractor shall conduct additional sampling of the prequalified material upon delivery to the Site to demonstrate conformance with the specifications. The Contractor will be compensated for all costs associated with additional sampling required by the Engineer if the results of the sampling indicate the prequalified material meets the requirements of the specifications. If the results indicate that the material does not meet the requirements of the specifications, the Contractor shall bear all costs associated with the sampling, as well as all costs associated with removing the defective material and replacing with new material and any sampling required by the Engineer to demonstrate that the new material meets the requirements of the specifications.

### **1.3 SUBMITTALS**

#### **A. Materials:**

1. A certified copy of the testing reports and test methods shall be submitted to the Engineer prior to acceptance of materials.
2. At the time of delivery of each load of material to the site, the Contractor shall provide a certified load ticket indicating the source of supply, weight of load in tons, vehicle identification number, and date and time of departure from the source and arrival at the site.

#### **B. Samples:**

1. At least two weeks prior to the date of anticipated use, the Contractor shall submit, to the Department for approval, a representative sample of all material required. The Contractor shall notify the Department in writing of the source of each sample.

- C. Disposal Sites:
  - 1. List of disposal sites for unsuitable materials and all required permits for use of the sites.
- D. Manufacturer's Data: Submit for approval manufacturer's specifications, performance characteristics and operating instructions for the compaction equipment to be utilized on the project.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- A. All materials shall be stockpiled in an area selected by the Contractor and approved by the Department. General fill shall be stockpiled on top of plastic sheeting so as not to contaminate the general fill with the underlying soils.
- B. All material shall be adequately protected to preserve the fitness and the quality of the material.

#### **1.5 JOB CONDITIONS**

- A. Existing Structures:
  - 1. Shown on the Drawings are certain utilities and surface and underground structures located on or adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete and is shown for the convenience of the Contractor. The Contractor shall explore ahead of the required excavation to determine the exact location of all structures and utilities. The structures and utilities shall be supported and protected from any form of damage by the Contractor. Any damage shall be restored immediately by the Contractor at no additional cost to the Department.
  - 2. Prior to execution of the Work, the Contractor shall check and verify governing dimensions and elevations. The Contractor shall survey the condition of adjoining structures. Photographs and records shall be made of any prior settlement or cracking of structures, pavements, and the like, that may become the subject of possible damage claims.
- B. Existing Utilities:
  - 1. Locate existing underground utilities in the areas of Work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.
  - 2. Should uncharted or incorrectly charted piping or utilities be encountered during excavation, utilities shall be adequately protected prior to continuance

of Work. Repair damaged utilities to the satisfaction of the Department and the utility company.

3. Do not interrupt existing utilities serving facilities occupied and used by others, except when permitted in writing by the Department.

C. Protection of Persons and Property:

1. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by the Contractor's operations.
2. Structures, utilities, sidewalks, pavements and other facilities removed or disturbed shall be replaced to their original condition, unless otherwise shown, specified or directed by the Department.

D. Dust Control: The Contractor shall conduct all operations and maintain the area of activities, including sweeping and sprinkling of roadways, so as to minimize creation and dispersion of dust. In addition, the Contractor shall be responsible for controlling dust caused by operation of vehicles and equipment, clearing or any other activity by sprinkling potable water at locations and in such quantities and at such frequencies as shall be required to control dust as directed by the Department.

E. Roadways and Walks: All hydrants, valves, and other facilities which may require access during construction shall be kept accessible for use. During the progress of the Work, the Contractor shall maintain such crosswalks, sidewalks, and roadways in satisfactory condition and the Work shall at all times be so conducted in a way that it will cause minimum inconvenience to others. Temporary bituminous macadam shall be installed at all disturbed sidewalk areas until such time as the final restoration is performed.

## **2. PRODUCTS**

### **2.1 FILL MATERIALS**

- A. All fill material shall be free of refuse and vegetable matter, frozen material and other objectionable material.
- B. The Contractor shall excavate, haul and place all material from approved off-site sources. The Contractor may not reuse any material excavated from the site.
- C. General Fill
  1. General fill shall be virgin, clean, inert, well graded granular material suitable for root development. The select granular material must be free of roots, stumps, chunks of earth or clay, shale or other soft, poor durability

particles, construction and demolition debris, concrete, asphalt or other foreign material, and conform to the following gradation.

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
3 inch	100
No. 40	0-70
No. 200	0-15

2. General fill shall consist of natural soils conforming to the requirements of these Specifications. All material shall consist of hard, strong, durable particles which are free from a coating or any injurious material or other deleterious substances.
3. Each truckload of general fill delivered to the site shall be accompanied by a ticket prepared by the Contractor certifying the source of the material and the location from where the material was taken. The load ticket shall specifically identify the type of material, the quantity of material (weight), vehicle identification number and driver name, date, source (stockpile) identifier, time of departure from the source and time of arrival at the site. The load tickets shall be consecutively numbered, multipart forms and shall be clearly and legibly completed and signed in ink. An original copy of each load ticket shall be given to the Department prior to the material being off-loaded at the site.

D. Gravel: Crushed rock conforming to the following gradation:

<u>Sieve Size</u>	<u>Percent Retained on Sieve</u>
1-1/2 inch	0-10
1 inch	30-65
3/4 inch	85-100
3/8 inch	98-100

C. Select Fill: Well-graded granular material or bank run gravel, free from organic matter. Not more than 80 percent by weight shall pass through a No. 40 sieve; not more than 10 percent by weight through a No. 200 sieve; and 100 percent shall pass a 3-inch square sieve.

D. Crushed Aggregate: Shall consist of crushed stone or crushed gravel conforming to the following gradation:

<u>Sieve Size</u>	<u>Percent Retained on Sieve</u>
3/4 inch	85-100 (throughout)

E. All material shall be subject to inspection by the Department. Material not meeting the above Specifications shall not be accepted.

F. Unsuitable Material:

1. Material unsuitable for use in backfilling are clay, boulders, peat, contaminated material, construction debris, organics and any other material so designated by the Department.
2. Stockpiling of Unsuitable Material shall not be permitted.
3. Unsuitable Material must be promptly removed from the site and disposed of by the Contractor, at his own expense, off the site of the work.

G. Excess Material:

1. Any excess material not required for use in the project shall become the property of the Contractor and shall be removed by him from the site.

## **2.2 SHEETING AND BRACING**

- A. Refer to Section 02350 (“Steel Sheet Piling”).

## **3. EXECUTION**

### **3.1 INSPECTION**

- A. The Contractor shall provide the Department with sufficient time and means to examine the areas and conditions under which filling and grading are to be performed. Work shall not proceed until all unsatisfactory conditions have been corrected in a manner acceptable to the Department.

### **3.2 EROSION CONTROL**

A. General:

1. In general, the construction procedures outlined herein shall be implemented to ensure minimum damage to the environment during construction.
2. Whenever possible, access and temporary roads shall be located and constructed to avoid environmental damage. Provisions shall be made to regulate drainage, avoid erosion and minimize damage to vegetation. Special care shall be taken to eliminate depressions that could serve as mosquito pools.
3. Where areas must be cleared for storage of materials or temporary structures, provisions shall be made for regulating drainage and controlling erosion, subject to the Department’s approval.



4. In the event of any temporary work stoppage, the Contractor shall take steps to prevent any temporary or permanent environmental damage to the area undergoing construction.

B. Control Measures:

1. Temporary measures shall be applied to control erosion and to minimize the siltation of the existing drains, streambeds and natural ponding areas. Such measures shall include but not be limited to the use of berms, baled straw silt barriers, gravel or crushed stone, mulch, grasses, slope drains and other methods. These temporary measures shall be applied to erodible materials exposed by any activities associated with the construction of this project.
2. Temporary measures shall be coordinated with the construction of permanent drainage facilities and other work to the extent practicable to ensure economical, effective, and continuous erosion and siltation control.
3. The Contractor shall provide special care in areas with steep slopes. Disturbance of vegetation shall be kept to a minimum to maintain stability. Remove only those trees and shrubs and grasses that must be removed for construction. Protect the rest to preserve their aesthetic and erosion-control values.
4. Install erosion and sediment control practices as specified herein and according to soil conservation standards and specifications. The practices shall be maintained in effective working condition during construction and until the drainage area has been permanently stabilized.
5. Temporarily stabilize each segment of graded or otherwise disturbed land, including the sediment control devices not otherwise stabilized by seeding and mulching or by mulching alone.

C. Temporary Seeding and Mulching:

1. All disturbed areas shall be limed and fertilized prior to temporary seeding.
2. Disturbed areas shall be maintained in a rough graded condition and temporarily seeded and/or mulched until completion of the Work.
3. All areas on which temporary seeding has not been made by November 1st, shall be treated with mulch.
4. Mulching shall be used in conjunction with seeding on critical areas and during poor weather. Use mulching alone for temporary stabilization during months of November through April.

5. Suitable Materials for Mulching:
  - 1) Unrotted straw or salt hay at 1-1/2 to 2 tons/acre.
  - 2) Wood-fiber or paper-fiber (hydroseeding) at 1,500 lbs./acre.
6. Straw or salt hay mulches should be immediately anchored using peg and twine netting or a mulch anchoring tool or liquid mulch binders.
7. After stabilization, remove all straw bale dikes, debris, etc., from the site.

### **3.3 BACKFILL AND COMPACTION**

#### **A. Backfilling:**

1. Backfilling shall not be started until the Contractor has obtained approval from the Department and all other approvals required from government agencies.
2. Backfill shall not be placed until confirmation sampling has been performed and approved by the Engineer.
3. General fill shall be backfilled to a depth of 6 inches below final grade.
4. As shown on the Contract Drawings, the final 6 inches of the excavations shall be backfilled with 6 inches of topsoil.
5. Backfill required to provide the grades specified herein shall be conducted with general fill as specified herein. No general fill shall be placed without the approval of the Department. General fill shall only be supplied from approved off-site sources.
6. Excavations shall be kept dry during fill operations. No fill shall be placed when free water is standing on the surface of the area where fill is to be placed. The Contractor shall properly remove and dispose of standing water.
7. The water content of general fill shall be controlled during placement within the range necessary to obtain the specified compaction. The Contractor shall perform all necessary Work to adjust the water content of the material to within the range necessary to permit adequate compaction.
8. No material shall be placed or compacted in a frozen condition or on top of frozen material.
9. Compaction shall be performed with equipment suitable for the type of material placed and which is capable of providing the densities required.

10. If the specified densities are not obtained because of improper control of placement or compaction procedures, or because of inadequate or improperly functioning equipment, the Contractor shall perform whatever work is required to provide the required densities. This work shall include complete removal of unacceptable fill areas and replacement and recompaction until acceptable conditions are provided.
11. The loose lifts shall be mixed and spread in a manner assuring uniform lift thickness after placing. Unless otherwise directed by the Engineer, the maximum compacted lift thickness shall be 12 inches.
12. It shall be the Contractor's responsibility to properly place and compact all materials and to correct any deficiencies resulting from insufficient or improper compaction of materials. All materials in open excavations shall be placed and compacted to a density of at least 95 percent Standard Proctor (ASTM D698). A minimum of one in-place density and moisture test shall be taken for each 500 square feet of 12-inch lift. The testing shall be by nuclear methods performed in accordance with ASTM D2922 and ASTM D3017, respectively, by an approved testing laboratory retained by the Contractor, in the presence of the Engineer. Tests shall be performed as directed by the Department.
13. The Contractor shall determine the type, size and weight of equipment best suited for construction of each lift, determine and control the lift thickness, exert proper control over the moisture content of the material and other details necessary to obtain satisfactory results.
14. In areas inaccessible to conventional compactors or where maneuvering space is limited, other approved methods may be used with lift thickness not exceeding 6 inches before compaction. The Department may approve or reject any alternate methods for inaccessible areas.
15. Compaction shall continue until specified density is achieved and verified by the independent testing laboratory to the satisfaction of the Department. Any inconsistencies found shall be immediately corrected by the Contractor at his expense.
16. All material to be compacted shall be at the prescribed moisture content for proper compaction of that material using the equipment selected by the Contractor to perform the Work. The Contractor shall be responsible for controlling the moisture content within proper limits as the Work progresses.
17. Water added shall be thoroughly incorporated into the soil and mixing shall be provided whenever necessary to attain uniformity of moisture distribution in the soil. When the moisture content of a lift about to be compacted exceeds the required amount, compaction shall be deferred

until the layer has dried back to the required amount. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation. Increased loose lift thickness caused by blending in dry material, however, may necessitate a change in compaction equipment to meet the minimum provisions required for compaction.

18. The Contractor shall maintain all fill operations free of water by ditching, sumps, pumping or other methods approved by the Department. Each layer of fill shall be placed so that the surface is free draining.
  19. The Contractor shall protect the surface of each lift from desiccation, flooding and freezing. Protection, if required, may consist of a thin plastic protective cover (or other material as approved by the Department) installed over the compacted material. Subgrades found to have desiccation cracks greater than 1/2-inch in width or depth, or which exhibit swelling, heaving or other similar conditions, shall be replaced or reworked by the Contractor to remove these defects.
  20. The Contractor shall provide grade control for each lift of material placed in open excavations to ensure that the maximum compacted lift thickness does not exceed 12 inches and also to ensure that the proposed line and grade is achieved.
  21. Successive lifts shall not be placed until the lift under construction has been compacted, tested and accepted.
  22. During backfilling, the Contractor shall provide and implement positive means to control odors, vapors and dust in accordance with the approved Work Plan. A detailed plan for monitoring vapors and dust shall be included in the Contractor's Department-approved Health and Safety Plan (HASP). The Contractor's HASP shall also specifically detail the worker protective measures to be used.
- B. Fill excavations as promptly as Work permits, but not until completion of the following:
1. Acceptance by the Engineer of all Work within the excavation.
  2. Inspection, testing approval, and recording of locations of underground utilities, connections, branches, structures and other facilities.
  3. Removal of temporary shoring and bracing, and backfilling of voids with satisfactory materials.
  4. Removal of trash and debris.

### **3.4 GRADING**

- A. Uniformly grade areas within limits of the Work, including adjacent transition areas. Smooth subgrade surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
- B. Compaction: After grading, compact subgrade surfaces to the depth and percentage of maximum density required.

### **3.5 RESTORING AND RESURFACING EXISTING ROADWAYS AND FACILITIES**

- A. Pavement, gutters, curbs, walks, driveways, parking areas and roadways disturbed or damaged by the Contractor's operations shall be restored or replaced by the Contractor to original or better condition at no additional cost to the Department.
- B. After all other work has been completed in each area, restore areas as shown on Contract Drawing or as directed by the Engineer or Department.

**\* END OF SECTION \***

## SECTION 02240

### EXCAVATION, REMOVAL AND HANDLING OF CONTAMINATED MATERIALS

#### 1. GENERAL

##### 1.1 SCOPE OF WORK

- A. As summarized in the reports included in the Limited Site Data Summary Report, arsenic and lead are the primary contaminants of concern related to the site soil.
- B. The Contractor shall excavate, handle and dispose of contaminated soil as shown, specified and required to complete the Work. The Work shall consist of excavation of contaminated soil from the areas shown on the Contract Drawings, which consists of approximately 2,340 cubic yards of contaminated soil. Soil excavated shall be properly characterized prior to being removed and disposed of off-site in accordance with all applicable federal, state and local codes and regulations. The Department shall approve the Contractor's characterization of the soil.
- C. Excavation limits are depicted on the Contract Drawings.
- D. The Contractor shall establish a 25-foot grid network within the Contract Limits for use during construction. At areas near the Contract Limits, extra nodes may be required by the Engineer to properly delineate the limits of excavation. A minimum of four temporary benchmarks shall be established by the Contractor outside the Contract Limits for use during the work. All survey work required by the Contract shall consist of the measurement of spot elevations at each node of the grid network. Aerial surveys shall not be acceptable. The Contractor shall utilize grade stakes at each node of the grid network to measure the depth of excavation as work proceeds. Where visibly uneven grades are observed by the Engineer between grid nodes, extra grade stakes may be required for further delineation, as directed by the Engineer. Grade stakes shall be labeled by the Contractor with cut line and shall remain in place to allow for field inspection of the excavation depths.
- E. Related Work Specified Elsewhere:
  - 1. Spec 00004 – Surveys.
  - 2. Spec 00015 – Off-Site Transportation and Disposal.
  - 3. Spec 00019 – Clearing and Grubbing.
  - 4. Section 01050 – Field Engineering.

5. Spec 02120 – Demolition and Removals.
  6. Spec 02121 – Removal of Yard Waste, Trees, Scrap Metal and Debris.
  7. Section 02200 – Backfill and Compaction.
  8. Spec 02260 – Waste Transportation and Disposal.
  9. Spec 02350 – Steel Sheet Piling.
- F. All sheeting and shoring, and other work necessary to complete the required excavation work shall be conducted by the Contractor in accordance with these Specifications.
- G. Work shall follow the sequence of construction presented in the Contractor's approved Work Plan.

## **1.2 SUBMITTALS**

- A. Shop Drawings:
1. Submit plans of open cut excavations showing side slopes and limits of the excavation at grade, as applicable, where not shown on the Contract Drawings.

## **1.3 QUALITY ASSURANCE**

- A. Permits and Regulations: The Contractor shall perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Design Criteria:
1. All steel work for sheeting, shoring, bracing and other related work shall be in accordance with the provisions of the AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings," except that field welding will be permitted.
  2. The Contractor shall be wholly responsible for installing and operating the system used to accomplish the sheeting and bracing determined necessary by the Contractor to complete the Work, or otherwise required.

## 1.4 JOB CONDITIONS

### A. Existing Structures:

1. Shown on the Contract Drawings are certain utilities and surface and underground structures located on or adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete and is shown for the convenience of the Contractor. The Contractor shall explore ahead of the required excavation to determine the exact location of all structures and utilities. These structures and utilities shall be supported and protected from injury by the Contractor. If they are broken or injured, they shall be restored immediately by the Contractor at no additional cost to the Department.
2. Prior to execution of the Work, the Contractor shall check and verify governing dimensions and elevations. The Contractor and Department shall jointly inspect the condition of adjoining structures. Photographs and records shall be made of any prior settlement or cracking of structures, pavements, and the like, that may become the subject of possible damage claims.

### B. Existing Utilities:

1. The Contractor's attention is directed to the existing utilities running throughout the Work. The Contractor is required to take any and all precautions necessary to locate, support and protect these utilities during construction. All costs associated with protecting, supporting, locating, digging test pits, etc., of all utilities or process pipelines shall be included in the prices bid for all Work.
2. The locations of all utilities shown on the Contract Drawings are based on available information in the vicinity of the proposed work areas and are not guaranteed to be complete or accurate. The Contractor shall obtain utility markouts on all public and private properties in accordance with all local and state requirements where work under this contract is to be performed. Prior to any excavation or construction, the Contractor shall notify the Department, all utility companies and applicable agencies and request a markout of their lines and properties in the field in the area of the proposed work. In addition, on the project site (outside of public right-of-way), the Contractor shall provide the services of an independent utility markout service subcontractor qualified to locate and mark out all utilities in the vicinity of the work using the appropriate equipment and methods available prior to construction. The subcontractor shall survey (location/elevation) and prepare a utilities location as-built drawing for use by the Contractor in performance of the Work under this Contract.



3. Prior to any excavation, in addition to utility location and markouts performed by the Contractor, local and state required services and the independent markout service subcontractor, the Contractor shall accurately locate existing utilities by probing test holes and excavating test pits where existing underground utilities are known to exist in the vicinity of the new work and at maximum intervals of 25 feet along the route or within the area of the proposed work. The Contractor shall survey (location/elevation) and prepare an as-built drawing of all underground utilities encountered while constructing test pits and/or test hole probes for use in performance of the Work under this Contract. The Contractor shall backfill/restore the holes and pits, and mark out the existing utilities and take extreme caution against damaging the utilities during excavation or sheeting installation.
4. The Work shall include, in addition to constructing test probes/pits, excavating and backfill, temporary sheeting (as necessary), compacting and site restoration.
5. Schedules for maintenance of utility markouts on public and private property shall be consistent with New York State law throughout the duration of the Contract.
6. During construction/excavation, the Contractor shall locate each utility by hand digging methods prior to the use of mechanical excavation equipment. During construction/excavation, if the Contractor encounters evidence of suspected unmarked utilities, such as magnetic tape or other underground markers, the Contractor shall promptly determine the location of the suspected utility, if any, before proceeding with the Work. The Contractor shall cooperate with the Department and the utility companies involved to avoid delay or interference of service normally performed by their lines and properties.
7. The Contractor shall take extreme caution against damaging utilities when excavating, sheeting and backfilling, during construction of test probes and test pits, and while performing the Work required under this Contract.
8. The Contractor shall be responsible for all costs associated with pre-project construction utility survey(s)/markout(s), the construction of the test holes and test pit work, and utility as-builts for this project, as well as protection and hand digging operations to verify location of all utilities during construction.
9. Should uncharted or incorrectly charted piping or utilities be encountered during excavation, consult the Department in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of the Department at the Contractor's expense.

10. Do not interrupt existing utilities, except when permitted in writing by the Department.

C. Protection of Persons and Property:

1. Barricade open excavations greater than 2 feet in depth occurring as part of this Work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
2. Protect structures, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by the Contractor's operations.
3. Consult the Department and obtain its approval before removing or disturbing pipes, structures, or other facilities that are encountered on the line of the excavation.
4. Structures, utilities, sidewalks, pavements and other facilities removed or disturbed shall be replaced to their original condition at the Contractor's expense, unless otherwise shown, specified or directed.

D. Dust Control: The Contractor shall conduct all of his/her operations and maintain the area of his/her activities, including sweeping and sprinkling of roadways, so as to minimize creation and dispersion of dust. In addition, the Contractor shall be responsible for controlling dust caused by his/her operation of vehicles and equipment, clearing or for any reason whatever.

E. Odor Control: As an odor abatement measure, cover, at the end of each work day, all areas of organic or odorous material which were exposed during excavation with a minimum 6-inch and a maximum 24-inch deep layer of clean fill if so directed by the Department. Excavated organic or odorous material shall be immediately removed off-site and shall not be stockpiled on-site. Such material shall be properly characterized and disposed of off-site in accordance with all applicable federal, state and local regulations.

F. Roadways and Walks: Unless otherwise approved by the Department, excavated material and materials of construction shall be so deposited, and the Work shall be so conducted, as to leave open and free for vehicular traffic a roadway not less than 10 feet in width. All hydrants, valves, and other facilities which may require access during construction shall be kept accessible for use. During the progress of the Work, the Contractor shall maintain such roadways in satisfactory condition and the Work shall at all times be so conducted as to cause a minimum of inconvenience to the occupants of the facility and pedestrians.

## **2. PRODUCTS (NOT USED)**

## **3. EXECUTION**

### **3.1 INSPECTION**

- A. The Contractor shall provide the Department with sufficient time and means to examine the areas and conditions under which excavating, filling and grading are to be performed. Work shall not proceed until all unsatisfactory conditions have been corrected in a manner acceptable to the Engineer.

### **3.2 EXCAVATION**

#### **A. General:**

1. The Contractor shall perform all excavation required to complete the Work as shown and specified. All material excavated shall be non-classified and shall include all materials such as earth, sand, clay, gravel, hardpan, boulders, organic materials, rock, rubbish and all other materials within the excavation limits except as otherwise approved by the Engineer.
2. Excavations shall be open type, shored and braced where necessary to prevent injury to workmen and to new and existing structures or pipelines.
3. All excavations shall be made in the dry.
4. Temporary barricades shall be installed for all excavations greater than 2 feet in depth.
5. All equipment shall be decontaminated and free from debris, caked soil, contamination, and any other foreign materials prior to mobilization to the site. Equipment utilized during the remediation shall be decontaminated in accordance with the Contractor's Health and Safety Plan prepared for the project as well as the requirements outlined by Section 01658 ("Equipment Decontamination").

#### **B. Contaminated Materials Excavation:**

1. Excavation shall be made to the grades and extents shown on the Contract Drawings. Excavation shall be performed in a manner that will limit spills and the potential for contaminated material to be mixed with uncontaminated material. An excavation log describing visible signs of contamination encountered shall be maintained for each area of excavation. Excavation logs shall be prepared in accordance with ASTM D5434.

2. Excavation shall be accomplished by methods which preserve the undisturbed state of subgrade soils.
3. Excavation equipment shall be satisfactory for carrying out the work in accordance with the Specifications. Earth shall not be plowed, scraped, or dug with machines so near to the finished subgrade as to result in excavation of or disturbance of material below grade.
4. During final excavation to subgrade level, take precautions required to prevent disturbance of subgrade material.
5. When excavation has reached final depths, the Department shall be notified and will inspect conditions. If materials and conditions are not satisfactory to the Department, the Department will issue instructions as to the procedures for correction of the unsatisfactory condition.
6. Confirmation sampling shall be required as outlined in Section 01652 (“Sampling Plan”) and the NYSDEC’s DER-10. Backfill and compaction shall not be conducted in any excavation until the limits of the excavation and the locations of the documentation samples are surveyed and are approved by the Department.
7. Excavation confirmation soil sample locations shall be staked out for the Engineer’s approval prior to sampling in accordance with the NYSDEC’s DER-10 as follows:
  - a. For excavations 20 to 300 feet in perimeter:
    - 1) One sample will be collected from the top of each sidewall for every 30 linear feet of sidewall.
    - 2) One sample will be collected from the excavation bottom for every 900 square feet of bottom area.
  - b. For excavations greater than 300 feet in perimeter, the proposed sampling frequency considered adequate for documentation of the effectiveness of soil removal will consist of the following:
    - 1) One sample will be collected from the top of each sidewall for every 100 linear feet of sidewall.
    - 2) One sample will be collected from the excavation bottom for every 2,500 square feet of bottom area.

Upon approval from the Engineer, the Contractor shall collect the excavation confirmation soil samples. The Contractor shall notify the Department at least 72 hours in advance of any confirmation sampling activities.

8. Groundwater or standing water in excavations must be removed, treated and properly disposed prior to the collection of confirmation samples. Standing water from precipitation events in the excavation must be removed and disposed of appropriately at the Contractor's own expense.
9. In the event that bedrock is encountered in an excavation, the Department shall assist the Contractor in determining the locations of the confirmation soil samples in that area.
10. The Contractor shall collect enough sample volume to split samples with the Engineer and/or Department, if requested.
11. The samples shall be sent to the laboratory for analysis via overnight shipment. The laboratory shall analyze the samples within 48 hours. The results of the analysis shall be emailed, telecopied or telephoned to the Contractor, who shall report the results to the Engineer within 4 hours after receipt. All samples shall be analyzed for lead and arsenic in accordance with USEPA SW-846 Method 6010B and with the Contractor's Department-approved Sampling Plan (refer to Section 01652).
12. Backfill and compaction shall not be conducted until satisfactory confirmation sample results, DUSR reports and surveyed excavation drawings are approved by the Engineer, unless otherwise shown or specified. The Contractor will be permitted to backfill excavation areas prior to obtaining the Engineer's approval; however, the Contractor does so at his/her own risk. If confirmation sample analyses indicate that contamination remains at levels exceeding soil cleanup criteria, additional material shall be excavated to the depths and extents specified by the Engineer and the Department. Additional confirmation sampling will be required at the frequency specified for excavation confirmation sampling (See 3.2.B.7 above).
13. The Contractor shall continue to work in other areas of the site while awaiting confirmation sample results. The Contractor shall make no claims due to stoppage of work as a result of confirmation sample results delivery or the Engineer's review of confirmation sample results, DUSR reports and surveyed excavation drawings.

C. Unsuitable Excavation:

1. If any over excavation occurs through error of the Contractor or for the Contractor's convenience, the over-excavated material shall be disposed of off-site at the Contractor's expense, in accordance with all applicable federal, state and local laws and regulations, as well as the requirements of these Contract Documents. The over-excavation shall be refilled at the

Contractor's expense with concrete, select fill or other material satisfactory to the Department.

2. If the Contractor fails to properly dewater the excavation or trench, or disturbs the subgrade or otherwise fails or neglects to conduct the excavation work in a manner that provides surface of subgrade in proper condition for construction, the Contractor shall remove all disturbed material and replace it with concrete, select fill, or other approved material at his own expense. The condition of the subgrade shall be approved by the Department before any work is placed thereon.

### **3.3 SHEETING, SHORING AND BRACING**

- A. Refer to Section 02350, Steel Sheet Piling.

### **3.4 CONTAMINATED MATERIALS STORAGE**

- A. Excavated material shall be placed in temporary storage or taken off-site for disposal immediately after excavation. Temporary storage areas shall be located within the property line of the Site and shall be delineated by the Contractor in the approved Work Plan. Storage areas shall be in good condition and constructed of materials that are compatible with the material or liquid to be stored. Each storage area shall be clearly labeled with an identification number and a written log shall be kept to track the source of contaminated material in each area.
- B. Storage of excavated material outside the designated soil staging areas is prohibited without prior written approval by the Department.
- C. The following methods of storage are acceptable:
  1. Stockpiles
    - a. Excavated materials shall be stockpiled in the areas noted in the Contractor's Department-approved Work Plan. Stockpiles shall be located 10 feet or greater from property lines.
    - b. Stockpiles shall be constructed to isolate stored contaminated material from the environment. The maximum stockpile height shall be 10 feet. Each stockpile shall be labeled with an identification number identifying the material stored within the stockpile.
    - c. Diversion measures shall be employed, as depicted on the Contract Drawings, to prevent storm water run-on and run-off.

- d. A sealed geomembrane liner and cover shall be used to prevent cross-contamination of existing ground surface, precipitation from entering the stockpile and emissions and dust from escaping. The minimum thickness of the geomembrane liner shall be 40 mils and the sealed geomembrane cover shall be 20 mils. Control measures such as wetting the stockpile surfaces shall be employed to suppress dust. Only potable water shall be used for this purpose.

2. Roll-off Units

- a. Roll-off units may be used for temporary storage in lieu of stockpiling the material.
  - b. Roll-off units used to temporarily store contaminated material shall be watertight. A cover shall be placed over the units to prevent precipitation from contacting the stored material. Liquid which collects inside the units shall be removed and disposed off-site in accordance with all applicable federal, state and local laws and regulations.
- D. Storage and handling of contaminated soil must comply with all applicable NYSDEC solid waste regulations (6NYCRR Part 360) and hazardous waste regulations (6 NYCRR Part 370-376).
- E. Excavated soil may not be stored on-site for a period greater than 30 days from being removed from the ground.
- F. Spillage shall be minimized and contained for later off-site disposal in accordance with all applicable federal, state and local regulations.
- G. All materials used to protect underlying soil and adjacent areas during the soil removal and handling activities must be properly characterized and removed for proper off-site disposal in accordance with all applicable federal, state and local laws and regulations following completion of these activities. The Contactor shall obtain the Department's approval of the waste characterization and the disposal facility prior to any waste being transported off-site.

**\* END OF SECTION \***

## SECTION 02260

### WASTE TRANSPORTATION AND DISPOSAL

#### 1. GENERAL

##### 1.01 DESCRIPTION

- A. This specification is intended to expand upon the requirements contained in Standard Spec 00015 (“Off-Site Transportation and Disposal”).
- B. The Contractor shall furnish all labor, materials, supplies, equipment, power, facilities and incidentals necessary to containerize, label, sample, test, manifest, transport and dispose of all waste and materials generated by the Work, and designated by the Department for removal from the site, and any other materials as shown on the Contract Drawings and as directed by the Department.
- C. Containerizing, labeling, sampling, testing, manifesting, transporting and disposing of waste shall be performed in accordance with all applicable federal, state and local laws and regulations, including the NYSDEC’s solid waste regulations (6NYCRR Part 360) hazardous waste regulations (6 NYCRR Parts 370-376), as necessary, and the requirements of the disposal facility.
- D. The Contractor shall prepare and issue all notifications, and apply for and obtain all permits and approvals required to complete the Work. All fees for licenses, permits, tolls, approvals, taxes, etc. shall be the responsibility of the Contractor.
- E. The Work shall be performed in accordance with all approved plans.
- F. Materials removed from the site shall be transported directly to facilities, which have received prior approval of the Department.
- G. All waste transportation activities shall be performed in accordance with all applicable federal, state and local laws and regulations, including the NYSDEC’s waste transporter permit regulations (6 NYCRR Part 364).

#### 2. PRODUCTS (NOT USED)

#### 3. EXECUTION

- A. The Contractor shall provide all required notifications to federal, state and local agencies prior to transporting material off-site. Copies of all notifications issued by the Contractor shall be transmitted to the Department at the time of issuance.



- B. Hazardous materials removed from the site shall not be combined with non-hazardous material. Material characterized as hazardous waste shall not be combined with any other material.
- C. The Contractor shall be responsible for all sampling and analyses required for proper waste characterization for disposal. All sampling shall be conducted with the Engineer present. The Contractor shall be required to obtain approval from the Department of the sampling and analytical methods and the analytical laboratory to be used (refer to Section 01652, Sampling Plan of the Supplementary Specifications). The results of all analyses shall be submitted to the Department and the Department must approve the Contractor's indicated characterization prior to removal of any material from the site. The time and date of collection and sample identification numbers shall be clearly indicated on the results of analyses furnished to the Department.
- D. The Contractor shall complete all required manifest forms and bills of lading as required by applicable laws and regulations for transportation and disposal of materials off-site. The Department shall obtain the USEPA-required generator identification number for the site. The Contractor shall provide all required manifests and bills of lading to the Department along with all requested backup documentation. The Engineer shall sign manifests and bills of lading for the Department. However, the Contractor shall be responsible for assuring that all notifications, labeling, documentation, sampling, analysis, transportation and disposal requirements of the disposal facility, and federal, state and local governments are complied with and properly documented. Waste manifests submitted to the Department and Engineer shall be furnished with a certification signed by the Contractor stating that all requirements of the disposal facility, and federal, state and local governments are complied with. The Engineer and Department will not sign any documents unless explicitly required by federal, state and/or local laws or regulations.
- E. In accordance with the approved Work Plan, the Contractor shall provide letters of commitment from all disposal facilities to the Department. The letters of commitment shall state that the facility is able to accept the waste which the Contractor intends to ship to the facility. In addition, the Contractor shall provide letters of commitment from the waste transporter indicating that the transporter is able to transport the manifested waste to the selected disposal facility.
- F. Vehicles used to transport materials shall be designed, equipped, operated and maintained to prevent leakage, spillage or airborne emissions during transport. The containers shall be lined with 10-mil polyethylene sheeting prior to loading if not liquid tight. All vehicles shall be decontaminated as specified in Section 01658 ("Equipment Decontamination"), including truck tires and undercarriages, prior to leaving the site. The Contractor shall be responsible for supplying all labor, materials, equipment and supplies for decontaminating the vehicles used and shall be responsible for off-site disposal of wastes resulting from decontamination.

- G. Prior to departure from the site of each vehicle transporting waste, a decontamination certificate signed by the Contractor's site superintendent shall be submitted to the Department. The certificate shall include:
1. The date and time of departure and the vehicle license number;
  2. A statement that no contaminated soil or other contaminated material is adhering to the vehicle body, tires or undercarriage and no soil will be tracked off site onto public roadways;
  3. A statement that the vehicle container is lined with plastic sheeting (if not liquid tight) and is not leaking or dripping liquids;
  4. A statement that the contents of the vehicle are covered or completely enclosed so as to prevent any releases of vapors or particulate matter; and
  5. The route of transport and location where the waste is being transported to.
  6. If waste is leaking from any container or vehicle departing the site, that vehicle or container shall return to the site prior to leaving the decontamination pad for stabilization, drying or removal of free liquids. Waste containing free liquids shall only be removed from the site in liquid-tight containers. Lined roll-off containers and the like are not considered liquid tight. Any liquid spilled on the site shall be removed with verification sampling, to the Department's satisfaction in accordance with the Specifications.
- H. Certified weigh tickets showing the weight of the vehicle at the time of arrival and departure from the disposal facility shall be provided as a prerequisite to payment for all material transported off-site. The weight tickets shall be signed and dated by a representative of the Contractor certifying to the accuracy of all measurements, the date and time of arrival and departure of each vehicle, the disposal location and the vehicle identification number.

**\* END OF SECTION \***

## SECTION 02350

### STEEL SHEET PILING

#### 1. GENERAL

##### 1.1 DESCRIPTION

###### A. Scope:

1. The Contractor shall provide all labor, equipment, materials and incidentals as shown, specified and required to furnish and install steel sheet piling.
2. The Contractor shall be wholly responsible for installing and operating the system used to accomplish the sheeting and bracing shown on the Drawings, or otherwise required.
3. The Contractor shall engage the services of a qualified Registered Professional Engineer licensed in the State of New York to design the steel sheet piling as required for the proper execution of the work, and submit the Professional Engineer's calculations to the Department for review.

###### B. Extent of the steel sheet piling shall be determined by the Contractor and approved by the Engineer, and may include, but is not limited to, the following:

1. Steel sheet piling necessary to protect existing structures, roads, walkways, utilities, and other improvements against loss of ground or caving embankments without producing damage to the adjacent building structures, roads and/or utilities during excavation activities.
2. Maintenance of the steel sheet piling and support systems.
3. Removal and/or relocation of bracing as required.
4. Prevent surface water from entering excavations if determined necessary by the Contractor.
5. Monitor vibrations, settlements and movements.

###### C. The configurations of the steel sheet piling may include, but are not limited to, the following:

1. Steel sheet piling with walers and struts.

2. Tied back steel sheet piling.
3. Cantilevered steel sheet piling.

D. Related Sections:

1. Section 02112 – Excavation, Removal and Handling of Contaminated Material in Wetlands and Lake Areas.
2. Section 02240 – Excavation, Removal and Handling of Contaminated Materials.

## 1.2 QUALITY ASSURANCE

A. Reference Standards and Codes: Comply with applicable provisions and recommendations of the following except as otherwise shown or specified:

1. ASTM A 36, Structural Steel.
2. ASTM A307, Carbon Steel Externally and Internally Threaded Standard Fasteners.
3. ASTM A 328, Steel Sheet Piling.
4. AWS, Structural Welding Code.

B. Qualifications for Welding Work:

1. Qualify welding processes and welding operators in accordance with AWS “Structural Welding Code” D1.1, Section 5, Qualification.
2. Provide certification that all welders employed on or to be employed for the Work have satisfactorily passed AWS qualification tests within the previous 12 months. The Contractor shall ensure that all certifications are kept current.

C. Examination of the Site: Prior to starting steel sheet pile installation, the Contractor, Department and Engineer shall make a joint inspection of the existing structures.

## 1.3 SUBMITTALS

A. Schedule of Procedures and Operations: Before commencing any steel sheet pile installation, the Contractor shall submit to Department for approval, a schedule of the procedures he intends to use. The schedule shall show, in detail, his proposed method, sequence and timing of all steel sheet piling driving operations, catalog data

and manufacturer's specification for all hammers and anvils to be used, and method of lifting, handling, driving and cutting off of steel sheet piles. The submission of the Contractor's details and other information to the Department shall not relieve the Contractor of any part of his responsibility for the successful completion of the Work.

B. Shop Drawings: Submit for approval Shop Drawings including the following:

1. Layout drawings indicating all structural shapes, sizes and dimensions.
2. Excavation support. Prepare excavation support plan addressing the following topics:
  - a. Details of shoring, bracing, sloping, or other provisions for worker protection from hazards of caving ground.
  - b. Design assumptions and calculations.
  - c. Proposed configuration of combination of driven or drilled-in piling, walers, struts, tieback anchors and beams for bracing and lateral support as required to support the excavation. The relationship of the excavation support wall, walers, and tiebacks to existing buildings, other structures, utilities, streets and new construction shall be clearly indicated.
  - d. Methods and sequencing of installing excavation support.
  - e. Proposed locations of stockpiled excavated or demolished material.
  - f. Protection of existing facilities including underground utilities during installation of excavation support.
  - g. Utility locations shall be clearly shown.
  - h. Minimum lateral distance from the crest of slopes for vehicles and stockpiled excavated materials.
  - i. Anticipated difficulties and proposed resolutions.
  - j. Method and sequencing of backfilling and removing excavation support after construction of permanent works or backfill.
  - k. The submittal showing all the above information shall be prepared by a qualified Registered Professional Engineer licensed in the State of New York and shall bear his seal and signature.

3. Movement Monitoring Plan. Prepare a movement monitoring plan addressing the following topics:
  - a. The name and qualifications of the licensed surveyor responsible for all monitoring. The surveyor shall be licensed in the State of New York.
  - b. Survey control points and benchmarks.
  - c. A description of the monitoring points including sketches and product descriptions as necessary, installation procedures, and reading of the point.
  - d. Proposed accuracy of the monitoring.
  - e. A schedule for installation reading and monitoring the points.
- C. Submit for approval copies of manufacturer's specifications and installation instructions for products listed below. Include laboratory test reports and other data as required to show compliance with these specifications.
  1. Structural steel of each type, including certified copies of mill reports covering the chemical and physical properties.
  2. High-strength bolts of each type, including nuts and washers.
  3. Unfinished bolts and nuts.
- D. Submit for approval the following prior to commencing Work:
  1. Sample driving record forms.
  2. Details of pile driving equipment.
  3. Qualifications of tieback subcontractor.
- E. Informational Submittals:
  1. Movement Monitoring Data: Movement measurement and data and reduced results indicating movement trends. Submit records weekly.
  2. Daily Log and Record: At the end of each working day, submit two copies of each record for piling or lateral bracing installed that day.

## **1.4 DESIGN CRITERIA**

- A. All ground support system elements including sheeting, shoring, and bracing of excavations shall conform to the requirements of Subpart P, Excavations (1926.650 of 29 CFR) of the Occupational Safety and Health Administration (OSHA).
- B. The design shall not encroach upon the property lines adjacent to the project site. If tiebacks are used for lateral support, tieback lengths shall be designed not to encroach upon these property lines.
- C. The design shall coordinate with existing and new relocated utilities around the proposed excavation areas. Potential construction constraints from utilities shall be incorporated in the support system design.
- D. Design shall coordinate with existing structures.
- E. The support system shall be designed by a Professional Engineer registered in the State of New York.

## **2. PRODUCTS**

### **2.1 MATERIALS**

- A. Steel sheet piling shall conform to the requirements of ASTM A 328.
- B. Walers, braces, structures, tie-rod assemblies, plates and similar members shall conform to the requirements of ASTM A 36.
- C. Bolts, nuts and washers shall conform to the requirements of ASTM A 307.

### **2.2 FABRICATION**

- A. Steel sheet piling shall be so fabricated that when driven in place, it will form a continuously interlocked wall for each structure to the extent determined necessary. Steel sheet piling shall be fabricated in one continuous length.
- B. Walers and braces may be prefabricated or fabricated in place. All welding shall conform to the requirements of AWS D1.1-80.

### **3. EXECUTION**

#### **3.1 INSPECTION**

- A. The Contractor and his installer shall examine the conditions under which Work is to be performed and notify the Department of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to the Department.

#### **3.2 INSTALLATION**

- A. Steel sheet piling shall be carefully located as determined necessary and driven in a plumb position, each sheet pile interlocking with the adjacent sheet pile so as to form a single continuous wall. Sheet piles shall be driven by approved methods in such a manner as not to subject the sheet piles to serious injury and to ensure continuous interlocking throughout the length of the sheet piles. Pile hammers shall be maintained in proper alignment during driving operations. A suitable guide system shall be used to permit the sheet piling to be driven plumb and on line. Any obstructions encountered in driving the steel sheet piling shall be removed or otherwise disposed of so as to permit the proper installation of the sheet piling. Any sheet piling, which at any time becomes damaged, displaced, separated from adjacent sheets or otherwise injured, shall be withdrawn and replaced with new sheet piling at the expense of the Contractor.
- B. Equipment: The Contractor shall provide and maintain in good operating condition, all equipment necessary for the proper and efficient handling and installation of the sheet piles. The Contractor shall have all major equipment items available for inspection by the Department. Any deficiencies in quality, quantity or type of equipment shall be corrected prior to commencing Work and such correction shall be a required condition to properly fulfill the Contract. This inspection and subsequent approval shall in no way relieve the Contractor from his obligation to provide all equipment required to properly perform the Work.
- C. Hammers: Pile hammers shall be steam, diesel, or air driven impact hammers. Vibratory type hammers may be used. Hammers shall be maintained in good operating condition and shall be operated at the manufacturer's rated number of blows per minute. The lower end of the hammer shall be fitted with an anvil base that is built to fit the top of the steel sheet piling and to hold the sheet piling under the center of the hammer during driving.
- D. Tiebacks: The tieback subcontractor shall have had a minimum of five years experience in this type of work, and shall submit evidence of successful completion of at least five generally similar projects. His staff shall include at least one Registered Professional Engineer licensed to perform work in the State of New York. In addition, he shall have on his staff, a supervising engineer for this project,



having at least five years of design and construction experience in this type of work, and an experienced foreman or superintendent. The Contractor shall be responsible for obtaining the desired tieback capacity. The tiebacks shall be successfully tested before the excavation is taken to a greater depth.

- E. Driving Records: Steel sheet piling shall be driven only in the presence of the Engineer. The Contractor shall provide a qualified individual to compile and turn over to the Engineer a daily record of driving data. The complete record of each day's activity shall include:
1. The number of sheet(s) installed;
  2. The length of each sheet installed;
  3. Equipment and personnel utilized, and general remarks regarding the day's activity;
  4. Vibration monitoring results; and
  5. General remarks regarding the day's activity.

### **3.3 MONITORING**

- A. Before starting Work, the Contractor shall check and verify governing dimensions and elevations. In company with the Department and Engineer, he shall jointly survey the condition of adjoining structures. He shall take photographs, as hereinbefore specified, recording any prior settlement of cracking of structures, pavements, and other improvements. He shall prepare a list of such damages, verified by the photographs, and signed by the Contractor, the Department representative and the Engineer participating in the investigation.
- B. The Contractor shall survey adjacent structures and improvements, establishing exact x, y and z coordinates at fixed points to act as benchmarks. He shall clearly identify benchmarks and record existing elevations. Datum level used to establish benchmark elevations shall be located at a sufficient distance so as not to be affected by movement resulting from excavation or construction operations.
- C. During excavation, the Contractor shall resurvey benchmarks weekly, employing a New York State licensed Land Surveyor or registered Professional Engineer. He shall maintain an accurate log of surveyed elevations for comparison with original elevations. He shall promptly notify the Engineer if changes occur or if cracks, sags or other damage is evident.
- D. Perform a minimum of three initial readings on each monitoring point to establish a baseline. Consider variations in temperature or other environmental factors which

could affect the readings. Present a baseline reading report to the Department which clearly shows how the baseline readings were used to establish a single value for comparison to subsequent readings. At the discretion of the Department, perform additional baseline readings to further confirm the value. Additional readings shall be at no cost to the Department.

- E. Accuracy of both the vertical and horizontal monitoring shall be a minimum of 0.05 inches.
- F. Action Levels: Utilize a warning limit of 0.25 inches. For any monitoring point that reaches the warning limit, immediately report the date to the Department. Propose contingency plans that will prevent continued movement that could exceed the maximum limit. For any monitoring point that reaches 0.50 inches, the Contractor shall immediately stop the work, re-evaluate the design, make necessary adjustment to the excavation support system, and implement the remedial solutions proposed in the approved contingency plan that would prevent further movement.
- G. For settlement monitoring, utilize standard leveling methods. For horizontal movement, utilize an EDM Shoring.

### **3.4 SHEETING LEFT IN PLACE OR REMOVED**

- A. All sheeting and bracing shall be removed. Any sheeting or bracing which must be left in place shall be cut off at least 3 feet below the finished ground surface, or as directed by the Engineer.
- B. The Contractor shall take all reasonable measures to prevent loss of support beneath and adjacent to pipes when sheeting is removed. If significant volumes of soil cannot be prevented from clinging to the extracted sheets, the voids shall be continuously backfilled as rapidly as possible.
- C. All temporary sheeting shall be decontaminated in accordance with Section 01658 (“Equipment Decontamination”), prior to removal from the site. If temporary sheeting is utilized for more than one on-site excavation, the sheeting shall be decontaminated between each use.

**\* END OF SECTION \***

## SECTION 02485

### SEEDING

#### 1. GENERAL

##### 1.01 SUMMARY

- A. The Contract Drawings contain information on the required seed mixes and applicable notes related to the installation of the seed mixes. All seeding shall be applied with an engineered wood fiber hydromulch. This section specifies a hydraulically-applied engineered wood fiber mulch composed of long strand, thermally refined wood fibers, crimped, interlocking man-made fibers and performance enhancing additives. The hydromulch requires no curing period and upon application forms an intimate bond with the soil surface to create a continuous, porous, absorbent and flexible erosion resistant blanket that allows for rapid germination and accelerated plant growth.
- B. Areas of the site which are backfilled during periods outside the time of seeding requirements shall be temporarily stabilized until permanent vegetation can be established. The Contractor shall submit to the Engineer for approval the method of temporary stabilization prior to initiating excavation activities.
- C. Related Sections: Other Specification Sections which directly relate to the work of this Section include, but are not limited to, the following:
  - Section 02112 – Excavation, Removal and Handling of Contaminated Materials in Wetlands and Lake Areas
  - Section 02113 – Soil Erosion and Sediment Control
  - Section 02200 – Backfill and Compaction
  - Section 02240 – Excavation, Removal and Handling of Contaminated Materials
  - Section 02487 – Planting
- D. Seeding in the wetlands areas shall be done in accordance with the Contract Drawings and Section 02488, Wetlands and Lake Bottom Restoration.

##### 1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions. Include required substrate preparation, list of materials, and application rate.
- B. Certifications: Manufacturer shall submit a letter of certification that the seed, hydromulch and fertilizer products meet or exceed all physical property, endurance, performance and packaging requirements.

### 1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials and products in UV and weather resistant factory labeled packages. Store and handle in strict compliance with manufacturer’s instructions and recommendations. Protect from damage from weather, excessive temperatures, and construction operations.

## 2. PRODUCTS

### 2.01 HYDROMULCH

- A. Acceptable Manufacturer: PROFILE Products LLC, 750 Lake Cook Road – Suite 440, Buffalo Grove, IL 60089, Phone - 800-366-1180, Fax - 847-215-0577, website – www.profileproducts.com, or approved equal.
- B. Hyrdomulch shall conform to the following property values when uniformly applied at a rate of 3,500 pounds per acre (3,900 kilograms/hectare) under laboratory conditions.

	TEST METHOD <sup>1</sup>	ENGLISH	SI
<b>Physical</b>			
Mass Per Unit Area	ASTM D6566	11.5 oz/yd <sup>2</sup>	390 g/m <sup>2</sup>
Thickness	ASTM D6525	0.19 in	4.8 mm
% Ground Cover	ASTM D6567	99%	99%
Water Holding Capacity	ASTM D7367	1,500%	1,500%
Color (fugitive dye)	Observed	Green	Green
<b>Endurance</b>			
Functional Longevity	Observed	≤ 18 months	≤ 18 months
<b>Performance</b>			
Cover Factor <sup>2</sup> (3"/hr)	TTI <sup>4</sup>	0.003	0.003
% Effectiveness <sup>3</sup>	TTI <sup>4</sup>	99.7%	99.7%
Cover Factor	ASTM D 6459 <sup>5</sup>	0.001	0.001
% Effectiveness <sup>3</sup>	ASTM D 6459 <sup>5</sup>	99.9%	99.9%
Shear Stress	ASTM D7207	1 lb/ft <sup>2</sup>	48 Pa
Vegetation Establishment	ASTM D7322	800%	800%

1. ASTM test methods developed for Rolled and Hydraulic Erosion Control Products.
2. Cover Factor is calculated as soil loss ratio of treated surface versus an untreated control surface.
3. % Effectiveness = One minus Cover Factor multiplied by 100%.
4. TTI (Texas Transportation Institute) - large scale indoor rainfall simulator/2H:1V slopes, three - ½ hr. events on sandy soils. Clay soil values: Cover Factor – 0.001, Percent Effectiveness – 99.9%.
5. Large scale rainfall simulator/test beds in conformance with “Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Hillslopes from Rainfall Erosion”.

- C. Composition: All components of the hydromulch shall be pre-packaged by the manufacturer to ensure material performance and in compliance with the following values. **Under no circumstances will field mixing of additives or components be accepted.**

Thermally Processed Wood Fibers – 74.5% ± 3.5%

Proprietary Crosslinked Hydro-Colloid Tackifiers and Activators – 10% ± 1%

Proprietary Crimped, Man-Made Interlocking Fibers – 5% ± 1%

Moisture Content – 10.5% ± 1.5%

- D. Packaging:
- Bags: Net Weight - 50 lb, UV and weather-resistant plastic film
- Pallets: Weather-proof, stretch-wrapped with UV resistant pallet cover  
40 bags/pallet or 1 ton/pallet

## 2.02 TOPSOIL

- A. Topsoil shall comply with Section 2487 (“Planting”) of the Supplementary Specifications.

## 2.03 SEED MIXES

- A. Seed mixes are indicated on the Contract Drawings.

## 2.04 FERTILIZER

- A. Composition:
- Commercial granular fertilizer shall have the following composition by weight: ten (10) percent Nitrogen; six (6) percent Phosphorus; four (4) percent Potassium. The Nitrogen shall be fifty (50) percent organic (from organic sources, e.g., fish meal, dried blood, dried manure, activated sewage sludge, castor pomace, cottonseed meal, etc.) and fifty (50) percent inorganic. The elements shall be available according to the methods adopted by the Association of Official Agricultural Chemists.
- B. Packaging:
- Fertilizers shall be packed in the manufacturer’s standard containers weighing not over one hundred (100) pounds each with the name of the material, net weight of contents and the manufacturer’s name and guaranteed analysis appearing on each container.

### **3. EXECUTION**

#### **3.01 TIME OF SEEDING:**

- A. Seeding shall be performed within the timeframe of April 1 to May 31 and from August 16 to October 15 unless otherwise indicated or approved. The Contractor shall notify the Engineer at least 48 hours in advance of the time he/she intends to begin seeding and shall not proceed with such work until permission has been granted.
- B. If permanent seeding cannot be performed within the prescribed dates, the Contractor shall apply temporary seed and mulch to the completed areas as follows at no additional cost to the Department. For the period between May 31 and August 15, the temporary seed shall be Annual Ryegrass applied at a minimum rate of 40 pounds per acre, uniformly mulched with hay at a minimum rate of 2 tons per acre and secured with mulch anchorage in accordance with the manufacturer's recommendations. For the period between October 15 and April 1, the temporary seed shall be winter rye or winter wheat applied at a minimum rate of 180 pounds per acre, uniformly mulched with hay at a minimum rate of 2 tons per acre and secured with mulch anchorage in accordance with the manufacturer's recommendations. Temporary plant materials shall be cut and removed or otherwise killed back prior to placement of final cover materials and permanent seedings at no additional cost to the Department. The use of pesticides or herbicides for this purpose is prohibited.

#### **3.02 SUBSTRATE AND SEEDBED PREPARATION**

- A. Examine substrates and conditions where materials will be applied. Apply product to geotechnically stable slopes that have been designed and constructed to divert runoff away from the face of the slope. Do not proceed with installation until satisfactory conditions are established.
- B. Depending upon project sequencing and intended application, prepare seedbed in compliance with the Contract Drawings and the following:

Section 02112 – Excavation, Removal and Handling of Contaminated Materials  
in Wetlands and Lake Areas

Section 02113 – Soil Erosion and Sediment Control

Section 02200 – Backfill and Compaction

Section 02240 – Excavation, Removal and Handling of Contaminated Materials

Section 02487 – Planting

#### **3.03 INSTALLATION**

- A. Strictly comply with manufacturer's installation instructions and recommendations. For optimum pumping and application performance use approved mechanically agitated, hydraulic seeding/mulching machines with a fan-

type nozzle (50-degree tip). Apply hydromulch from opposing directions to achieve best soil coverage.

B. Erosion Control and Revegetation:

For maximum performance, apply hydromulch in a two-step process:

Step One: Mix and apply seed and soil amendments with small amount of hydromulch for visual metering.

Step Two: Mix and apply hydromulch at a rate of 50 lb per 125 gallons (23 kg/475 liters) of water over freshly seeded surfaces. Confirm loading rates with equipment manufacturer. Do not leave seeded surfaces unprotected, especially if precipitation is imminent.

Depending upon site conditions, hydromulch may be applied in a one-step process where all components may be mixed together in single tank loads. Consult with manufacturer for further details.

C. Mixing:

A mechanically agitated hydraulic-application machine is recommended:

- i. Fill tank to middle of agitator shaft or tank about 1/3 full of water. Turn on pump to wet or purge lines. Begin agitating. Keep adding water slowly while adding the hydromulch at a steady rate.
- ii. Consult application and loading charts to determine number of bags to be added. Mix at a rate of 50 lbs. of hydromulch per 125 gallons (23 kg/475 liters). Contact equipment manufacturer to confirm optimum hydromulch mixing rates.
- iii. All hydromulch should be loaded when the tank is approximately 3/4 full.
- iv. Fertilizer should be added once the tank is nearly full.
- v. Before applying, mix the slurry for at least 10 minutes after adding the last amount of hydromulch. This is very important to fully activate the bonding additives and to attain proper viscosity.
- vi. Turn off recirculation valve and reduce agitator speed to minimize potential for air entrainment within the slurry.

D. Application:

Use a fan-type nozzle (50-degree tip) whenever possible for best soil surface

coverage. Apply hydromulch from opposing directions to soil surface, reducing the “shadow effect” and assuring a minimum of 95% of soil surface coverage. Slope interruption devices or water diversion techniques are recommended when slope lengths exceed 100 ft (30m) and/or slopes  $\geq 3H;1V$ . Install materials at the following minimum application rates:

<b>Slope Gradient/Condition</b>	<b>English</b>	<b>SI</b>
$\leq 3H$ to 1V	3,000 lb/ac	3,400 kg/ha
$>3H$ to 1V and $\leq 2H$ to 1V	3,500 lb/ac	3,900 kg/ha
$>2H$ to 1V and $\leq 1H$ to 1V	4,000 lb/ac	4,500 kg/ha
$>1H$ to 1V	4,500 lb/ac	5,100 kg/ha
As infill for TRM	3,500 lb/ac	3,900 kg/ha

Increase application rates on highly erosive soils or chiseled, disked, furrowed or tracked slopes.

Contact manufacturer for additional details.

Material should not be applied in channels, swales or other areas where concentrated flows are anticipated, unless installed in conjunction with a temporary erosion control blanket or non-degradable turf reinforcement mat.

After application, thoroughly flush the tank, pumps and hoses to remove all hydromulch material. Wash all material from the exterior of the machine and remove any slurry spills. Hydromulch will be more difficult to remove once it dries.

### **3.04 CLEANING AND PROTECTION**

- A. Clean spills promptly. Advise Department of methods for protection of treated areas. Do not allow treated areas to be trafficked or subjected to grazing.

**\* END OF SECTION \***



## SECTION 02487

### PLANTING

#### 1. GENERAL

##### 1.1 DESCRIPTION

###### A. Scope of Work:

1. This Section provides for furnishing and planting of trees and includes provisions for planting of shrubs and small caliper trees as specified herein.
2. The Contractor shall furnish all labor, materials, equipment, supplies and incidentals required for planting and maintaining, at a minimum, pine, fir, spruce and hemlock, balled and burlapped in the inland areas as specified herein and as directed by the Engineer and the Department. The trees shall be, at a minimum, 4 feet in height. Approval of the location of the trees by the Engineer shall be required prior to delivery to the site.
3. Planting in the wetland areas shall be done in accordance with Section 02488 (“Wetlands and Lake Bottom Restoration”) of the Supplementary Specifications.

###### B. Related Work Specified Elsewhere:

1. Section 02200 – Backfill and Compaction

##### 1.2 QUALITY ASSURANCE

###### A. Nomenclature:

1. The common and scientific names of plants shall be in conformity with the approved names by Standardized Plant Names prepared by the American Joint Committee on Horticultural Nomenclature 1942 Edition or its successor as the American Association of Nurserymen’s recognized authority on Botanical Nomenclature.

###### B. Standards:

1. Plants including root spread and ball size shall be in accordance with the current edition of “American Standard for Nursery Stock” (ANSI Z60.1), a code of standards sponsored by the American Nursery and Landscape Association, as modified herein and as otherwise specified.

C. Inspection:

1. All trees and shrubs shall be subject to inspection and approval of the Department at the growing site, but approval and marking at the growing site shall not obligate the Department to pay for any tree or shrub until it has been delivered and planted at the planting site in a satisfactory condition. The removal of nursery stock rejected at the planting site and its replacement in compliance with Specifications shall be made at no extra cost to the Department.
2. All plants shall be subject to inspection at any place and at anytime. The Contractor shall be represented at all inspections.

### 1.3 CERTIFICATIONS

A. Plant Material:

1. The Contractor shall be responsible for all certificates of inspection of plant materials which may be required by Federal, State or other authority to accompany shipment of plants. Certificates of Inspection shall be submitted to the Engineer for each shipment of plants at delivery.
2. Labeling shall be in accordance with normal nursery labeling practice except that the Contractor shall be required at any time to supply certification of positive identification of any plant species and/or variety in addition to those specified herein.
3. The Contractor shall submit certificates of material compliance before delivery of each type of fertilizer and the anti-desiccant to be supplied.

## 2. PRODUCTS

### 2.1 PLANTS

A. General:

1. Trees and shrubs shall have a normal habit of growth and be typically characteristic of their respective kinds. When a minimum and maximum size is specified, an average size is required. Plants shall not be pruned before delivery and no plants shall be cut back from larger sizes to meet the sizes specified. Plants shall be free from injury. Plants shall be nursery grown unless otherwise specified and bear evidence of proper nursery care normal to current nursery practice.

B. Abbreviations:

- Cal. - Indicates the caliper of the trunk of the tree
- B.R. - Indicates plants to be dug with bare roots
- B&B - Indicates plants to be balled and burlapped
- B&P - Indicates plants to be balled and platformed
- C.G. - Indicates container-grown plants
- P.G. - Indicates pot-grown plants

C. Substitutions:

1. No change of quantity, size, kind or quality of plants as specified will be accepted except upon written approval by the Engineer.

D. Digging and Handling:

1. Plants shall be dug with care and skill immediately before shipment. No cold storage plants will be accepted unless approved by the Engineer. Plants stored temporarily shall be properly heeled in or otherwise protected from injury. Digging shall avoid all possible injury to or loss of roots, but roots cut shall be cleanly cut.
2. After plants are dug, their roots shall be protected from injury such as caused by heat, sun, wind and freezing temperatures. All bare roots of trees, shrubs and vines shall be puddled at the time of digging unless otherwise approved by the Engineer. Puddling shall be done in a wet clay mixture, of a quality to adhere to all parts of the root system. Roots of bare root plants which have been thoroughly covered at the time of digging with an anti-desiccant will not require puddling. Bare roots shall be further protected by wrapping in wet straw, moss, burlap or other suitable material.
3. Burlap or other equivalent covers shall be placed over plants transported by open trucks or by open freight cars. Doors on closed trucks shall be kept closed to prevent drafts. Shipments made in boxcars or closed trucks shall be adequately ventilated to prevent "sweating." The heads of trees shall be tied in carefully to prevent fracturing or breaking the branches. Trunks and branches shall be adequately supported and padded to avoid scraping or bruising.

E. Trees and Shrubs:

1. Where ordered by the Engineer to replace a tree over 4 inches in caliper that has been removed in the inland areas, the Contractor shall furnish 2-inch to 2½-inch caliper trees, B&B and of Specimen Quality from the following approved list:

- a. *Pinus resinosa*
- b. *Pinus strobus*
- c. *Acer rubrum*
- d. *Abies balsamea*
- e. *Tsuga canadensis*
- f. *Rhus typhina*
- g. *Spiraea alba*
- h. Or as approved by the Engineer in Consultation with the Department and the Division of Fish, Wild Life and Marine Resources (DFWMR) Natural Resources Restoration Unit.

The species will be selected by the Engineer during construction based on review with the Department and DFWMR. The selection will be based on conformity to existing area planting and availability of the species.

2. Tress and shrubs in the wetland areas shall be planted in accordance with the Wetland Restoration Plan and Section 02488 (“Wetland and Lake Bottom Restoration”) of the Supplementary Specifications.
3. Nursery grown trees shall have no cuts of limbs which are not healing and no cuts over  $\frac{3}{4}$  inch which have not completely callused over, no cut back crowns and no abrasions of the bark. The center leader on all major trees shall be intact. Trees must have good fibrous root systems characteristic of the kind. The tops of deciduous trees shall be well formed structurally with reasonably straight trunks and normal spread of crowns.
4. Specimen Quality trees shall have straight trunks, single leader intact, having a minimum deviation from the vertical which is characteristic of the kind, with well branched, symmetrical tops and with the lower branches 6-7 feet from the ground.
5. Bare root trees shall not require earth adhering to the roots except as required for puddling.
6. Balled and burlapped trees shall be properly dug and protected to preserve the natural earth in contact with the roots. No manufactured balls will be accepted. The balls shall be of the required size, firmly wrapped and tied with minimum three-ply sisal or equal. No balled tree will be acceptable if the ball is cracked or broken.

7. Balled and platformed trees shall be balled as specified for (B&B) trees. Platforms shall be square or octagonal shaped of a size slightly larger than the diameter of the bottom of the soil mass inserted under each ball by means of ties from the platform corners to the rope collar on top of the ball.
  8. The quality of balled and burlapped shrubs shall be as specified for (B&B) trees herein. Shrubs shall have good fibrous root systems.
  9. Trees and shrubs shall be a minimum of 4 feet tall.
- F. Container Grown Plants:
1. The sizes of containers shall be as specified on the Contract Drawings or may have a root ball 25 percent less in diameter and depth than that specified for B&B material. A 15 percent tolerance will be allowed in diameter and depth provided that the volume of the resultant root ball is no less than the volume of the root ball as specified. This specification is intended to determine the size of the root ball produced from a container and is not to be construed as a determination of the actual dimensions of the container.
  2. Container grown plants shall exhibit a well-rooted condition which is evidenced by the firmness of the ball. The outside of the ball shall be well netted with healthy working roots which have not been restricted. Plants shall have been adequately hardened off before shipment.
  3. Containers shall be of such a shape as to permit easy removal of the plant and shall be rigid enough to maintain the shape of the ball. No plant will be accepted if the ball is cracked or broken.

## 2.2 TOPSOIL

- A. The topsoil shall consist of a fertile, friable, natural topsoil of loamy character, without admixtures of subsoil, uniform in quality and shall be free from refuse of any nature, hard clods, stiff clay, sods, hard pan, pebbles larger than  $\frac{3}{4}$ -inch in diameter, coarse sand, noxious weeds, sticks, brush, or other rubbish.
- B. The topsoil shall be taken from an approved source in accordance with the Specifications and the Contractor shall pre-qualify the source of supply prior to use at the site. Prequalification of topsoil shall follow the requirements of Specification Section 02200, Backfill and Compaction of the Supplementary Specifications.
- C. The topsoil shall be taken from a well-drained, arable site, preferably one which has been under cultivation at least 5 years previous to the time of removal.
- D. The topsoil shall contain neither less than 5 percent nor more than 20 percent organic matter, as determined by loss on ignition of oven-dried samples. The

samples shall be thoroughly oven-dried to constant weight at a temperature of 221°F.

- E. The Hydrogen Ion value of all topsoil shall be not less than 5 and not more than 7. After the testing of the samples of material, if the loam is found to be unsatisfactory for the intended use, the Department may require that the Contractor, without additional compensation, add to the topsoil proposed by him for use, lime, particular fertilizer or particular humus, as directed in order to make the topsoil suitable.
- F. Mechanical Analysis: The sieve analysis on an oven-dried sample shall be as follows:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1 inch	100
1/4 inch	97-100
#100	40-70
#200	minimum 20%

### **2.3 FERTILIZER**

#### **A. Composition:**

1. The fertilizer shall be a slow release type contained in polyethylene, perforated bags with micropore holes for controlled feeding. The bags shall contain 4 ounces of soluble fertilizer analysis 16-8-16 minimum per unit to last for 8 years. Minimum guaranteed analysis shall be a fertilizer containing nitrogen, phosphoric acid and potash in the ratio of 16-8-16 with approximately one-half the nitrogen in the ammonium form and one-half in the nitrate form.
2. Fertilizer on mulch shall be a mixed granular commercial fertilizer containing nitrogen, phosphoric acid and potash in the ratios of 10-6-4 as specified in Section 02485 (“Seeding”) of the Supplementary Specifications.

#### **B. Packaging:**

1. Fertilizer packets shall be packed in the manufacturer’s standard containers weighing not over 100 pounds each with the name of the material, net weight of contents and the manufacturer’s name and guaranteed analysis appearing on each container.

## 2.4 MULCH

### A. Wood Chips:

1. Wood chips for mulching plants may be either hardwood or softwood chips as produced by any standard chipping machine. No leaves, young green growth, wood shavings, sawdust or foreign materials which are injurious to plant growth shall be mixed with the chips. Chips shall be 1/8-inch nominal thickness with 50 percent having an area of not less than 1 square inch nor more than size 6 square inches.

### B. Peat Moss:

1. Peat moss shall be composed of the partly decomposed stems and leaves of any or several species of sphagnum moss. It shall be free from wood, decomposed colloidal residue and other foreign matter. Acidity range: 3.5 pH to 5.5 pH. Water absorbing ability shall be minimum 1,100% by weight on an oven-dry basis.

### C. Bedding Mulch:

1. Shall be composed of shredded cedar bark of medium chip size installed over a weed block unless otherwise directed by the Engineer.
2. Product and Manufacturer:
  - a. Western Decorative by Far West Forests, Fair Oaks, California.
  - b. Or equal.

### D. Weed Block:

1. Shall be Horticulture Fabric made of ultraviolet resistant woven Polypropylene weighing 3.3 ounces per square yard.
2. Product and Manufacturer:
  - a. Horticulture Fabric style 31211 (Ground cover) by N.Y.P. Corporation, Elizabeth, New Jersey.
  - b. Or equal.

## 2.5 WATER

- A. Water shall be from fresh water sources and free from soil, acids, alkalis, salt or any other substance injurious to plant growth. The Contractor shall be required to obtain the Department's approval of the source of water to be used.

## 2.6 PROTECTION OF PLANTS

### A. Stakes for Supporting Trees:

- 1. Stakes for supporting trees shall be of white or red cedar wood. Cedar stakes of 8 to 10 feet long shall have a minimum diameter of 2 inches. The maximum diameter of cedar stakes shall not exceed 3 inches and shall have a minimum allowable deflection of ½ inch for every 1 foot of length. All stakes shall be sound and free from insects and fungi. Length of stakes shall be as specified unless otherwise approved by the Engineer. Stakes shall be pointed.

### B. Guy Stakes:

- 1. Guy stakes used to anchor guy wires which support trees shall be of the quality and sizes required for the operations calling for their use.

### C. Wire:

- 1. Wires for guying plants shall be new annealed galvanized wire No. 12 and 10, AS&W gauge as specified and/or as shown on the Contract Drawings.

### D. Jute Burlap:

- 1. Jute burlap for wrapping trees shall be in 4-inch wide strips and weigh 8 ounces per square yard. Other material shall be as approved by the Engineer.

### E. Paper Wrapping:

- 1. Paper for wrapping trees shall be waterproof paper 30-30-30 kinklecraft or equal in 4-inch strips as approved by the Engineer.

### F. Hose:

- 1. Hose for protecting the bark from the guy wires shall be good quality braided rubber or reinforced materials. Hose shall be at least 3/4-inch outside diameter.



G. Twine:

1. Twine for use in wrapping trees shall be jute twine not less than two ply. Green plastic ties or masking tape as approved by the Engineer will be acceptable. Plastic ties shall be a minimum of ½ inch in width and shall have a smooth surface with the ability to stretch as the tree grows.

H. Anti-desiccants:

1. Anti-desiccants shall be emulsions which will provide a protective film over plant surfaces permeable enough to permit transpiration. Acceptable materials shall be wilt-pruf, vanex, or equal.

I. Tree Wound Dressing:

1. Tree wound dressing shall be antiseptic, waterproof, adhesive and elastic such as asphalt, gutta percha and certain oils with a fungicide and which remains tacky for four hours and retains elasticity after setting when tested under the heat of the hand. It shall not contain kerosene, coal tar, creosote or other material harmful to the living tissue of the trees.

### 3. EXECUTION

#### 3.1 GENERAL

A. Planting Seasons:

1. Unless otherwise approved, deciduous material shall be planted between March 1 and May 1, and from October 15 to December 15. Evergreen material shall be planted from March 1 to May 15 and from August 15 to December 15. Container grown plants shall be planted from March 1 to May 15 and between August 15 and December 15.

B. Obstructions:

1. In the event that rock or other underground obstructions are encountered in excavating plant pits, the pits shall be relocated as ordered by the Engineer.
2. In all locations where utilities are located, plant pits shall be dug by hand as ordered by the Engineer.

C. Delivery:

1. The Contractor shall give notice to the Engineer at least 48 hours in advance before delivering any plant material, unless otherwise approved. The

Engineer shall be furnished a legible copy of the invoice for every shipment showing sizes and kinds of materials included.

D. Storage:

1. All plants shall be properly protected from drying out. Such protection shall include the time when the plants are in transit, being handled or in temporary storage on the project. Bare root plants which are not planted immediately upon receipt shall be heeled-in in trenches with the bundles opened, the plants spaced separately and all roots covered. Balled plants shall have their earth balls protected by earth, wet cloth, straw or may be heeled-in as ordered by the Engineer. Plants not protected as specified which have not been planted within 2 calendar days of delivery shall be rejected unless otherwise approved by the Engineer.

### 3.2 GROUND PREPARATION

A. Layout:

1. Locations for plants and outlines of areas to be planted shall be marked out on the ground by the Contractor to the satisfaction of the Engineer before any pits or planting beds are dug.
2. The Contractor shall be held responsible for the proper location of each tree. Any species of tree planted in the wrong location shall be replaced with a new tree in the next succeeding planting season.

B. Size of Pits:

1. Unless otherwise specified the minimum diameter of plant pits shall be five times the diameter of the root ball. The depth of all pits shall be adequate to permit a minimum of 6 inches of planting soil under all roots and balls.
2. Where undesirable material is encountered in digging the pits, the pits shall be enlarged as approved and backfilled with acceptable material. When planting in wooded areas, the Contractor shall cut the existing vegetation or grub out an area twice the size of the plant pit as directed by the Engineer. In planting bed areas, existing vegetation shall be removed as directed.
3. Before excavating existing tree pits in locations where asphalt and/or stone block exist the Contractor shall, as directed by the Engineer, saw cut the asphalt, remove the stone block and reset the latter after trees are planted.

C. Drainage:

1. Where an impervious stratum of soil is encountered during the excavation of plant pits or planting beds, all such soil to a depth as approved by the Engineer shall be removed and backfilled with acceptable material.

D. Disposal of Excavated Materials:

1. Topsoil and subsoil excavation from tree pits and planting beds shall be disposed of off the site by the Contractor. Existing topsoil shall not be used for planting unless approved by the Department.

E. Planting Beds:

1. Unless otherwise specified, the depth of planting beds for shrubs shall be 18 inches deep. Depth of beds shall be taken from existing grades. Backfill material for planting beds shall be as indicated on the Contract Drawings.

F. Planting Soil:

1. Backfill soil for planting shall be topsoil except that for ericaceous plants backfill soil shall be topsoil and peat moss thoroughly mixed in the proportions of 2 to 1 respectively.

G. Fertilizer:

1. Fertilizer packets as described under "Materials" of this Specification, shall be placed in the plant pits prior to completion of backfilling. During the entire planting operation, the Contractor will not be allowed to use any damaged packets and he shall ensure that all packets remain undamaged. The fertilizer packets shall be placed 6 inches to 8 inches deep as follows:

a. Shrubs:

12 inches to 23 inches high	1 packet next to the ball
24 inches to 35 inches high	2 packets on opposite sides of the ball
3 feet to 6 feet high	3 packets equally spaced around the ball

b. Deciduous Trees:

1 inch to 1-3/4 inches caliper	2 packets on opposite sides of the ball
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2 inches to 2-1/2 inches caliper	3 packets equally spaced around the ball
2-1/2 inches to 3 inches caliper	4 packets equally spaced around the ball
3-1/2 inches to 4 inches caliper	5 packets equally spaced around the ball
4-1/2 inches to 6 inches caliper	6 packets equally spaced around the ball

c. Evergreens (excluding ericaceous plants [rhododendrons, etc.]):

2 feet to 5 feet high	2 packets on opposite sides of the ball
6 feet to 7 feet high	3 packets equally spaced around the ball
8 feet to 11 feet high	4 packets equally spaced around the ball
12 feet to 17 feet high	5 packets equally spaced around the ball
18 feet to 20 feet high	6 packets equally spaced around the ball

d. Large Shrubs and Small Trees:

6 feet to 9 feet high	2 packets on opposite sides of the ball
10 feet to 14 feet high	3 packets equally spaced around the ball

### 3.3 SETTING PLANTS

A. General:

- Plants shall be planted below existing grade as directed with a minimum saucer depth of 3 inches and a maximum saucer depth of 6 inches except as otherwise directed by the Engineer in grass areas and other areas where mulch will not be required. Saucer depth shall be in direct proportion to the size of plant. In planting beds, plants shall be planted 3 inches below proposed grade. Ericaceous plants may be required to be planted at existing grade as directed by the Engineer. Backfill material may be either carefully placed into plant pits in layers of approximately 4 inches in depth and firmly tamped before additional material is placed or backfill may be compacted by thorough watering. Regardless of which method is used, backfill soil for all plants shall be watered three times prior to mulching to ensure compaction of backfill, and backfill added as necessary.

B. Balled Plants (B&B, B&P, C.G.):

1. Root balls are to be planted with backfill carefully tamped or compacted by thorough watering under and around the sides of each ball to fill voids. Any material used to wrap the root balls of plantings shall be completely removed prior to planting.

C. Bare Root Balls:

1. Roots of B&R plants shall be properly spread out in a natural position and backfill soil shall be carefully worked in among them. All broken and frayed roots shall be cleanly cut off.

D. Wrapping:

1. Unless otherwise directed, the trunks of all deciduous trees over 1-1/2 inches in caliper shall be wrapped immediately after planting unless otherwise approved. Wrapping shall extend beyond the point where hose and wires pass around the tree trunk. Wrapping shall be a single layer of burlap bandage wound spirally, starting from the base and overlapping one and 1-1/2 inches. The wrapping shall be tied in place with twine, green plastic ties or masking tape at about 1-foot intervals.

E. Staking, Guying and Anchoring:

1. All trees shall be firmly staked or guyed at the time of planting as shown on the Standard Details on the Contract Drawings unless otherwise approved. Stakes shall be pointed and shall not injure plant balls. Wires used for tying the trunk to stakes or for guying shall be secured to the tree by passing through a rubber hose to prevent chafing and injury to the trees. Guy wires fastened to guy stakes shall be tightened by driving the stakes, leaving the wires to be twisted for tightening during the period of establishment.

F. Pruning:

1. Pruning shall be done as specified and as directed by the Engineer. Deciduous trees and shrubs shall be pruned to reduce the vegetative growth by one third of its total branching unless otherwise directed. Wood removed shall be inferior branches, competing branches, crossing branches and dead and damaged wood. The natural branching habit of the plant shall be adhered to at all times.
2. Container grown trees may be pruned at the time of potting to reduce the length of branches one third to one half. Minor pruning may be required at the time of planting.

3. Trees used in street tree plantings, parking areas and playground areas shall have all branches removed up to a height of 6 feet or as otherwise directed.
4. Tree wound dressing shall be applied on all pruning cuts exceeding one inch on deciduous trees.

G. Mulching:

1. Depth of mulch shall be 3 inches. Mulch shall completely cover the areas of all plant pits, planting beds and/or entire planted areas. Mulch shall be wood chips.
2. After planting is completed and as directed by the Engineer, fertilizer (10-6-4) shall be broadcast on all mulch, except mulch on ericaceous plants, at the rate of 0.015 pounds of nitrogen per square foot.
3. The Engineer may direct that mulching be omitted from around plant pits within designated grass areas. Where so directed, the area over the plant pit shall be restored in accordance with Section 02485 (“Seeding”) of this Specification.

H. Progress and Sequence of Planting:

1. All the provisions of Setting Plants shall be accomplished within 7 calendar days after the plant is set in the pit except that the Engineer shall take into consideration unexpected interruptions in work due to emergencies, storms, etc. severe enough to stop work. Scheduled non-work days such as weekends, holidays, etc. shall not be a reason for extending the 7-day limitation. The sequence of planting shall be as follows:
  - a. Wrapping, staking or guying and wiring.
  - b. Three waterings to ensure compaction of backfill and addition of backfill as necessary.
  - c. Mulching: If this sequence is not adhered to, and as a result the operations subsequent to setting and backfilling are not being accomplished within the specified time, the Engineer may stop all setting and backfilling of plants, and any other planting operations the Engineer may deem necessary, until such time as the Engineer is satisfied that the sequence of planting operations is again on schedule.

I. Restoration:

1. Areas disturbed by the planting operations shall be left in an orderly condition. Excess soil and rubbish shall be disposed of as directed. Grassed areas disturbed by planting operations shall be restored to a satisfactory condition which may include filling to grade, fertilizing and seeding.

### 3.4 CARE OF PLANTS

A. Care of Plants Prior to Satisfactory Completion of Planting:

1. The Contractor shall care for the planting which shall consist of keeping all plants in a healthy growing condition by watering, weeding, cultivating, pruning, spraying, tightening of guys, remulching and any other necessary operations as required until satisfactory completion of planting.
2. All plants shall be sprayed with an anti-desiccant. The anti-desiccant shall be applied according to the manufacturer's directions to thoroughly cover all above ground parts. The time of application shall be as follows, unless otherwise approved.
  - a. Evergreen - Apply within 10 days following planting.
  - b. Deciduous - Spring planting - apply when leaves have reached at least 75 percent of mature size.  
- Fall planting - apply in October and November when the temperature is 40°F or over.
3. All plants shall be watered at least once a week between April 1 and October 1 unless otherwise directed by the Engineer, until satisfactory completion of planting. Each watering shall provide not less than five gallons per square yard on plant pits and bed areas.
4. All dead and rejected plants shall be promptly removed from the Contract site. In the event of the threat of serious damage from insects, diseases or rodents, the plants shall be treated by preventive or remedial measures currently approved for good horticultural practice. In the event "heeled-in" material must be held over until a later planting season, such "heeled-in" material shall be lifted, replanted and maintained in a satisfactory condition in nursery rows. Such emergency storage and maintenance shall be at the entire risk of the Contractor and at no cost to the Department. The land for such storage shall be provided for by the Contractor unless otherwise specified or approved.
5. Grass and weed growth shall be removed from all plant pits and planting beds as directed by the Engineer. Prior to final acceptance of the planting,

the outer portions of tree pit saucers and all other disturbed areas, excluding planting beds, shall have acceptable evidence of grass growth unless otherwise directed by the Engineer. Seed used for this purpose shall be as specified under Section 02485 (“Seeding”) of the Supplementary Specifications or as approved by the Engineer.

B. Replacement Prior to Satisfactory Completion of Planting:

1. At the conclusion of the essential portion of the planting work, all plants in an unhealthy or badly impaired condition in the opinion of the Engineer, shall be removed and replaced in-kind. All planting to be completed or replaced shall be planted not later than the next succeeding planting season.

C. Final Inspection:

1. When, in the opinion of the Contractor, the planting is complete and ready for final inspection, he shall notify the Engineer who will arrange to give the entire work a thorough inspection. Before final payment will be made, any dead plants, defects or omissions noted on this inspection must be rectified by the Contractor to the Engineer’s satisfaction.

### **3.5 PERIOD OF ESTABLISHMENT**

A. Guarantee:

1. The Contractor shall guarantee the life of all plants for a period of 1 year after the Engineer has made his final inspection and the planting has been confirmed in writing by the Engineer as having been satisfactorily completed. Any plant which is damaged, destroyed or dies from whatever cause except theft or vandalism during the above period shall be replaced not later than the next succeeding planting season as specified upon written notice to the Contractor from the Engineer. Plants that have died during the period of establishment shall be replaced and shall be guaranteed for an additional year.

B. Care of Plants and Replacement During Period of Establishment:

1. Due to planting seasons, the Contractor shall be required to replace any damaged, destroyed or dead plant within the two planting seasons during the “Period of Establishment” which may entail replacing the same plant twice after satisfactory completion of planting.
2. The Contractor shall be responsible for all work required to care for the plants properly and make necessary replacements during the period of establishment, including watering, mulching, pruning, restaking and replanting. He shall maintain during this period a sufficient labor force at all



time to care for the plants in a proper manner and perform all necessary operations efficiently and expeditiously.

3. The Contractor shall be required to water all plant material a minimum of six times during the period of establishment. Each plant shall receive 5 gallons of water for each square yard of pit area. Watering shall be performed when plants are in active vegetative growth. If, in the opinion of the Engineer, unseasonable dry conditions exist, additional watering may be required as directed by the Engineer.
4. At the end of the "Period of Establishment", the Contractor shall remove and dispose of all stakes, wire, hose, and tree trunk wrapping from all trees as directed by the Engineer. All holes left due to removal of stakes shall be filled with topsoil. All of the above work shall be performed at no additional cost to the Department.
5. The Contractor shall notify the Department at least 72 hours in advance of any inspection and/or maintenance activities to be performed on-site during the "Period of Establishment."

**\* END OF SECTION \***

## **SECTION 02488**

### **WETLAND AND LAKE BOTTOM RESTORATION**

#### **1. GENERAL**

##### **1.1 DESCRIPTION**

###### **A. Scope of Work:**

1. The Contractor shall furnish all labor, materials, equipment, supplies and incidentals required for backfill, planting and restoration of impacted wetland and lake areas, as specified herein, as shown on the Contract Drawings and as directed by the Engineer and the Department. This shall include, but is not limited to, restoration of the pre-excavation hydrologic regime, backfilling of excavated wetland and lake areas to proposed final grades, and planting of shrubs and herbaceous species to restore the wetland vegetative cover.
2. Once restoration is complete and accepted by the Department, the Contractor shall provide post-restoration monitoring services, including but not limited to soil sampling, vegetation surveys, water level measurements and all associated reporting, as specified herein. Provision for one year of post-restoration monitoring services is included in this Contract.
3. This specification is based on the Wetland Restoration Plan for the Glenmere Lake Property prepared by EcoLogic, LLC which shall be used as a guide for performing the wetlands restoration work. A copy of the Wetlands Restoration Plan is included in the Limited Site Data Summary Report.

###### **B. Related Work Specified Elsewhere:**

1. Section 02112 – Excavation, Removal and Handling of Contaminated Materials in Wetlands and Lake Areas
2. Section 02200 – Backfill and Compaction
3. Section 02487 – Planting

##### **1.2 QUALITY ASSURANCE**

- ###### **A.**
- The Contractor shall retain the services of a qualified environmental wetlands subcontractor to conduct all wetland area planting, prepare the wetlands restoration work plan, Invasive Species Management Plan (ISMP), wetland

restoration monitoring plan and conduct the long-term monitoring. The environmental wetlands subcontractor shall have a minimum of five years experience performing substantially similar work. The Contractor may qualify as the environmental wetlands subcontractor if the Contractor can document the necessary experience.

B. Tests for Backfill:

1. An independent testing laboratory shall be employed by the Contractor to perform the required tests.
2. Required tests:
  - a. Grain size, ASTM D422
  - b. Moisture, Ash and Organic Matter, ASTM D2974
  - c. Density of Soil in Place by the Drive-Cylinder Method, ASTM D2937
  - d. Percent Moisture/Solids, EPA Moisture
  - e. pH, SW846 9045D
  - f. Nitrogen, Total Kjeldahl, EPA Methods for the Chemical Analysis of Water and Wastes (MCAWW) 351.2
  - g. Nitrogen, Nitrate-Nitrite, EPA MCAWW 353.2
  - h. Phosphorus, Total and Ortho, SM 4500 P E
  - i. Oxidation Reduction Potential-Soluble, SM 2580B
  - j. Chemical Analysis: Target Compounds List (TCL) volatile organic compounds (NYSDEC ASP Method 8260B); TCL semivolatile organic compounds (NYSDEC ASP Method 8270C); TCL pesticides (NYSDEC ASP Method 8081A); TCL PCBs (NYSDEC ASP Method 8082); Target Analyte List (TAL) metals (NYSDEC ASP Method 6010B/7471A) and cyanide (NYSDEC ASP Method 9010B).
  - k. Sample collection and analysis shall be in accordance with the Contractor's approved Sampling Plan (see Section 01652).

C. Planting: General

1. Reference Standards: Comply with applicable provisions and recommendations of the following, except where otherwise shown or specified:

- ANSI Z60.1, American Standard for Nursery Stock
- Association of Official Analytical Chemists, Official Methods of Analysis
- American Joint Committee on Horticultural Nomenclature, Standardized Plant Names

D. Nomenclature:

1. The common and scientific names of plants shall be in conformity with the approved names by Standardized Plant Names prepared by the American Joint Committee on Horticultural Nomenclature 1942 Edition or its successor as the American Association of Nurserymen's recognized authority on Botanical Nomenclature.

E. Standards:

1. Plants including root spread and ball size shall be in accordance with the current edition of "American Standard for Nursery Stock," a code of standards sponsored by the American Nursery and Landscape Association as modified herein and as otherwise specified.

F. Inspection:

1. All plant materials shall be subject to inspection and approval of the Department at the growing site, but approval and marking at the growing site shall not obligate the Department to pay for any plant material until it has been delivered and planted at the planting site in a satisfactory condition. At least 10 days prior to digging and shipment of the trees from the growing site, the Contractor shall notify the Engineer. The removal of nursery stock rejected at the planting site and its replacement in compliance with specifications shall be made at no extra cost to the Department.

2. All plants shall be subject to inspection at any place and at anytime. The Contractor shall be represented at all inspections.

### 1.3 SUBMITTALS

A. Submit the following in accordance with Spec 00021 ("Submittals"):

1. Independent Testing Laboratory: Prior to conducting the required tests, the Contractor shall submit to the Engineer, for approval, the name of the independent testing laboratory which will facilitate the required testing. The independent testing laboratory shall comply with the requirements of Section 01652 (“Sampling Plan”) of the Supplementary Specifications.
2. Documentation of experience, including a list of projects of similar work completed by the environmental wetlands subcontractor, a brief description of each project, total cost of each project and contact information for references for each project submitted.
3. Wetland Restoration Work Plan including, but not limited to, the following:
  - a. Planting schedule showing the number, type, location and scheduled dates for all planting work.
  - b. Manufacturer’s or supplier’s specifications and installation instructions for all materials required.
  - c. Certificates from plant suppliers for each species stating botanical and common name for each species.
  - d. Planting details, as prepared by the environmental wetland restoration subcontractor, for each wetland species type specified herein (see 2.2(B)). This should include all details and requirements for ground preparation, plant setting, size of pits, staking, guying or anchoring, mulching, fertilizing, and watering.
4. Samples and Test Results:
  - a. At least 2 weeks prior to the date of anticipated use, the Contractor shall submit to the Engineer for approval a representative sample of all off-site fill materials required. The Contractor shall notify the Engineer in writing of the source of each sample.
  - b. The Contractor shall provide, along with the above samples, the required test results.
5. The Contractor shall prepare a wetland restoration report, documenting the final elevations and planting layout, as well as a summary of the corrective actions taken during restoration to address issues that may have occurred during the construction of the project. The report shall be submitted as a part of the final, as-built conditions submittal in accordance with Standard Spec 00021 (“Submittals”) and Section 01050 (“Field Engineering”) of the Supplementary Specifications.

6. The Contractor shall prepare a wetland restoration monitoring plan, describing how the Contractor will monitor the success of the wetland restoration for a minimum of one year following final acceptance of the Work. The wetland restoration monitoring plan shall include, at a minimum, the post-restoration monitoring specified herein and shall describe the Contractor's procedures, manpower, equipment and proposed schedule for conducting such monitoring.
7. An approvable Invasive Species Management Plan (ISMP). The ISMP shall identify the undesirable species present on-site as well as those which may potentially invade the wetlands areas to be restored as part of this contract post-restoration. Resources for invasive species lists include the NYSDEC, the Cornell University Ecology and Management of Invasive Plants Program, and the New York Invasive Species Clearinghouse. Control measures to eliminate the target species from restored areas shall also be defined. The plan shall be implemented by the Contractor during the restoration and post-restoration monitoring periods.

## **1.4 CERTIFICATIONS**

- A. The Contractor shall be responsible for all certificates of inspection of plants which may be required by federal, state or other authority to accompany shipment of trees. Certificates of Inspection shall be submitted to the Engineer for each shipment of plants at delivery.
- B. Labeling shall be in accordance with normal nursery labeling practice except that the Contractor shall be required at any time to supply certification of positive identification of any plant species and/or variety in addition to those specified herein.
- C. The Contractor shall submit certificates of material compliance before delivery of each type of fertilizer and the anti-desiccant to be supplied.

## **2. PRODUCTS**

### **2.1 FILL MATERIAL**

- A. General:
  1. Fill to be placed in the wetlands and lake during restoration activities shall comply with the requirements stated in Section 02200 ("Backfill and Compaction") of the Supplementary Specifications, except that the material specifications and testing parameters shall be as specified herein. In addition, the compaction requirements, compaction testing requirements and restriction on placing fill "in the wet" included in Section 02200 ("Backfill

and Compaction”) shall not apply to any fill material placed in the wetlands or lake.

B. Soil Materials:

1. Fill materials should be selected to be within the range of values for the various parameters of concern as specified in Attachment 1 to this Section. In addition, chemical analysis of all fill materials to be placed in the wetlands or lake bottom shall meet the lower of the New York State Department of Environmental Conservation (NYSDEC) Unrestricted Use Soil Cleanup Objectives found at 6 NYCRR Part 376-6.8(a) or the Lowest Effect Levels (LEL) for metals and the lower of the chronic toxicity sediment levels or wildlife bioaccumulation sediment levels for organics listed in the NYSDEC Technical Guidance for Screening Contaminated Sediments (1999).

## 2.2 PLANTS

A. General:

1. The Contractor shall comply with all requirements for plants, as stated under Section 02487 (“Planting”), Part 2, Paragraph 2.1, with the exception of Item E.

B. As shown on the Contract Drawings, the areas of planting within the wetlands/lake area have been broken into four separate zones (D through A). Species and planting density for each zone shall be as further outlined below. Any wetland or lake area that is not located within any of the four restoration zones shown on the Contract Drawings shall be restored with backfill meeting the requirements of this Section to the required elevations; however, no plantings shall be required in such areas:

1. Zone D: Plant one sensitive fern (*Onoclea sensibilis*) at a density of three plants per square meter. Plant one staggerbush (*Lyonia mariana*) or smooth azalea (*Rhododendron arborescens*) at a density of one plant per 15 square meters. Also apply wetland seed mix to Zone D. Refer to the Contract Drawings for wetlands seeding requirements.
2. Zone C Herbaceous Layer: Plant either one false nettle (*Boehmeria cylindrica*) or one swamp loosestrife (*Decodon verticillatus*) per square meter. To each square meter, plant up to three marsh ferns (*Thelypteris palustris*) and one each arrow arum (*Peltandra virginica*) and marsh St. John’s wort (*Hypericum virginicum*).

Zone C Shrub Layer: Plant one button bush (*Cephalanthus occidentalis*) for every 10 square meters.

Also apply wetland seed mix to Zone C. Refer to the Contract Drawings for wetlands seeding requirements.

3. Zone B: Plant eight swamp smartweed (*Persicaria hydropiperoides*) and four arrow arum (*Peltandra virginica*) per square meter. In every other square meter, plant one swamp loosestrife (*Decodon verticillatus*) or one nodding burr marigold (*Bidens cernua*).

Also apply wetland seed mix to Zone B. Refer to the Contract Drawings for wetlands seeding requirements.

4. Zone A: Plant one shrub every 5 square meters (buttonbush [*Cephalanthus occidentalis*], hazel alder [*Alnus serrulata*], sweet pepperbush [*Clethra alnifolia*], highbush blueberry [*Vaccinium corymbosum*], or silky dogwood [*Cornus amomum*]) interspersed with swamp loosestrife (*Decodon verticillatus*).

- C. Plant Requirements: The shrubs purchased for this restoration may include both container grown (for larger size) and bare-rooted (for smaller size) plants. The type for each planting shall be specified by the Contractor in its Wetland Restoration Work Plan and shall be subject to approval by the Department. The amount and kind for each will depend on the project schedule and availability. Shrubs and herbaceous plants purchased for this restoration shall have a normal habit of growth and be typically characteristic of their respective kinds. Plants shall be free from injury. Plants shall be nursery grown and bear evidence of proper nursery care normal to current nursery practice. Container grown plants shall exhibit a well-rooted condition as evidenced by the firmness of the ball. The outside of the ball shall be well netted with healthy working roots that have not been restricted. Plants shall have been adequately hardened-off before shipment. The plants selected for use in this wetland environment shall be healthy, with reasonably straight trunks and good branching structure (e.g., properly pruned to remove crossing branches).

## **2.3 WATER**

- A. Water shall be from fresh water sources and free from soil, acids, alkalis, salt or any other substance injurious to plant growth. The Contractor shall be required to obtain the Department's approval of the source of water to be used.

## **3. EXECUTION**

### **3.1 INSPECTION**

- A. The Contractor shall provide the Engineer with sufficient time and means to examine the areas and conditions under which backfilling and planting are to be



performed. Work shall not proceed until all unsatisfactory conditions have been corrected in a manner acceptable to the Engineer.

### 3.2 BACKFILL

- A. The Contractor shall backfill excavation areas as promptly as Work permits, but not until acceptance by the Engineer of all Work within the excavation areas, including approval of confirmation sampling results.
- B. Fill to be placed in the wetlands and lake during restoration activities shall comply with the requirements stated in Section 02200 (“Backfill and Compaction”) of the Supplementary Specifications, except that the material specifications and testing parameters shall be as specified herein. In addition, the compaction requirements, compaction testing requirements and restriction on placing fill “in the wet” included in Section 02200 (“Backfill and Compaction”) Supplementary Specifications shall not apply to any fill material placed in the wetlands or lake.

### 3.3 PLANTING

- A. All planting within the areas of the wetland and lake, including backfilling operations, shall only be conducted by the environmental wetland restoration subcontractor, as approved by the Engineer and the Department.
- B. Shrubs and larger herbaceous species shall be planted in a natural, random way relative to one another; avoid placing the plants in straight rows. The distance between shrubs and larger herbaceous plants shall not be less than four feet. Smaller herbaceous plants shall be interspersed with larger plants, spaced from two to four feet apart. The larger herbaceous species on the planting list are false nettle (*Boehmeria cylindrica*) and swamp loosestrife (*Decodon verticillatus*). The smaller herbaceous plants are sensitive fern (*Onoclea sensibilis*), marsh fern (*Thelypteris palustris*), arrow arum (*Peltandra virginica*), marsh St. John’s wort (*Hypericum virginicum*), swamp smartweed (*Persicaria hydropiperoides*) and nodding burr marigold (*Bidens cernua*).
- C. Final locations for all plants shall be staked to the satisfaction of the Engineer before any shrubs or herbaceous species are planted.
- D. The Contractor shall be held responsible for the proper location of all plant materials. Any species planted in the wrong location shall be replaced with new plant materials in the next succeeding planting season.
- E. All requirements for ground preparation, plant setting and care of plants shall be in accordance with the environmental wetland restoration subcontractor’s submitted work plan.

- F. During the planting work, the Department will direct the Contractor to transplant existing wetlands vegetation from outside the disturbed areas for replanting within the areas designated for restoration. Such transplanting may be in lieu of or in addition to the planting densities specified herein, and will include transplanting species of similar size and type specified herein. A separate payment item has been established for this transplanting work, which will be completed at the option of the Department. The Contractor shall provide for 2 days in the field of sufficient labor, equipment and material to transplant wetlands vegetation as directed by the Department.

### **3.4 CARE OF PLANTS**

A. Care of Plants Prior to Satisfactory Completion of Planting:

1. The Contractor shall care for the planting which shall consist of keeping all plants in a healthy growing condition by watering, weeding, cultivating, pruning, spraying, tightening of guys, remulching and any other necessary operations as required until satisfactory completion of planting.
2. All plants shall be watered at least once a week between April 1 and October 1 unless otherwise directed by the Engineer, until satisfactory completion of planting. Each watering shall provide not less than five gallons per square yard on plant pits and bed areas.
3. All dead and rejected plants shall be promptly removed from the contract site. In the event of the threat of serious damage from insects, diseases or rodents, the plants shall be treated by preventive or remedial measures currently approved for good horticultural practice. In the event "heeled-in" material must be held over until a later planting season, such "heeled-in" material shall be lifted, replanted and maintained in a satisfactory condition in nursery rows. Such emergency storage and maintenance shall be at the entire risk of the Contractor and at no cost to the Department. The land for such storage shall be provided for by the Contractor unless otherwise specified or approved.
4. Grass and weed growth shall be removed from all plant pits and planting beds as directed by the Engineer. Prior to final acceptance of the planting, the wetlands shall have acceptable evidence of grass growth, excluding planting beds, unless otherwise directed by the Engineer. Seed used for this purpose shall be as specified on the Contract Drawings, or as approved by the Engineer.

B. Replacement Prior to Satisfactory Completion of Planting:

1. At the conclusion of the essential portion of the planting work, all plants in an unhealthy or badly impaired condition, in the opinion of the Engineer,

shall be removed. All planting to be completed or replaced shall be planted not later than the next succeeding planting season.

C. Final Inspection:

1. When, in the opinion of the Contractor, the planting is complete and ready for final inspection, he shall notify the Engineer who will arrange to give the entire work a thorough inspection. Before final payment will be made, any dead plants, defects or omissions noted on this inspection must be rectified by the Contractor.

### **3.5 PERIOD OF ESTABLISHMENT**

A. Guarantee:

1. The Contractor shall guarantee the life of all plants for a period of one (1) year after the Engineer has made his final inspection and the planting has been confirmed in writing by the Engineer as having been satisfactorily completed. Any plant which is damaged, destroyed, or dies from whatever cause except theft or vandalism during the above period shall be replaced no later than the next succeeding planting season as specified upon written notice to the Contractor from the Engineer. Plants that have died during the period of establishment shall be replaced and shall be guaranteed for an additional year.

B. Care of Plants and Replacement During Period of Establishment:

1. Due to planting seasons, the Contractor shall be required to replace any damaged, destroyed or dead plant within the two (2) planting seasons during the "Period of Establishment" which may entail replacing the same plant twice after satisfactory completion of planting.
2. The Contractor shall be responsible for all work required to care for the plants properly and make necessary replacements during the period of establishment, including watering, mulching, pruning, restaking and replanting. The Contractor shall maintain during this period a sufficient labor force at all times to care for the plants in a proper manner and perform all necessary operations efficiently and expeditiously.
3. The Contractor shall be required to water all plant material a minimum of six (6) times during the period of establishment. Each plant shall receive five (5) gallons of water for each square yard of pit area. Watering shall be performed when plants are in active vegetative growth. If, in the opinion of the Engineer, unseasonable dry conditions exist, additional watering may be required as directed by the Engineer.

- C. The Contractor shall also implement its approved wetlands restoration monitoring plan during the period of establishment, which shall consist of the following activities to be completed.
1. Collect hydrologic measurements from PZ-1 through PZ-4 every other month during the growing season (May, July and September).
  2. Collect soils data at four established monitoring sites (PZ-1 through PZ-4) once during the growing season (May through September).
  3. Complete a vegetation survey at four established monitoring sites (PZ-1 through PZ-4) during the summer (July through August).
  4. Assemble local climatological data (precipitation records and draught status) for the entire period of establishment.
  5. Implement the Contractor's approved ISMP.
  6. At the completion of the period of establishment, the Contractor shall prepare and submit an annual report documenting the above outlined activities and conducting the following data evaluations:
    - a. Compare water level measurements and surface water conditions to baseline conditions.
    - b. Compare soil analytical results to baseline conditions and document the presence or absence of hydric soil characteristics.
    - c. Compare observed vegetation community structure with baseline conditions, identify invasive species and determine whether corrective actions are required. If corrective actions are required, provide recommendations to the Department.
    - d. Evaluate hydrologic conditions against recorded precipitation and drought status. Document whether hydrologic measurements occurred during normal, drought or wet conditions.

**\* END OF SECTION \***

**ATTACHMENT 1**

**WETLAND AND LAKE FILL SPECIFICATIONS**

**Table 4.** Analytical results for two soil/sediment samples collected on 09/17/2013.

Analysis	Parameter	Range of Values
D422 Grain Size	Sieve Size 3 inch - Percent Finer	100 - 100 % passing
	Sieve Size 2 inch - Percent Finer	100 - 100 % passing
	Sieve Size 1.5 inch - Percent Finer	100 - 100 % passing
	Sieve Size 1 inch - Percent Finer	100 - 100 % passing
	Sieve Size 0.75 inch - Percent Finer	100 - 100 % passing
	Sieve Size 0.375 inch - Percent Finer	95.1 - 97.7 % passing
	Sieve Size NO. 4 - Percent Finer	77.2 - 95.8 % passing
	Sieve Size NO. 10 - Percent Finer	63.5 - 94 % passing
	Sieve Size NO. 20 - Percent Finer	57.2 - 93 % passing
	Sieve Size NO. 40 - Percent Finer	53.7 - 91.4 % passing
	Sieve Size NO. 60 - Percent Finer	51.1 - 88.8 % passing
	Sieve Size NO. 80 - Percent Finer	49.6 - 86.8 % passing
	Sieve Size NO. 100 - Percent Finer	48.6 - 85.2 % passing
	Sieve Size NO. 200 - Percent Finer	45.1 - 79.2 % passing
	Hydrometer Reading 1 - Percent Finer	34.2 - 53.8 % passing
	Hydrometer Reading 2 - Percent Finer	29.2 - 47.9 % passing
	Hydrometer Reading 3 - Percent Finer	25.8 - 38.1 % passing
	Hydrometer Reading 4 - Percent Finer	20.8 - 32.2 % passing
	Hydrometer Reading 5 - Percent Finer	18.3 - 28.3 % passing
Hydrometer Reading 6 - Percent Finer	12.3 - 17.3 % passing	
Hydrometer Reading 7 - Percent Finer	7.1 - 9.3 % passing	
Texture	Gravel	4.2 - 22.8 %
	Sand	16.6 - 32.1 %
	Coarse Sand	1.8 - 13.7 %
	Medium Sand	2.6 - 9.8 %
	Fine Sand	8.6 - 12.2 %
	Silt	26.8 - 50.9 %
	Clay	18.3 - 28.3 %
D2974 Moisture, Ash and Organic Matter	Total Organic Matter	3.3 - 3.7 %
	Moisture Content	23.2 - 39.4 %
	Ash Content	96.3 - 96.7 %
	Fractional Organic Carbon	1.9 - 2.2 %
D2937-Density of Soil in Place by the Drive-Cylinder Method	Density	1.29 - 1.62 g/cc
General Chemistry	Total Kjeldahl Nitrogen	550 - 1260 mg/kg
	Nitrate Nitrite as N-ASTM Leach	0.99 - 2.7 mg/kg
	Phosphorus, total (as P)	276 - 362 mg/kg
	Phosphorus, total orthophosphate (as PO4)	847 - 1110 mg/kg
	pH	6.07 - 6.64 SU
	Percent Moisture	17.4 - 18.7 %
	Percent Solids	81.3 - 82.6 %
Pneumatic Permeability by Flowing Air - ASTM D6539	Oxidation Reduction Potential - Soluble	74 - 128 millivolts
	Average Pneumatic Permeability	5.4E-14 - 2.4E-12 m <sup>2</sup>

**ATTACHMENT 6**

**MEASUREMENT FOR PAYMENT**

## SECTION XII

### MEASUREMENT FOR PAYMENT

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. This section covers the methods and procedures that will be used to measure **CONTRACTOR's** work to provide payment to **CONTRACTOR** for work performance. All work elements necessary to complete the work may not be described in this section. It is the responsibility of the bidder to make a thorough investigation of the Contract Documents and the site to determine the scope of work needed or required in each bid item. Payments shall be made to **CONTRACTOR** based on the quantities or work successfully completed and accepted as measured in accordance with the specified methods of measurement and the prices stipulated as shown on the Bid Form (page V-2). This method of payment shall constitute complete compensation for all work shown on the Contract Drawings and provided in the specifications, for all costs of accepting the general risks, and liabilities, and shall include compensation for overhead, profit, materials and services, and performing all work required to accomplish and complete the work specified under each item and all other work required.

##### 1.02 SUBMITALS

- A. Preliminary items to be submitted in response to Notice of Intent:
1. Bid breakdowns
- B. Pay Requests:
1. Submit in accordance with Section VIII, Article 13, "Payments to Contractor and Completion."

##### 1.03 PAYMENT PROCEDURES

- A. Under this Contract, **CONTRACTOR** shall provide all labor, equipment and materials and shall complete all work as shown and described in the Contract Documents and as directed by **ENGINEER**, in accordance with the expressed intent of the contract to secure a complete construction of a functionally complete project. The following bid items shall together include all work set forth in the Contract Documents or required to properly complete the work. Any necessary work that is not described shall be considered included in the item to which it properly belongs. Where used in the Contract Documents, the word "including"



(“includes”, “include”) shall mean “including (includes, include) but not restricted to.”

Each item includes:

1. All labor, material, equipment, bonds and insurance, tests, adjustments, warranties, overhead, and other expenses required to perform the work.
2. All accessories, manuals, and services pertinent to the proper installation of materials and equipment.
3. All accessories, manuals, and services pertinent to the materials and equipment.

**B. Lump Sum Items**

1. The quantities of work performed under lump sum items shall not be measured except for the purpose of determining reasonable interim payments. Interim payments shall be made in accordance with the estimated value of work performed and found acceptable as determined by **ENGINEER**, or as specified in this section.
2. Where indicated for a lump sum item, **CONTRACTOR** shall provide a schedule of values. The schedule of values shall include a breakdown of major cost items included within the lump sum. The schedule of values shall be provided to **ENGINEER** prior to initiation of work.

**C. Unit Price Items**

1. Payments shall be made for unit items in accordance with the measurement methods set forth in this section or, where specified payment limits are unclear, as determined reasonable by **ENGINEER**, at the unit prices entered in the Bid Form. Interim measurements and/or payments may be adjusted to account for partially completed work.

**D.** Measurement for payment shall be made only for work that has been acceptably performed within the limits shown on the Contract Drawings, as specified, or ordered by **ENGINEER**.

**E.** The work of the contract shall be paid in separate items as described below.

1. Bid Item UP-1 – Site Services
  - a. Bid Item UP-1 shall be bid unit price per work day for site services as specified and directed herein.

- b. Submit a separate bid breakdown (see Section III, Article 12, “Bid Breakdown”) for this item that shows individual cost per day for providing, operating, and maintaining items in the scope of work for this bid item as described below.
  - i. Site security.
  - ii. Access road maintenance.
  - iii. Fencing maintenance.
  - iv. Field offices maintenance.
  - v. Providing and maintaining all temporary utilities including electricity, phone service, Internet service and potable water, as well as sanitary facilities, staging and support areas.
  - vi. Erosion, sedimentation and surface water control maintenance.
  - vii. Dust, noise and odor control.
- c. Measurement for payment shall be for each day site services have been provided in the opinion of the **ENGINEER** beginning after complete mobilization to the site and shall be considered completed upon the start of demobilization or at the end of the Contract Time specified in Section VI, Article 6.1, whichever is sooner. There shall be a 50% reduction in the payment for this item for days when site services are incomplete or inadequate in the opinion of the **ENGINEER**.

2. Bid Item UP-2 – Health and Safety Services

- a. Bid Item UP-2 shall be bid unit price per work day for health and safety as specified and directed herein.
- b. Provide all materials, equipment, incidentals, and labor necessary to perform all applicable work and requirements as described in Section 00003 (Minimum Requirements for Health and Safety) of the Standard Specifications (Section X), Section 01392 (Modifications to Minimum Requirements for Health and Safety) and Section 01658 (Equipment Decontamination) of the Supplementary Specifications (Section XI) and as shown on the Contract Drawings. Submit a separate bid breakdown (see Section III, Article 12, “Bid Breakdown”) for this item that shows individual cost per day for providing, operating, and maintaining items in the scope of work for this bid item as described below.

- i. Providing a full-time Health and Safety Officer (HSO) at the site.
  - ii. Air monitoring, sampling, analysis and reporting during the project period.
  - iii. Operating and maintaining all health and safety equipment and decontamination reduction station.
  - iv. Sampling, analyses, handling, transportation, and disposal of personal protective equipment (PPE) and decontamination wastes not specifically included in another bid item.
- c. Measurement for payment shall be for each day the Health and Safety Plan (HASP) has been adhered to in the opinion of **ENGINEER** beginning after satisfactory establishment of an exclusion zone and shall be considered completed when there is no longer an exclusion zone in the project area or at the end of the Contract Time specified in Section VI, Article 6.1, whichever is sooner. All daily maintenance costs for health and safety are part of this bid item including all requirements of the HASP. There shall be a 50% reduction in the payment for this item for days when no work occurs in the exclusion zone. A 100% reduction in the payment for this item shall occur for each day **CONTRACTOR** fails to adhere (in the opinion of **ENGINEER**) to the HASP.

3. Bid Item UP-3 – Clearing and Grubbing

- a. Bid Item UP-3 shall be bid unit price per acre of actual area cleared within the limits of disturbance as directed and specified herein.
- b. Provide all materials, equipment, incidentals, and labor necessary to clear and grub, and perform all applicable work and requirements as described in Section 00019 (Clearing and Grubbing) of the Standard Specifications (Section X) and Section 02121 (Removal of Yard Waste, Tires, Scrap Metal and Debris) of the Supplementary Specifications (Section XI).
- c. Measurement for payment of Bid Item UP-3 shall be the actual area in acres cleared as measured by **ENGINEER's** review of **CONTRACTOR's** survey. The survey shall be performed, signed and sealed by a Land Surveyor licensed to practice in New York State and shall show the calculated acres of area cleared.

4. Bid Item UP-4 – Gravel Access Road and Parking Area Construction
  - a. Bid Item UP-4 shall be bid unit price per square yard of access road and parking area constructed as directed and specified herein.
  - b. Provide all materials, equipment, incidentals, and labor necessary to install gravel access roads and parking and perform all applicable work and requirements as described in Section 00023 (Access Road) of the Standard Specifications (Section X), as shown on the Contract Drawings. This shall include, but not be limited to, the work items described below.
    - i. Grading, compacting, testing and preparing the roadway subgrade.
    - ii. Furnishing and installing geotextile filter fabric.
    - iii. Placing, grading and compacting a 6 inch layer of subbase coarse material.
  - c. Any gravel access roads beyond those shown on the Contract Drawings (e.g., temporary road to gain access to wetlands/lake area) that the Contractor elects to install as part of its means and methods shall be incorporated into the Lump Sum or Unit Prices associated with such work.
  - d. Measurement for payment of Bid Item UP-5 shall be the actual area of access road and parking areas in square yards constructed as measured in the field by **ENGINEER**.
5. Bid Item UP-5 – Excavation of Contaminated Wetlands Soil
  - a. Bid Item UP-5 shall be bid unit cost per in-place cubic yard of contaminated wetlands soil excavated as directed and specified herein.
  - b. Provide all materials, equipment, incidentals, and labor necessary to completely and properly excavate and handle contaminated wetlands soil, and perform all applicable work and requirements as described in Section 02112 (Excavation, Removal and Handling of Contaminated Materials in Wetlands and Lake Areas) of the Supplementary Specifications (Section XI) and shown on the Contract Drawings.
  - c. Measurement for payment of Bid Item UP-5 shall be the in-place volume of contaminated wetlands soil excavated as measured by **ENGINEER**'s review of **CONTRACTOR**'s survey. The survey shall be performed, signed and sealed by a land surveyor licensed

to practice in New York State and shall show the calculated in-place volume of contaminated wetland soil excavated.

- d. The means and methods for excavating the contaminated wetlands soil is the **CONTRACTOR's** responsibility. All work activities necessary to accomplish excavation of contaminated wetlands soil, including labor, equipment and materials necessary to remove the soil to the limits shown, handle the soil, stage the soil, amend the soil (if necessary) to render it suitable for off-site transportation and disposal, characterize and load the soil into appropriate transport vehicles or containers shall be incorporated into the unit price bid for Bid Item UP-5. If the **CONTRACTOR** elects to dewater the wetlands excavation area or dewater the excavated soil to render it suitable for off-site transportation and disposal, this bid item shall include all costs necessary to conduct such dewatering, including but not limited to well points, pumps, sheeting, etc. and completely and properly treat and discharge or dispose off-site excavation-derived water, including sampling and analyses required for discharge or disposal and perform all applicable work and requirements as specified in the Contract Documents.

6. Bid Item UP-6 – Excavation of Contaminated Lake Sediments

- a. Bid Item UP-6 shall be bid unit cost per in-place cubic yard of contaminated lake sediments excavated as directed and specified herein.
- b. Provide all materials, equipment, incidentals, and labor necessary to completely and properly excavate and handle contaminated lake sediments, and perform all applicable work and requirements as described in Section 02112 (Excavation, Removal and Handling of Contaminated Materials in Wetlands and Lake Areas) of the Supplementary Specifications (Section XI) and shown on the Contract Drawings.
- c. Measurement for payment of Bid Item UP-6 shall be the in-place volume of contaminated lake sediments excavated as measured by **ENGINEER's** review of **CONTRACTOR's** survey. The survey shall be performed, signed and sealed by a land surveyor licensed to practice in New York State and shall show the calculated in-place volume of contaminated lake sediment excavated.
- d. The means and methods for excavating the contaminated lake sediments is the **CONTRACTOR's** responsibility. All work activities necessary to accomplish excavation of contaminated lake sediments, including labor, equipment and materials necessary to remove the sediments to the limits shown, handle the sediments,

stage the sediments, amend the sediments (if necessary) to render it suitable for off-site transportation and disposal, characterize and load the sediments into appropriate transport vehicles or containers shall be incorporated into the unit price bid for Bid Item UP-6. If the **CONTRACTOR** elects to dewater the lake excavation area or dewater the excavated sediments to render it suitable for off-site transportation and disposal, this bid item shall include all costs necessary to conduct such dewatering, including but not limited to well points, pumps, sheeting, etc. and completely and properly treat and discharge or dispose off-site excavation-derived water, including sampling and analyses required for discharge or disposal and perform all applicable work and requirements as specified in the Contract Documents.

7. Bid Item UP-7 – Excavation of Contaminated Upland Soil

- a. Bid Item UP-7 shall be bid unit cost per in-place cubic yard of contaminated upland soil excavated as directed and specified herein.
- b. Provide all materials, equipment, incidentals, and labor necessary to completely and properly excavate, handle, stage and load contaminated upland soil into appropriate transport vehicles or containers for proper off-site transportation and disposal, and perform all applicable work and requirements as described in Section 02240 (Excavation, Removal and Handling of Contaminated Materials) of the Supplementary Specifications (Section XI) and shown on the Contract Drawings.
- c. It should be noted that excavation and removal, handling, characterization and off-site transportation and disposal of all soil scraped from the controlled demolition dust suppression water containment area, as well as any soil likely impacted by ACM during the abatement activities, is included in Bid Item LS-2.
- d. Measurement for payment of Bid Item UP-7 shall be the in-place volume of contaminated upland soil excavated as measured by **ENGINEER's** review of **CONTRACTOR's** survey. The survey shall be performed, signed and sealed by a land surveyor licensed to practice in New York State and shall show the calculated in-place volume of contaminated upland soil excavated.

8. Bid Item UP-8 – Excavation Confirmation Sampling and Analysis

- a. Bid Item UP-8 shall be bid unit price for each excavation confirmation sample collected and analyzed as specified and directed herein.

- b. Provide all materials, equipment, incidentals, and labor necessary to completely and properly conduct excavation confirmation sample collection and analysis, and perform all applicable work and requirements as described in Section 01652 (Sampling Plan), Section 02240 (Excavation, Removal and Handling of Contaminated Materials) and Section 02112 (Excavation, Removal and Handling of Contaminated Materials in Wetlands and Lake Areas) of the Supplementary Specifications (Section XI). This shall include, but not be limited to, the work items described below.
  - i. Collection, preservation, handling, shipping and 48 hour analysis of each excavation confirmation sample.
  - ii. Collection, preservation, handling, shipping and 48 hour analysis of QA/QC samples.
  - iii. Staking the location of each sample collected. Costs associated with surveying the location of each sample collected shall be included in Bid Item LS-1.
  - iv. Result analysis and review, including DUSR generation.
- c. Measurement for payment of Bid Item UP-8 shall be the actual quantity of excavation confirmation samples collected and analyzed. Payment shall be made at the unit price bid for each sample analyzed as indicated by **ENGINEER's** review of **CONTRACTOR's** final chemical results and DUSR reports. QA/QC samples are not considered excavation confirmation samples and all costs associated with collection and analysis of QA/QC samples shall be incorporated into the unit price bid.

9. Bid Item UP-9 – Backfill Upland Excavated Areas

- a. Bid Item UP-9 shall be bid unit price for each cubic yard of backfill properly qualified, placed, compacted, tested, and graded.
- b. Provide all materials, equipment, incidentals, and labor necessary to completely and properly conduct backfilling of excavated contaminated upland areas to indicated grades, compaction, and final grading, and perform all applicable work and requirements as described in Section 02200 (Backfill and Compaction) of the Supplementary Specifications (Section XI). This shall include, but not be limited to, the work items described below.
  - i. Submission of samples, mechanical and chemical test results and manufacturer's data, as specified.

- ii. Placing, compacting and grading backfill to required depth.
  - iii. Conducting all required field tests for each compacted layer.
- c. Measurement for payment of Bid Item UP-9 shall be the quantity of in-place cubic yards in final position, complete, and passing inspection by **ENGINEER**. The quantity of backfill measured shall be the in-place volume from approved backfill locations as measured by the **ENGINEER's** review of **CONTRACTOR's** survey. The survey shall be performed, signed and sealed by a land surveyor licensed to practice in New York State and shall show the calculated in-place volume of backfill.

10. Bid Item UP-10 – Backfill Excavated Wetland and Lake Bottom Areas

- a. Bid Item UP-10 shall be bid unit price for each cubic yard of backfill properly qualified, placed, compacted, tested, and graded in wetland and lake bottom areas.
- b. Provide all materials, equipment, incidentals, and labor necessary to completely and properly conduct backfilling of excavated wetland and lake bottom contaminated areas to indicated grades and final grading, and perform all applicable work and requirements as described in Section 02488 (Wetland and Lake Bottom Restoration) of the Supplementary Specifications (Section XI). This shall include, but not be limited to, the work items described below.
  - i. Submission of samples, test results and manufacturer's data, as specified.
  - ii. Placing backfill to required depth.
  - iii. Conducting all required field tests.
- c. Measurement for payment of Bid Item UP-10 shall be the quantity of in-place cubic yards in final position, complete, and passing inspection by **ENGINEER**. The quantity of backfill measured shall be the in-place volume from approved backfill locations as measured by the **ENGINEER's** review of **CONTRACTOR's** survey. The survey shall be performed, signed and sealed by a land surveyor licensed to practice in New York State and shall show the calculated in-place volume of backfill. **CONTRACTOR's** records (e.g., delivery tickets) shall also be utilized by **ENGINEER** in reviewing the quantity indicated on the survey.



11. Bid Item UP-11 – Transportation and Off-Site Disposal of Nonhazardous Metals-Contaminated Waste
  - a. Bid Item UP-11 shall be bid unit price per ton of nonhazardous metals-contaminated waste transported and disposed of off-site as directed and specified herein.
  - b. Provide all materials, equipment, incidentals, and labor necessary to completely and properly transport and dispose of nonhazardous metals-contaminated waste and provide characterization sampling as necessary, and perform all applicable work and requirements as described in Section 02260 (Waste Transportation and Disposal) of the Supplementary Specifications (Section XI).
  - c. This bid item includes characterization and off-site transportation and disposal of waste generated from the upland, wetlands and lake excavation areas. All costs associated with excavation, removal, handling, dewatering (if necessary), amending (if necessary), staging, storing and loading the waste into transport vehicles and containers is included in other bid items as described herein. It should also be noted that excavation and removal, handling, characterization and off-site transportation and disposal of all soil scraped from the controlled demolition dust suppression water containment area, as well as any soil likely impacted by ACM during the abatement activities, is included in Bid Item LS-2.
  - d. Measurement for payment of Bid Item UP-11 shall be the actual quantity of soil disposed of as measured by the **ENGINEER's** review of **CONTRACTOR's** disposal facility certified weigh scale tickets.
  
12. Bid Item UP-12 – Site Restoration – Upland Areas
  - a. Bid Item UP-12 shall be bid unit price for each acre of topsoil and seed placed within the upland areas disturbed, as directed and specified herein.
  - b. Provide all materials, equipment, incidentals, and labor necessary to completely and properly restore the site as directed and specified herein, and perform all applicable work and requirements as described in Section 02485 (Seeding) of the Supplementary Specifications (Section XI) and shown on the Contract Drawings. This shall include, but not be limited to, the work items described below.
    - i. Supplying, placing, compacting and grading 6 inches of topsoil.

- ii. Loosening the seed bed a minimum of 8 inches.
- iii. Preparation of topsoil for seeding, including application of ground limestone and commercial fertilizer.
- iv. Chemical and mechanical testing of topsoil.
- v. Supplying and placing seed.
- vi. Watering.
- c. Measurement for payment of Bid Item UP-12 shall be for the actual quantities of topsoil and seed as measured by the **ENGINEER's** review of **CONTRACTOR's** survey. The survey shall be performed, signed and sealed by a land surveyor licensed to practice in New York State and shall show the calculated area in acres of topsoil and seed placed.

13. Bid Item UP-13 – Upland Planting (Trees)

- a. Bid Item UP-13 shall be bid unit price for each tree planted in upland areas as directed and specified herein.
- b. Provide all materials, equipment, incidentals, and labor necessary to completely and properly plant trees at the site as directed and specified herein, and perform all applicable work and requirements as described in Section 02487 (Planting) of the Supplementary Specifications (Section XI), and shown on the Contract Drawings. This shall include, but not be limited to, the work items described below.
  - i. Preparation of the ground prior to planting.
  - ii. Excavation of plant pits.
  - iii. Placement of topsoil, fertilizer and mulch.
  - iv. Setting plants, including wrapping, staking or guying and wiring.
  - v. Care of plants after satisfactory completion of planting, including watering, weeding, cultivating, pruning, spraying, tightening of guys, remulching and any other necessary operations as required.
- c. Measurement for payment for Bid Item UP-13 shall be for the actual quantity of trees and shrubs successfully planted as

approved by the **ENGINEER** after satisfactory completion of planting.

14. Bid Item UP-14 – Transplanting Wetlands Plants
  - a. Bid Item UP-14 shall be bid unit price for each day of transplanting wetlands plants in accordance with the specifications and Contract Drawings as directed and specified herein.
  - b. Provide all materials, equipment, incidentals, and labor necessary to transplant wetlands plants from undisturbed adjacent wetlands areas into the area of the wetlands to be restored by the **CONTRACTOR** as directed by the **ENGINEER** and/or **DEPARTMENT**. Transplanting of wetlands plants shall be in accordance with the planting requirements specified in Section 02488 (Wetland and Lake Bottom Restoration).
  - c. Measurement for payment for Bid Item UP-14 shall be for the actual number of days of transplanting activities as acceptably completed as determined by the **ENGINEER**.
  
15. Bid Item LS-1 – Submittals, Mobilization, Site Preparation and Demobilization
  - a. Bid Item LS-1 shall be a lump sum amount for mobilization and demobilization as specified and directed herein.
  - b. Submit a separate bid breakdown (see Section III, Article 12, “Bid Breakdown”) for this item that shows individual cost of providing items in the scope of work for this bid item as described below plus mobilization, demobilization, and miscellaneous items on-site and off-site not specified elsewhere but necessary for a complete and proper remediation and site restoration.
    - i. Development of all plans including all required components of, but not limited to, the Work Plan, Excavation and Management Plan for Wetlands and Lake Remediation, Sampling Plan, Health and Safety Plan, Storm Water Pollution Prevention Plan, Asbestos Abatement Work Plan and Pre-Work Submittals, Wetlands Restoration Work Plan and Invasive Species Management Plan, including all required components.
    - ii. Permits and fees, insurance, bonds, and other expenses directly related to and required by the Contract Documents.
    - iii. Mobilization of personnel, equipment and project facilities.

- iv. Installation of staging areas.
  - v. Setup temporary utilities and sanitary facilities.
  - vi. Capital expenses for all health and safety equipment required by the HASP, including decontamination and personal hygiene facilities.
  - vii. Providing and installing field offices and support areas.
  - viii. Initial, intermediate, control, layout, and as-built surveys.
  - ix. Underground utility survey.
  - x. Installation of erosion, surface water and sedimentation controls, including the turbidity curtain and any temporary seeding and soil stabilization required throughout the duration of the Contract.
  - xi. Installation of the Northern Cricket Frog drift fence.
  - xii. Installation of decontamination station, including pre and post soil sampling below decontamination station.
  - xiii. Temporary fencing and traffic controls.
  - xiv. Handling and disposal of **CONTRACTOR** generated wastes.
  - xv. Demobilization.
  - xvi. All costs of interim demobilization and associated remobilization due to the phasing of this project to accommodate the specified work windows for active remediation and restoration to protect the Northern Cricket Frog. Refer to Specification 01660 (Shutdown Period) of the Supplementary Specifications (Section XI).
  - xvii. Other work not specifically included under other items including compliance with applicable regulatory requirements; preconstruction and construction period planning, scheduling, submittals, reporting, administration, and documentation; quality control; and environmental protection and spill control.
- c. Measurement for payment shall be up to 60% of the lump sum for mobilization items installed and properly functioning. Following demobilization, measurement for payment shall be up to a

maximum of 100% based on actual completion of the bid item. Payment shall be lump sum bid for each individual item described above, including mobilization, demobilization, and miscellaneous, as submitted in the **CONTRACTOR**'s Bid Breakdown.

16. Bid Item LS-2 – Demolition and Removals

- a. Bid Item LS-1 shall be a lump sum amount for demolition and removals as specified and directed herein.
- b. Submit a separate bid breakdown (see Section III, Article 12, “Bid Breakdown”) for this item that shows individual cost of providing items in the scope of work for this bid item as described herein.
- c. Measurement and payment for Bid Item LS-2 shall be the lump sum bid for this payment item and shall be full payment for the provision of labor, materials, equipment, supplies, power, services, incidentals, facilities, etc., required for complete demolition, removal, characterization and disposal of existing site features as shown on the Contract Drawings and described in the specifications, including but not limited to Section 02081 (Asbestos Removal) and Section 02120 (Demolition and Removals) of the Supplementary Specifications. Included in this bid item is the removal, handling, characterization and off-site transportation and disposal of all soil scraped from the controlled demolition dust suppression water containment area, as well as any soil likely impacted by ACM during the abatement activities, as described in Section 2081 (Asbestos Removal) of the Supplementary Specifications (Section XI).

17. Bid Item LS-3 – Wetlands Planting and Seeding

- a. Bid Item LS-3 shall be bid a lump sum price for restoring the wetlands areas with seeding and planting as directed and specified herein.
- b. Submit a separate bid breakdown (see Section III, Article 12, “Bid Breakdown”) for this item that shows individual cost of providing items in the scope of work for this bid item as described herein.
- c. Provide all materials, equipment, incidentals, and labor necessary to completely and properly apply seed mixes and install plantings within the wetlands area as directed and specified herein, and perform all applicable work and requirements as described in Section 02485 (Seeding) and Section 02488 (Wetland and Lake Bottom Restoration) of the Supplementary Specifications (Section XI), and shown on the Contract Drawings. This shall include, but not be limited to, the work items described below.

- i. Preparing the seedbed and application of seed mixes as specified and shown.
- ii. Preparation of the ground prior to planting.
- iii. Excavation of plant pits.
- iv. Setting plants.
- v. Care of plants after satisfactory completion of planting.
- vi. Post restoration monitoring and reporting.

## **PART 2 – PRODUCTS**

Not used.

## **PART 3 – EXECUTION**

Not used.

**\* END OF SECTION \***

**ATTACHMENT 7**

**LIMITED SITE DATA SUMMARY REPORT**

**ATTACHMENT 8**  
**ENGINEERING COST ESTIMATE**



**Bid**  
**New York State Department of Environmental Conservation**  
**Glenmere Lake Property; Project Number: \_\_\_\_\_, NYS Site Number: 336071**

**UNIT PRICE ITEMS**

<i>Payment Item Number</i>	<i>Description</i>	<i>Unit</i>	<i>Estimated Quantity</i>	<i>Unit or Lump Sum Price</i>		<i>Total Amount (\$)</i>
				<i>Words</i>	<i>Figures</i>	
UP-1	Site Services	Days	125	Five hundred nine dollars and ninety cents	\$509.90	\$63,737.62
UP-2	Health and Safety Services	Days	125	Nine hundred ninety four dollars and seventy two cents	\$994.72	\$124,339.60
UP-3	Clearing and Grubbing	Acres	1.76	Six thousand two hundred nine dollars and seventeen cents	\$6,209.17	\$10,911.23
UP-4	Gravel Access Road and Parking Area Construction	SY	1,392	Sixteen dollars and three cents	\$16.03	\$22,316.44
UP-5	Excavation of Contaminated Wetlands Soil	CY	165	One hundred forty two dollars and sixty four cents	\$142.64	\$23,535.00
UP-6	Excavation of Contaminated Lake Sediments	CY	160	One hundred and eighty six dollars and zero cents	\$186.00	\$29,760.00
UP-7	Excavation of Contaminated Upland Soil	CY	2,150	Nineteen dollars and eighty eight cents	\$19.88	\$42,750.00
UP-8	Excavation Confirmation Sampling and Analysis	Each Sample	130	One hundred twenty three dollars and four cents	\$123.04	\$15,995.00
UP-9	Backfill Upland Excavated Areas	CY	1,250	Twenty seven dollars and fifty one cents	\$27.51	\$34,387.50
UP-10	Backfill Excavated Wetland and Lake Bottom Areas	CY	325	Fifty eight dollars and eleven cents	\$58.11	\$18,885.75
UP-11	Transportation and Off-Site Disposal of Nonhazardous Metals-Contaminated Waste	Tons	4,241	Eighty four dollars and three cents	\$84.03	\$356,348.96
UP-12	Site Restoration – Upland Areas	Acres	1.4	Forty two thousand four hundred three dollars and ninety two cents	\$42,403.92	\$59,539.73
UP-13	Upland Planting (Trees)	Each	136	Four hundred seventy dollars and sixty three cents	\$470.63	\$64,194.18
UP-14	Transplanting Wetlands Plants	Day	2	Two thousand five hundred and thirty dollars and zero cents	\$2,530	\$5,060.00

*New York State Department of Environmental Conservation*

*Glenmere Lake Property; Project Number: \_\_\_\_\_, NYS Site Number: 336071*

**LUMP SUM ITEMS**

<i>Payment Item Number</i>	<i>Description</i>	<i>Unit</i>	<i>Estimated Quantity</i>	<i>Unit or Lump Sum Price</i>		<i>Total Amount (\$)</i>
				<i>Words</i>	<i>Figures</i>	
LS-1	Submittals, Mobilization, Site Preparation and Demobilization	LS	1	Two hundred sixty three thousand four hundred twenty one dollars and eighty five cents	\$264,518.55	\$264,518.55
LS-2	Demolition and Removals	LS	1	Four hundred twenty three thousand two hundred two dollars and twenty six cents	\$423,202.26	\$423,202.26
LS-3	Wetlands Planting and Seeding	LS	1	One hundred twenty two thousand four hundred seventy four dollars and sixty eight cents	\$122,474.68	\$122,474.68
<p><b><i>Grand Total Bid:     \$ 1,681,956.50</i></b>  <i>(Price in figures)</i></p>						

\_\_\_\_\_  
 Brian M. Veith, P.E.  
 (Name)

\_\_\_\_\_  
 Vice President  
 (Title)

\_\_\_\_\_  
 March 21, 2014  
 (Date)

Seal:

**GLENMERE LAKE PROPERTY  
WORK ASSIGNMENT NUMBER D007620-5  
DETAILED ENGINEERING COST ESTIMATE**

Item No.	Unit of Measure	Estimated Quantity	Description	Engineer's Estimate	
				Unit Price	Total Price
LS-1	L.S.	1	Submittals, Mobilization, Site Preparation and Demobilization	\$264,518.55	\$264,518.55
	6% of total	1	Mobilization, demobilization, plans, submittals, schedules, meetings and incidentals	--	\$90,916.57
	5% of total	1	Bonds and Insurances	--	\$75,763.81
	Month	12	Construction trailer, field office expenses, field office equipment	\$636.90	\$7,642.80
	LF	550	Temporary 6' fence for staging and storage area	\$8.09	\$4,446.75
	Month	12	Equipment and Storage Areas	\$132.00	\$1,584.00
	Mile	50	Construction trailer delivery	\$4.24	\$211.75
	L.S.	1	Setup temporary electric, trailer, telephone, sanitary	\$5,500.00	\$5,500.00
	Each	1	Computer and Office Trailer Equipment	\$1,100.00	\$1,100.00
	100 SF	5	Temporary lighting	\$39.05	\$195.25
	L.S.	1	Decontamination Station Installation and Pre/Post sampling	\$9,622.50	\$9,622.50
	L.S.	1	Underground Utility Survey	\$3,320.00	\$3,320.00
	L.S.	1.00	Initial Site Survey - Upland Areas	\$8,680.00	\$8,680.00
	L.S.	1.00	Initial Bathymetric Survey	\$5,000.00	\$5,000.00
	Day	1	2-person survey crew for final wetland excavation extents	\$1,480.00	\$1,480
	Day	1	2-person survey crew for lake bottom excavation extents	\$1,480.00	\$1,480
	Day	1	2-person survey crew for upland excavation extents	\$1,480.00	\$1,480
	Day	2	2-person survey crew for endpoint sample location surveying (1 day after upland, 1 day after wetland/water areas)	\$1,480.00	\$2,960
	L.S.	1.00	Final As-Built Survey	\$8,680.00	\$8,680.00
	LF	1,500	Phase I Cricket Frog Drift Fence	\$1.20	\$1,800.00
	LF	320	Phase II Cricket Frog Drift Fence	\$1.20	\$384.00
	LF	200	Turbidity Curtain	\$7.81	\$1,562.50
	Acre	1.52	Temporary seeding for soil stabilization	\$7,840.80	\$11,887.38
	Acre	1.52	Soil stabilization matting	\$5,844.30	\$8,860.50
	SF	32	Project Sign	\$12.91	\$413.25
	LS	1	Stabilized Construction Entrance	\$9,547.50	\$9,547.50
UP-1	Days	125	Site Services	\$509.90	\$63,737.62
	Day	15	Site Security	\$616.00	\$9,240.00
	Week	25	Access Road Dust Control	\$479.77	\$11,994.13
	Month	3	Temporary cooling	\$49.50	\$148.50
	Week	25	Temporary heat (24hr/day)	\$106.98	\$2,674.38
	Month	12	Power for temp lighting	\$17.27	\$207.24
	Month	12	Power for job duration	\$284.35	\$3,412.20
	Month	12	Portable Toilets	\$91.55	\$1,098.64
	Month	12	Temporary Phone and Internet	\$303.55	\$3,642.54
	Month	12	Drinking water delivery	\$110.00	\$1,320.00
	Month	12	Erosion, Sedimentation and Surface Water Control Maintenance	\$2,500.00	\$30,000.00
UP-2	Days	125	Health and Safety Services	\$994.72	\$124,339.60
	Week	17	Full-time Health and Safety Officer	\$2,500	\$42,500.00
	Week	7	Full-time Health and Safety Officer (while not in exclusion zone)	\$1,250	\$8,750.00
	Day	125	Daily field supplies, including PPE (\$35/day/person, assume average of 4 people on-site per day)	\$140	\$17,500.00

**GLENMERE LAKE PROPERTY  
WORK ASSIGNMENT NUMBER D007620-5  
DETAILED ENGINEERING COST ESTIMATE**

Item No.	Unit of Measure	Estimated Quantity	Description	Engineer's Estimate	
				Unit Price	Total Price
	Months	5	Air monitoring equipment - PID (4), particulate meter (4) and alarms	\$4,690.40	\$23,452.00
	Week	17	Documentation air sampling (6 sample pumps, 24 PVC collection filters per week, analysis of 6 samples per week for total dust)	\$775.65	\$13,186.00
	Week	17	Decon station	\$734.80	\$12,491.60
	Week	17	PPE Disposal (Assume 3 drums/week)	\$380.00	\$6,460.00
<b>UP-3</b>	<b>Acre</b>	<b>1.76</b>	<b>Clearing and Grubbing</b>	<b>\$6,209.17</b>	<b>\$10,911.23</b>
	Acre	0.12	Access Road and Staging Area	\$6,675.00	\$819
	Acre	0.35	Phase 1 - Wetland and Water Areas	\$6,675.00	\$2,360
	Acre	1.28	Phase 2 - Upland Areas	\$6,675.00	\$8,551
<b>UP-4</b>	<b>S.Y.</b>	<b>1,392</b>	<b>Gravel Access Road and Parking Area Construction</b>	<b>\$16.03</b>	<b>\$22,316.44</b>
	S.Y.	1,392	Grading roadway subgrade	\$4.49	\$6,252
	S.Y.	1,392	Geotextile for Access Road	\$3.04	\$4,233
	S.Y.	1,392	Graded Crushed Gravel Base	\$8.50	\$11,832
<b>LS-2</b>	<b>L.S.</b>	<b>1</b>	<b>Demolition and Removals</b>	<b>\$423,202.26</b>	<b>\$423,202.26</b>
	L.S.	1	Mobilization of asbestos subcontractor	\$3,000.00	\$3,000.00
	H.R.	280	Preparatory Work for controlled demolition (5 days, 8 hrs/day, 7 personnel)	\$55.00	\$15,400.00
	C.Y.	2,634	Demolition/Removal/Disposal of roof, floors, interior walls, exterior walls, etc.	\$100.00	\$263,388.89
	C.Y.	296	Demolition/Removal/Disposal of foundation materials	\$100.00	\$29,570.37
	Each	27	C&D waste characterization samples (assume 1 TCLP lead for every 100 yards of debris) on 5-day TAT	\$109.00	\$2,943.00
	Week	2	Weekly equipment rental, backhoe earth moving equipment with hydraulic hammer attachment	\$3,000.00	\$6,000.00
	Week	2	Weekly equipment rental, hydraulic excavator with hydraulic hammer attachment	\$4,600.00	\$9,200.00
	Week	4	Skid Steer Loader (Bobcat)	\$1,500.00	\$6,000.00
	H.R.	120	Equipment Operator (5 days, 8 hrs/day, 3 operators)	\$85.00	\$10,200.00
	C.Y.	190	Disposal of contaminated soil/debris within regulated area	\$100.00	\$19,000.00
	Each	2	Soil waste characterization samples(assume 1 asbestos sample for every 100 yards) on 5-day TAT	\$150.00	\$300.00
	H.R.	840	ACM Handlers: equipment cleanup, waste segregation and final cleanup (15 days, 8 hrs/day, 7 personnel)	\$55.00	\$46,200.00
	L.S.	1	Demobilization	\$3,000.00	\$3,000.00
	L.S.	1	Equipment Wash Station	\$4,500.00	\$4,500.00
	L.S.	1	Decontamination Unit	\$4,500.00	\$4,500.00

**GLENMERE LAKE PROPERTY  
WORK ASSIGNMENT NUMBER D007620-5  
DETAILED ENGINEERING COST ESTIMATE**

Item No.	Unit of Measure	Estimated Quantity	Description	Engineer's Estimate	
				Unit Price	Total Price
<b>UP-5</b>	<b>C.Y.</b>	<b>165</b>	<b>Excavation of Contaminated Wetlands Soil</b>	<b>\$142.64</b>	<b>\$23,535.00</b>
	S.Y.	100	Grading roadway subgrade (access road for long reach excavator)	\$4.49	\$449
	S.Y.	100	Geotextile for Access Road (access road for long reach excavator)	\$3.04	\$304
	S.Y.	100	Graded Crushed Gravel Base (access road for long reach excavator)	\$8.50	\$850
	Day	3	Wetland soil excavation (assume 1 long reach excavator, 1 equip. operator, 2 laborers, and 1 foreman)	\$5,920.00	\$17,760
	Load	17	Solidification of wet loads within roll-off container using cement dust	\$350.00	\$5,775
<b>UP-6</b>	<b>C.Y.</b>	<b>160</b>	<b>Excavation of Contaminated Lake Sediments</b>	<b>\$186.00</b>	<b>\$29,760.00</b>
	S.Y.	100	Grading roadway subgrade (access road for long reach excavator)	\$4.49	\$449
	S.Y.	100	Geotextile for Access Road (access road for long reach excavator)	\$3.04	\$304
	S.Y.	100	Graded Crushed Gravel Base (access road for long reach)	\$8.50	\$850
	Day	3	Lake bottom sediment excavation (assume 1 long reach excavator, 1 equip. operator, 2 laborers, and 1 foreman)	\$5,920.00	\$17,760
	Load	16	Solidification of wet loads within roll-off container using cement dust	\$750.00	\$12,000
<b>UP-7</b>	<b>C.Y.</b>	<b>2,150</b>	<b>Excavation of Contaminated Upland Soil</b>	<b>\$19.88</b>	<b>\$42,750.00</b>
	Day	12	Upland soil excavation (assume 1 excavator, 1 equip. operator, 2	\$3,562.50	\$42,750
<b>UP-8</b>	<b>Each Sample</b>	<b>130</b>	<b>Excavation Confirmation Sampling and Analysis</b>	<b>\$123.04</b>	<b>\$15,995.00</b>
	Per Sample	130	Lead and Arsenic by 6010B (48-hr TAT)	\$37.50	\$4,875
	Per Sample	10	MS/MSD/MSB (48-hr turn)	\$37.50	\$390
	Day	6	Labor for Confirmation Sample Collection (Assume 25 samples/day)	\$680.00	\$4,080
	HR	70.0	Labor for data validation and preparation of DUSRs (assumed 0.5	\$95.00	\$6,650
<b>UP-9</b>	<b>C.Y.</b>	<b>1,250</b>	<b>Backfill Upland Excavated Areas</b>	<b>\$27.51</b>	<b>\$34,387.50</b>
	C.Y.	1,250	Unclassified fill, 6" lifts, off-site, includes delivery, spreading, testing and compaction	\$25.79	\$32,238
	Each	1	Full TCL testing plus cyanide, plus geotechnical parameters for backfill	\$2,150.00	\$2,150
<b>UP-10</b>	<b>C.Y.</b>	<b>325</b>	<b>Backfill Excavated Wetland and Lake Bottom Areas</b>	<b>\$58.11</b>	<b>\$18,885.75</b>
	C.Y.	325	Select granular fill	\$46.95	\$15,259
	S.Y.	1,351	Spread dumped fill, 6" layers, without compaction	\$0.42	\$567
	Each	1	Full TCL testing plus cyanide, plus wetland fill testing	\$3,060.00	\$3,060
<b>UP-11</b>	<b>Tons</b>	<b>4,241</b>	<b>Transportation and Off-Site Disposal of Nonhazardous Metals-Contaminated Waste</b>	<b>\$84.03</b>	<b>\$356,348.96</b>
	Tons	3,655	Nonhazardous Upland Soil	\$80.00	\$292,400
	Tons	225	Access Road Materials	\$80.00	\$18,000
	Tons	291	Nonhazardous Wetland Soil, including weight of solidification agent	\$119.00	\$34,619
	Tons	70	Nonhazardous Lake Sediment, including weight of solidification agent	\$119.00	\$8,330
	Per Sample	3	Soil waste characterization samples (assume 1 sample per 100 yards) on a 5-day TAT	\$1,000.00	\$3,000

**GLENMERE LAKE PROPERTY  
WORK ASSIGNMENT NUMBER D007620-5  
DETAILED ENGINEERING COST ESTIMATE**

Item No.	Unit of Measure	Estimated Quantity	Description	Engineer's Estimate	
				Unit Price	Total Price
<b>UP-12</b>	<b>Acre</b>	<b>1.40</b>	<b>Site Restoration - Upland Areas</b>	<b>\$42,403.92</b>	<b>\$59,539.73</b>
	C.Y.	1,150	Topsoil, 6" lifts, Off-site	\$31.04	\$35,698
	Each	1	Full TCL testing plus cyanide, plus geotechnical parameters for backfill	\$2,150.00	\$2,150
	Acre	1.40	Seeding (Hydroseeding)	\$7,840.80	\$11,009
	Per Event	10.00	Watering (10 weeks, once/week)	\$1,068.21	\$10,682
<b>UP-13</b>	<b>Each Tree</b>	<b>136</b>	<b>Upland Planting (Trees)</b>	<b>\$470.63</b>	<b>\$64,194.18</b>
	Each Tree	112.00	Planting (Trees) - Assume 1 tree every 500 square feet	\$433.29	\$48,528
	Day	2.00	Landscaping Crew to stage cut trees	\$2,980.00	\$5,960
	Each Tree	22.40	Replacement of Dead Tree - Planting (Trees) - Assume 20% Replacement	\$433.29	\$9,706
<b>LS-3</b>	<b>L.S.</b>	<b>1</b>	<b>Wetlands Planting and Seeding</b>	<b>\$122,474.68</b>	<b>\$122,474.68</b>
	Day	15	Landscaping Crew	\$2,530.00	\$37,950
	Acre	0.23	Zone B, C, D Seeding (Hydroseeding)	\$7,840.80	\$1,842
	Each Plant	1,593	Zone D: Sensitive Fern ( <i>Onoclea sensibilis</i> ) at 3 plants/sq. meter	\$9.00	\$14,337
	Each Plant	36	Zone D: Staggerbush ( <i>Lyonia mariana</i> ) or smooth azalea ( <i>Rhododendron arborescens</i> ) at 1 plant/15 sq. meters	\$35.00	\$1,260
	Each Plant	287	Zone C: false nettle ( <i>Boehmeria cylindrica</i> ) or swamp loosestrife ( <i>Decodon verticillatus</i> ) at 1 plant/sq. meter	\$9.00	\$2,583
	Each Plant	861	Zone C: marsh fern ( <i>Thelypteris palustris</i> ) at 3 plants/sq. meter	\$9.00	\$7,749
	Each Plant	287	Zone C: arrow arum ( <i>Peltandra virginica</i> ) at 1 plant/sq. meter	\$9.00	\$2,583
	Each Plant	287	Zone C: marsh St. John's wort ( <i>Hypericum virginicum</i> ) at 1 plant/sq. meter	\$9.00	\$2,583
	Each Plant	29	Zone C: button bush ( <i>Cephalanthus occidentalis</i> ) at 1 plant/10 sq. meters	\$35.00	\$1,015
	Each Plant	1,872	Zone B: swamp smartweed ( <i>Persicaria hydropiperoides</i> ) at 8 plants/sq. meter	\$9.00	\$16,848
	Each Plant	936	Zone B: arrow arum ( <i>Peltandra virginica</i> ) at 4 plant/sq. meter	\$9.00	\$8,424
	Each Plant	117	Zone B: swamp loosestrife ( <i>Decodon verticillatus</i> ) or nodding burr marigold ( <i>Bidens cernua</i> ) at 1 plant every other square meter	\$9.00	\$1,053
	Each Plant	3	Zone A: buttonbush ( <i>Cephalanthus occidentalis</i> ), hazel alder ( <i>Alnus serrulata</i> ), sweet pepperbush ( <i>Clethra alnifolia</i> ), highbush blueberry ( <i>Vaccinium corymbosum</i> ) or silky dogwood ( <i>Cornus amomum</i> ) at 1 plant/5 sq. meters	\$9.00	\$27
		8	Zone A: swamp loosestrife ( <i>Decodon verticillatus</i> ).	\$35.00	\$280
	Per Event	10.00	Watering (10 weeks, once/week)	\$1,173.82	\$11,738
	L.S.	1.00	Post-Restoration Vegetation Survey	\$3,320.00	\$3,320
	Per Event	3.00	Site visits during establishment period	\$1,360.00	\$4,080
	Each Sample	1.00	Soils analysis during establishment period	\$1,482.00	\$1,482
	L.S.	1.00	Post-restoration annual report	\$3,320.00	\$3,320
<b>UP-14</b>	<b>Day</b>	<b>2</b>	<b>Transplanting Wetlands Plants</b>	<b>\$2,530.00</b>	<b>\$5,060.00</b>
	Day	2	Landscaping Crew	\$2,530.00	\$5,060
<b>Grand Total</b>					<b>\$1,681,956.50</b>