Multi-Use Development Known As Underhill Farms RECEIVED 370 Underhill Avenue PLANNING DEPARTMENT MAY 9 2023 Proposed By: TOWN OF YORKTOWN Unicorn Contracting

OWNER / Applicant:

Unicorn Contacting Corp. 10 Julia Lane, Suite 103 Cold Spring, NY 10516 845-809-5969

PROJECT ATTORNEY:

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PROJECT ENGINEER:

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Site Design Consultants 251 F Underhill Avenue Yorktown Heights, NY 10598 914-962-4488

## TRAFFIC ENGINEER:

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Colliers Engineering & design 400 Columbus Avenue Suite 180E Valhalla, NY 10595 914-347-4700

## PROJECT ARCHITECT:

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## **ENVIRONMENTAL CONSULTANT:**

# Steven Marino, PWS

Tim Miller Associates, Inc. 10 North Street Cold Spring, NY 10516 845-265-4400

## CULTURAL RESOURCES CONSULTANT:

# Beth Selig

**Hudson Cultural Services** Box 264 Salt Point, NY 12578 845-465-3698

## LANDSCAPE ARCHITECT:

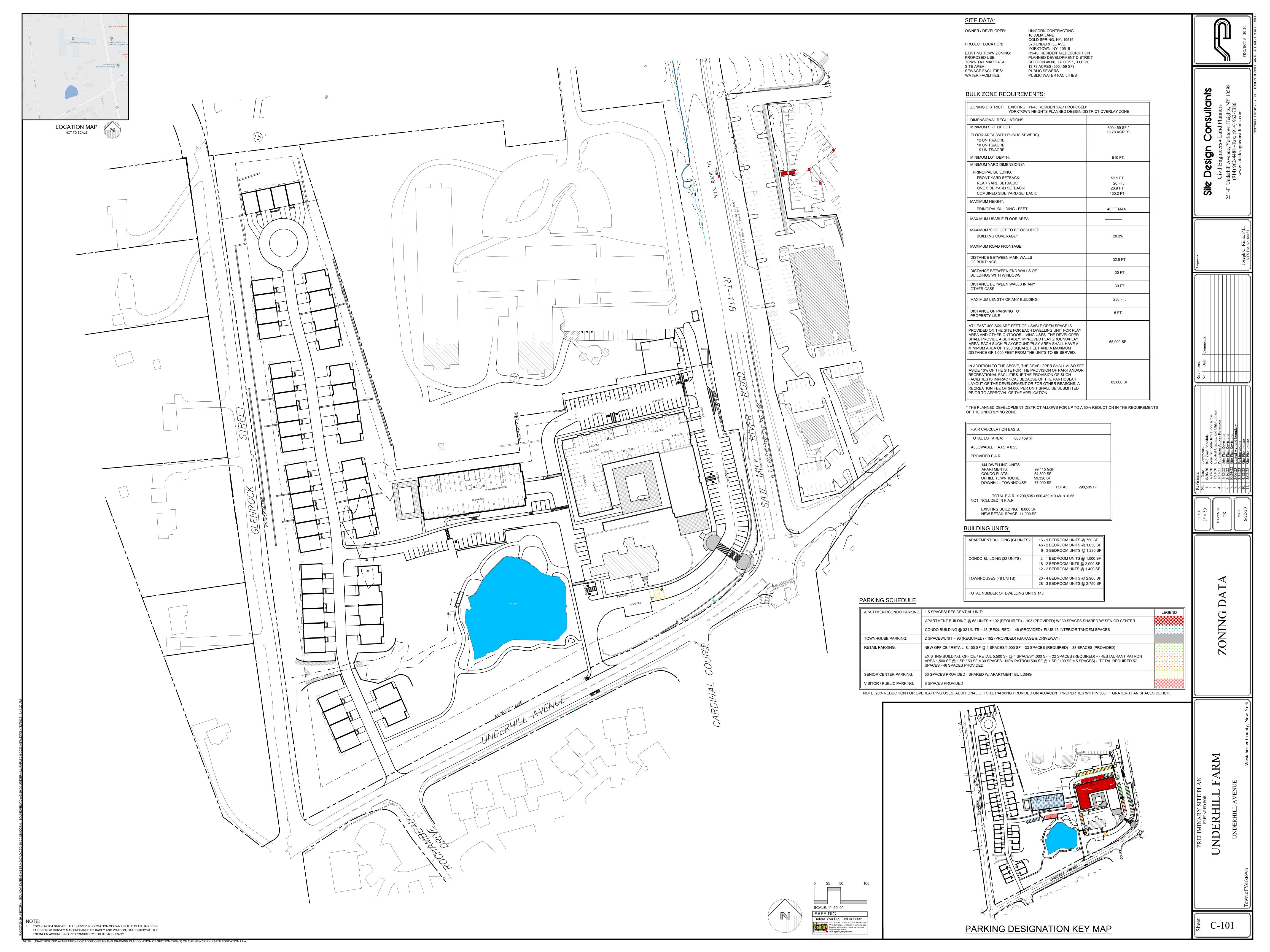
## Earl Govern, AIA

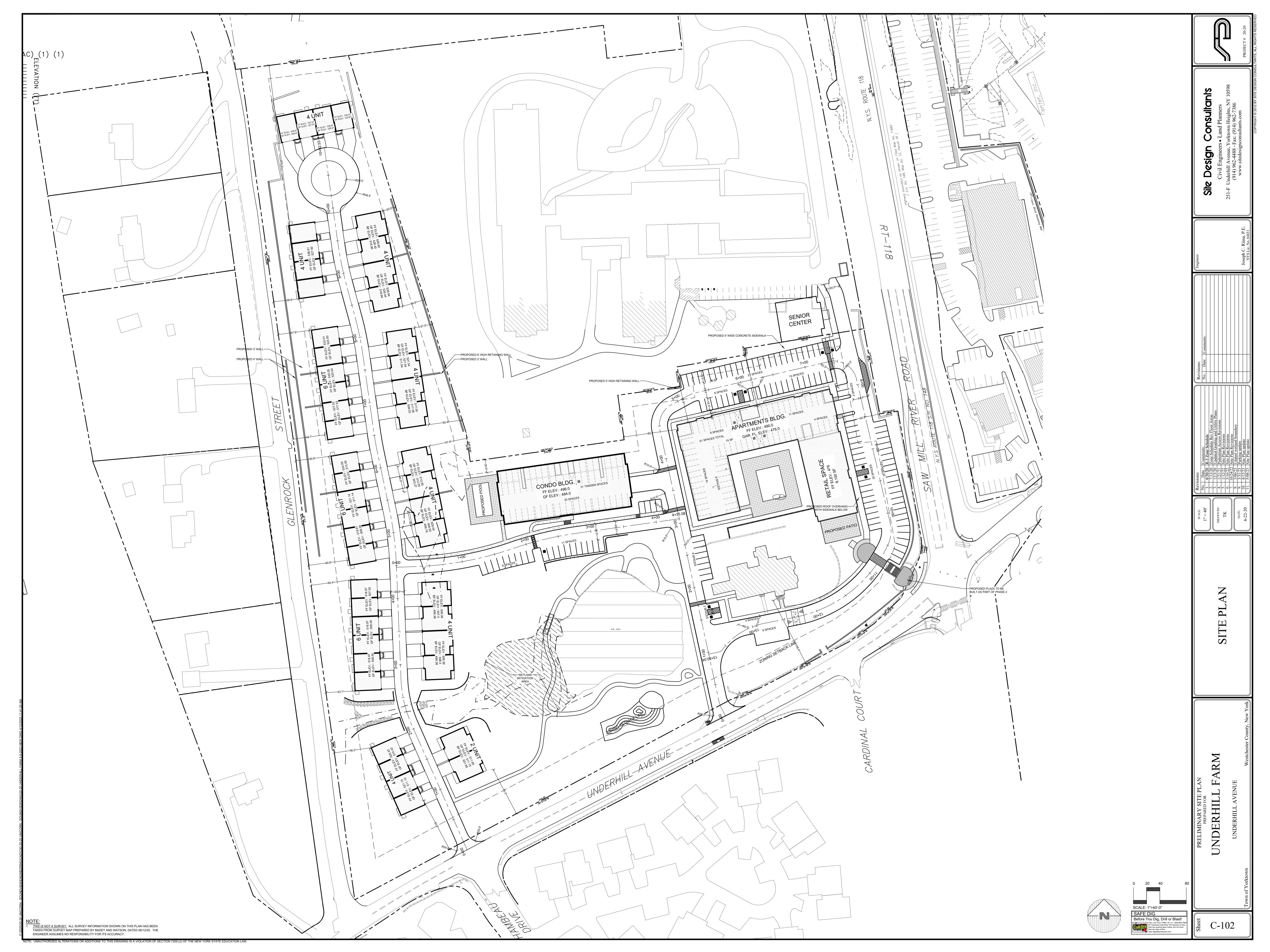
Blades & Govern, Landscape Architects Box 1851 Fairfield, Ct 06825 203-254-8530

## SURVEYOR:

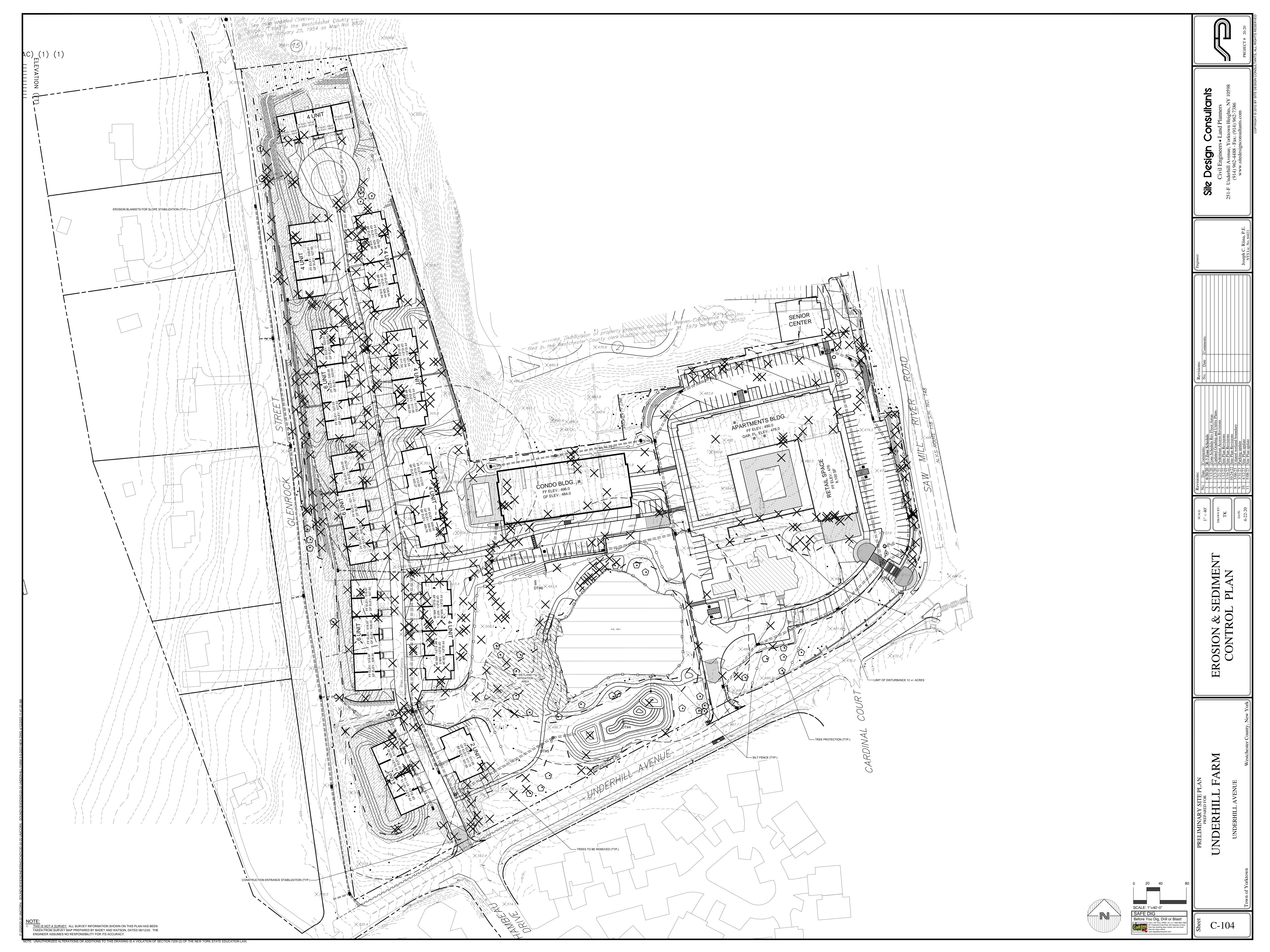
Glen Watson, L.S. Badey & Watson Surveying & Engineering 3063 Route 9 Cold Spring, NY 10516 845-265-9216

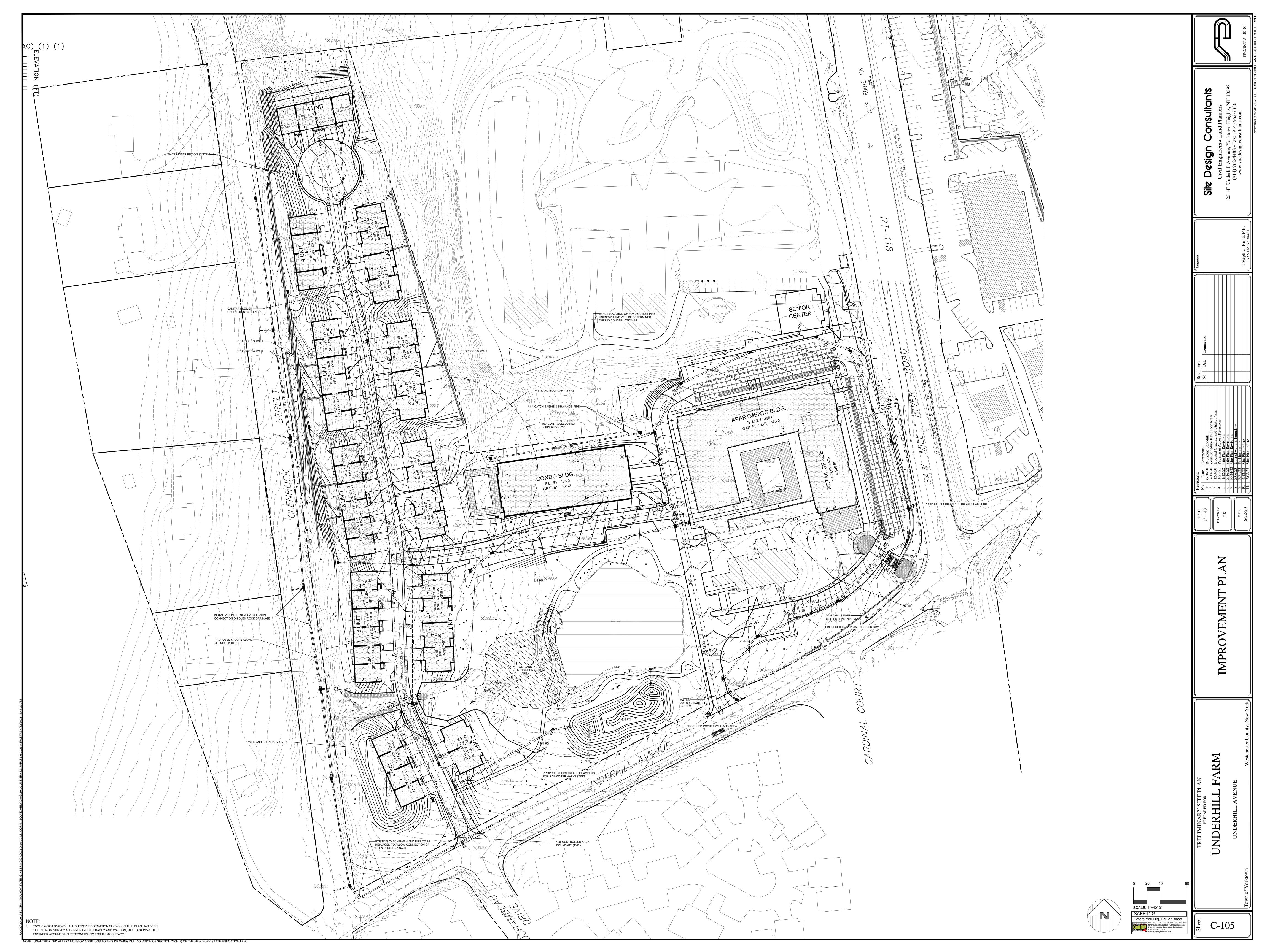
Date: May 8, 2023

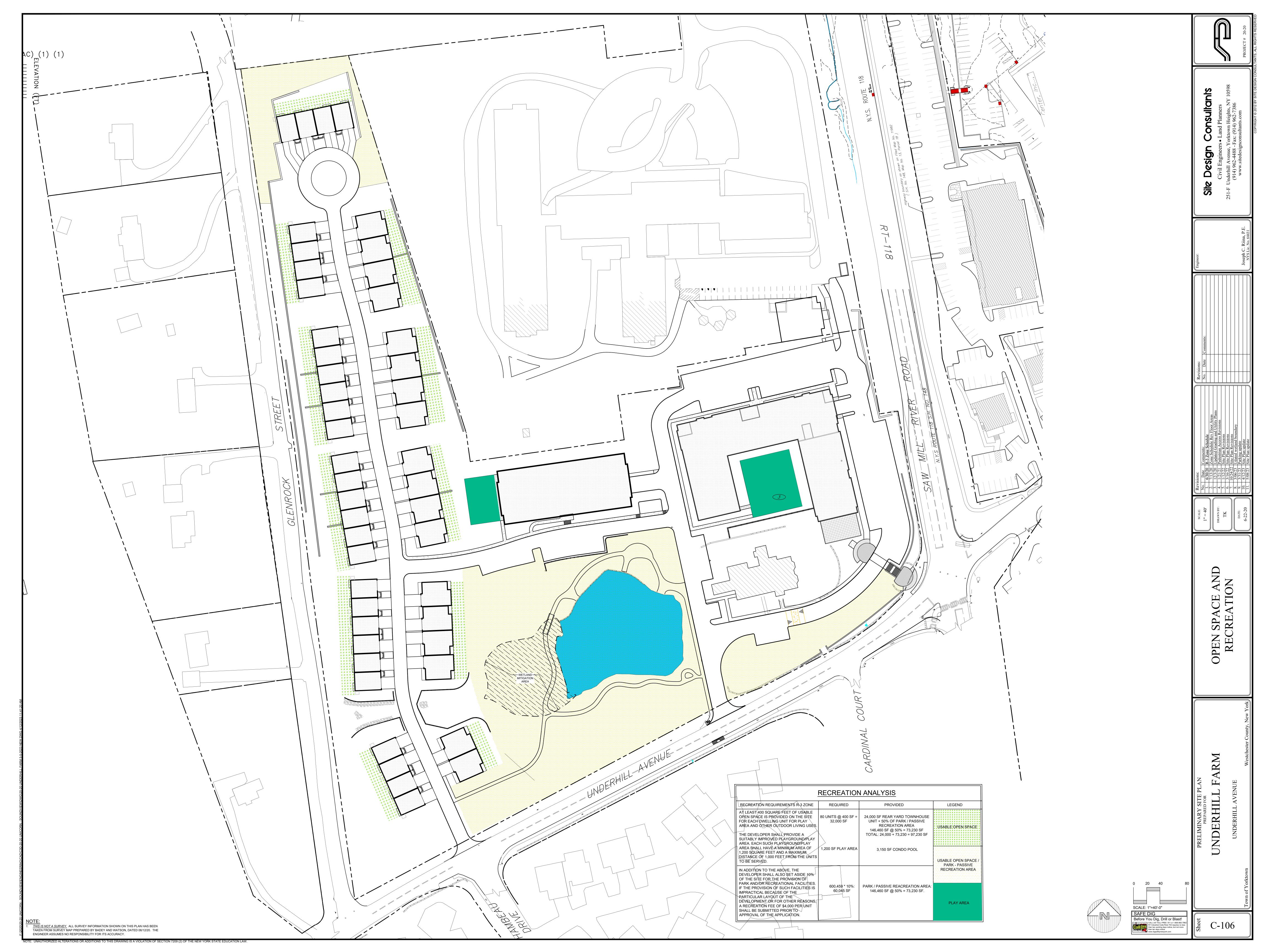


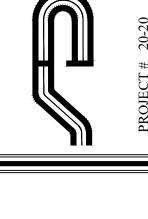


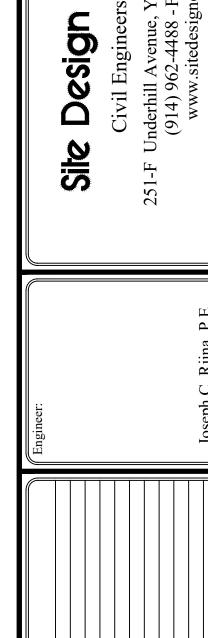














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PVI ELEV: 492.27' LENGTH: 30.00' K: 10.00 K: 15.00 PASSING SIGHT DIST: 788.18'
STOPPING SIGHT DIST: 347.29' 500 LENGTH: 43.31' LENGTH: 94.96 LOW PT STA: 7+23.17 LOW PT STA: 10+44.99 LOW PT STA: 5+22.22 HIGH PT STA: 8+46.15 HEADLIGHT DIST: 113.64' PASSING SIGHT DIST: 291.74' 9 8 LOW PT ELEV: 478.74' LOW PT ELEV: 474.96' LOW PT ELEV: 475.67' HIGH PT ELEV: 477.54' ମ୍ମିରିSTOPPING SIGHT DIST: 152.46'ନ୍ନାରି PVI STA: 5+00.00 PVI STA: 7+30.66 PVI STA: 8+35.98 PVI STA: 10+75.22 PVI ELEV: 479.19' PVI ELEV: 474.49' PVI ELEV: 477.69' PVI ELEV: 475.30' K: 15.00 K: 10.00 K: 15.00 K: 15.00 LENGTH: 44.44' LENGTH: 76.08 LENGTH: 90.45' LENGTH: 40.35 HEADLIGHT DIST: 118.12' PASSING SIGHT DIST: 403.41' HEADLIGHT DIST: 110.33' STOP멦S SIGHT DI되려84.88' GRADE BREAK STA = 0+00.00 ELEV = 487.35 470

HIGH PT STA: 3+10.83 HIGH PT ELEV: 488.35' PVI STA: 3+25.83

PVI ELEV: 487.90' K: 15.00

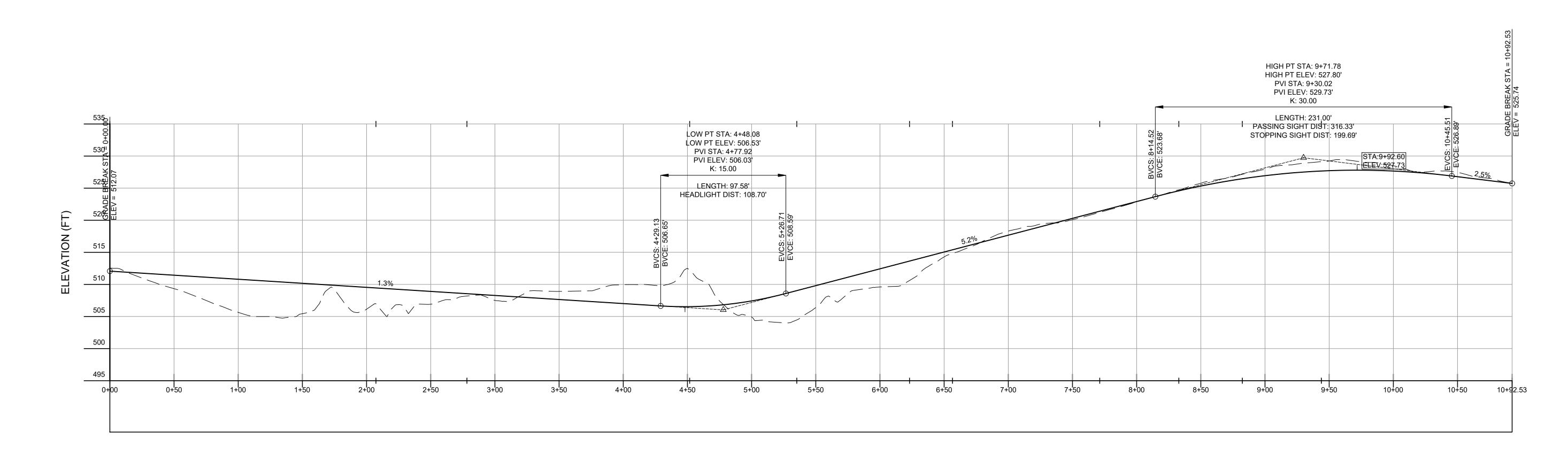
HIGH PT STA: 1+82.67 HIGH PT ELEV: 491.52' PVI STA: 1+80.19

LOW PT STA: 0+13.35

LOW PT ELEV: 487.27' PVI STA: 0+25.00 PVI ELEV: 487.10'

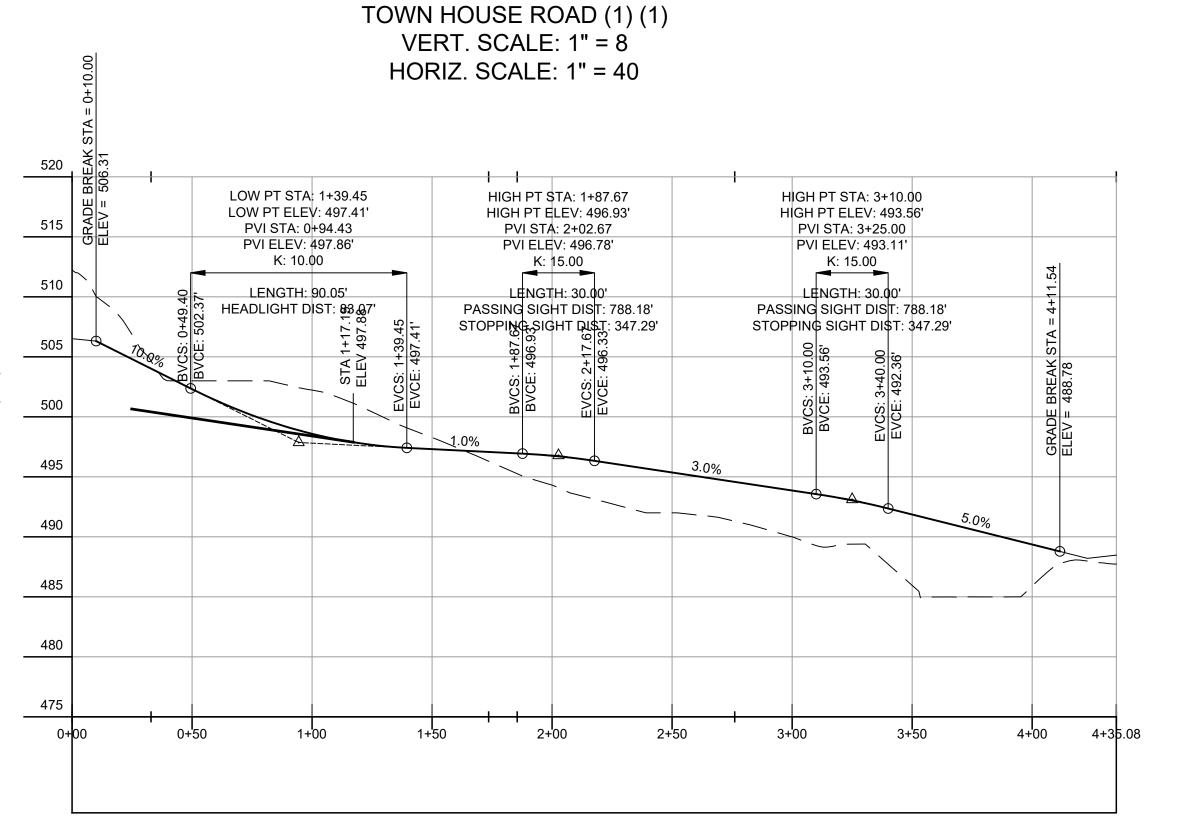
## DISTANCE ALONG BASELINE (FT)

## APARTMENT DRIVEWAY (1) (1) VERT. SCALE: 1" = 8 HORIZ. SCALE: 1" = 40



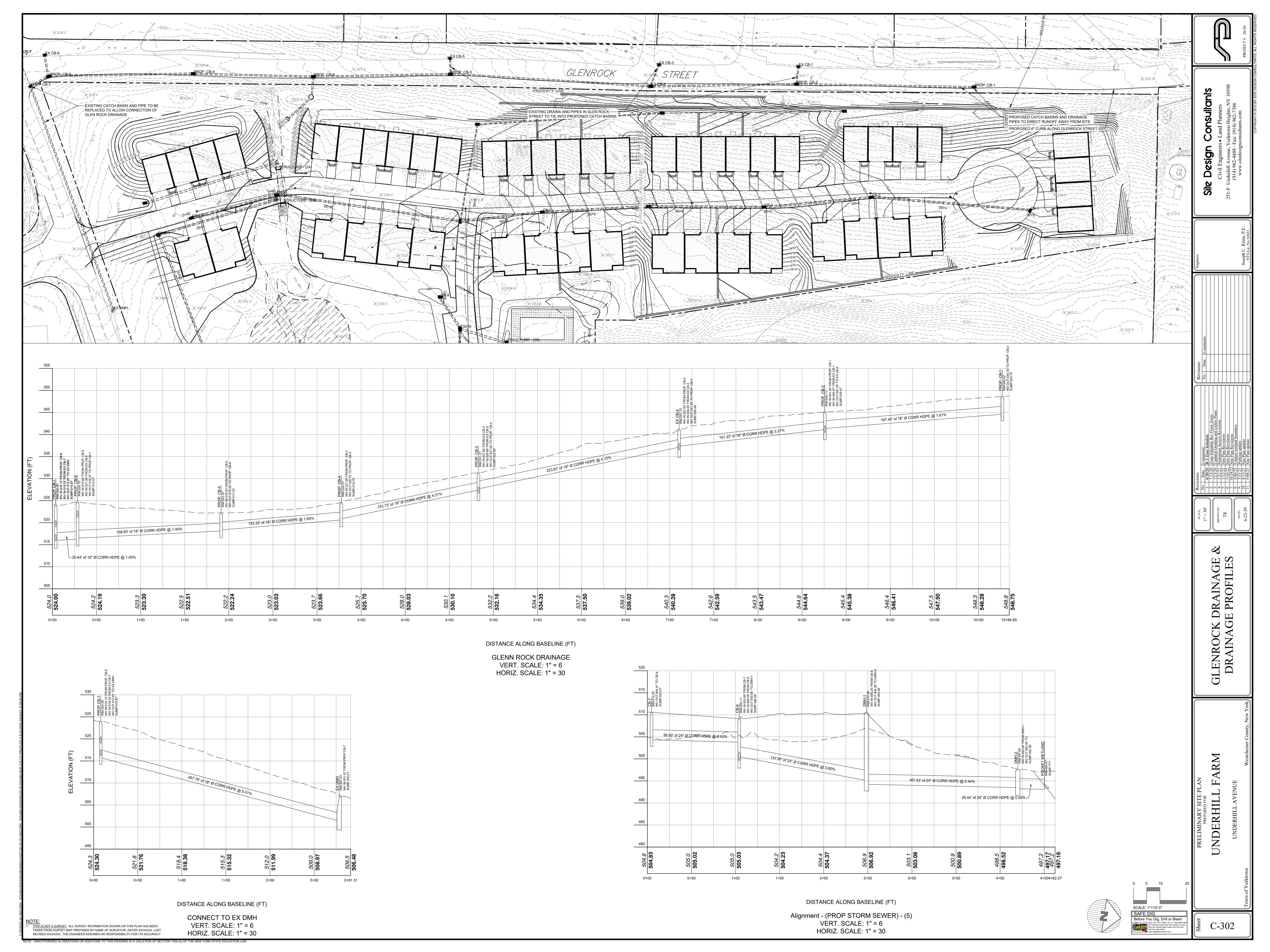
## DISTANCE ALONG BASELINE (FT)

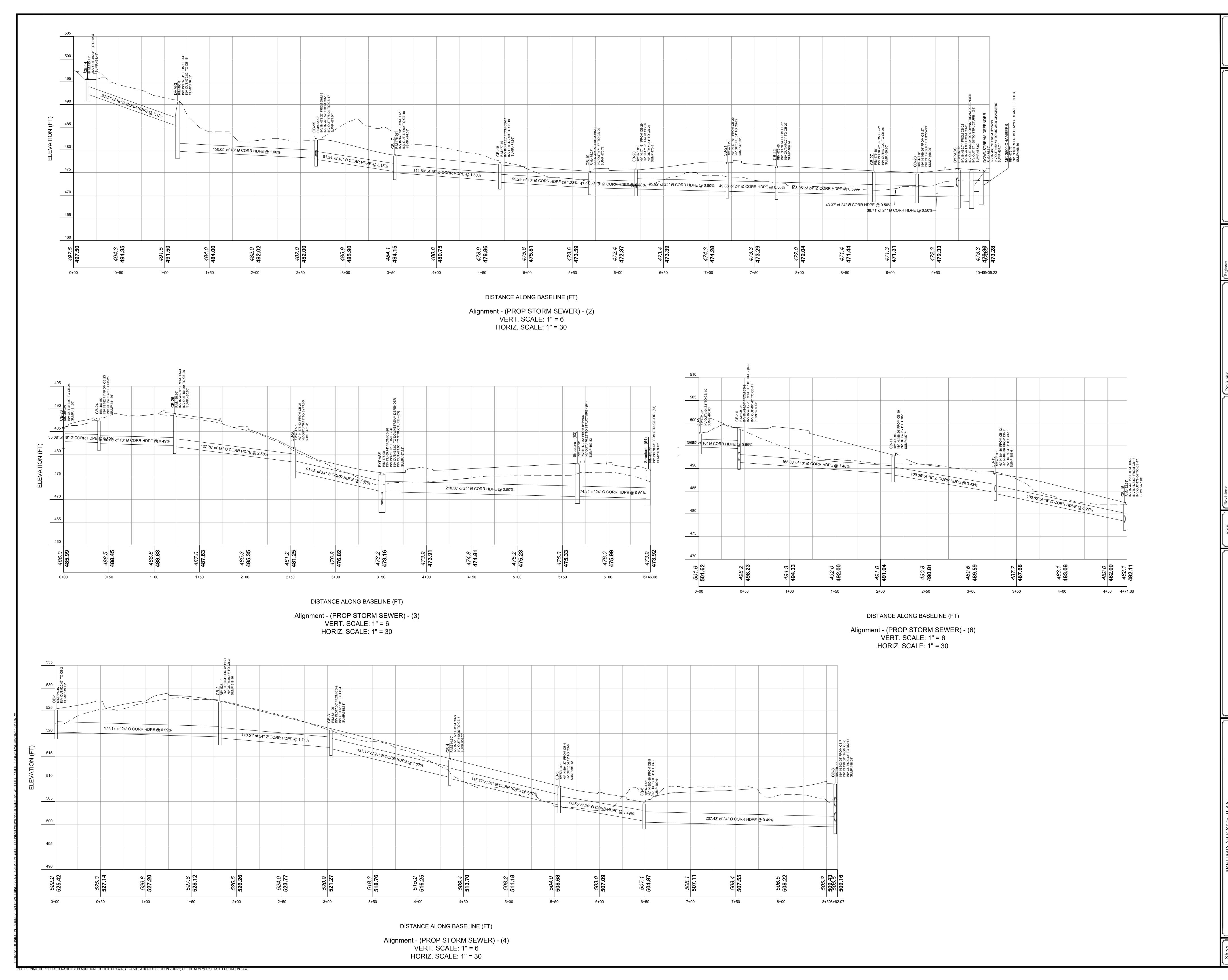
# TOWN HOUSE ROAD (1) (1)



## DISTANCE ALONG BASELINE (FT)

CONNECTING DRIVE (1) (1) VERT. SCALE: 1" = 8 HORIZ. SCALE: 1" = 40





JL AVENUE

DR

UNDERHILL FA

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THFREFROM. THE ENGINEER SHALL NOT BE HELD RESPONSIBLE OR HELD ACCOUNTABLE FOR THE INTEGRITY OF ANY STRUCTURES CONSTRUCTED OR UNDER CONSTRUCTION PRIOR TO THE APPROVAL OF THE PLANS. THE TOWN ENGINEER'S OFFICE AND WATER DISTRICT OFFICE IS TO BE NOTIFIED 24 HOURS BEFORE

COMMENCING SITE CONSTRUCTION OR WATER MAIN CONNECTION. ALL WORK IS TO BE IN ACCORDANCE WITH THE TOWN CODE OF PRACTICE AND SPECIFICATIONS. ALL CONDITIONS, LOCATIONS, AND DIMENSIONS SHALL BE FIELD VERIFIED AND THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY DISCREPANCIES.

ALL CHANGES MADE TO THE PLANS SHALL BE APPROVED BY THE ENGINEER WHOSE SEALAPPEARS ON THESE DRAWINGS. ANY SUCH CHANGES SHALL BE FILED AS AMENDMENTS TO THE ORIGINAL BUILDING ALL WRITTEN DIMENSIONS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER ANY SCALED IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALL IN A "CODE 53" PRIOR TO CONSTRUCTION FOR UNDERGROUND UTILITY LOCATIONS. 9. SUBSTRUCTURES AND THEIR ENCROACHMENTS BELOW GRADE.

IF ANY, ARE NOT SHOWN. ). ANY PROPOSED ELECTRIC AND/OR TELEPHONE SERVICE LINES ARE TO BE PLACED UNDERGROUND. 0. THE DESIGN ENGINEER DISCLAIMS ANY LIABILITY FOR DAMAGE OR LOSS INCURRED DURING OR AFTER 1. ALL CONDITIONS, LOCATIONS AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND THE OWNER/ENGINEER NOTIFIED IN WRITING OF ANY DISCREPANCIES PRIOR TO THE START OF WORK. THE OWNER/ENGINEER WILL EVALUATE THE SITUATION AND MODIFY THE PLAN AS NECESSARY.

#### CONTRACTOR RESPONSIBILITIES:

. ALL WORK ON THE PROJECT SHALL BE PERFORMED IN A WORKMAN LIKE MANNER AND SHALL BE IN ACCORDANCE WITH THE STANDARDS OF THE INDUSTRY. THE OWNER WILL BE THE SOLE JUDGE OF THE ACCEPTABILITY OF THE WORK. MATERIALS AND WORK DEEMED UNACCEPTABLE WILL BE REMOVED AND REDONE AT THE SOLE COST AND RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT HIS WORK AND WILL BE HELD RESPONSIBLE FOR CONSEQUENTIAL DAMAGES DUE TO HIS ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE OWNER FOR THE ACTS AND OMISSIONS OF HIS EMPLOYEE. AND THEIR AGENTS AND EMPLOYEES. AND ANY OTHER PERSONS PERFORMING ANY THE WORK UNDER A SEPARATE CONTRACT WITH THE

3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY SHORE EXISTING UTILITIES IF REQUIRED BY CONSTRUCTION. . IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE THE BUILDING INSPECTOR IN ADVANCE OF HIS WORK OR AS THE INSPECTOR DEEMS APPROPRIATE. i. ALL CONDITIONS, LOCATIONS AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND THE OWNER/ENGINEER NOTIFIED IN WRITING OF ANY DISCREPANCIES PRIOR TO THE START OF WORK. THE OWNER/ENGINEER WILL EVALUATE THE SITUATION AND MODIFY THE PLAN AS NECESSARY. :. ALL CHANGES MADE TO THIS PLAN SHALL BE APPROVED BY THE ENGINEER WHOSE SEAL APPEARS ON

THESE DRAWINGS. ANY UNAUTHORIZED ALTERATION OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF

SECTION 7209 (2) OF THE NEW YORK STATE EDUCATION LAW. . THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING HIS BEST SKILL AND ATTENTION. HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THIS CONTRACT

I. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE OWNER FOR THE ACTS AND OMISSIONS OF HIS EMPLOYEES, SUBCONTRACTORS, AND THEIR AGENTS AND EMPLOYEES, AND ANY OTHER PERSONS PERFORMING ANY OF THE WORK UNDER A CONTRACT WITH THE CONTRACTOR. 9. THE CONTRACTOR SHALL VERIFY ALL SUBSTRUCTURES ENCOUNTERED DURING CONSTRUCTION. 0. THE CONTRACTOR SHALL SECURE & PAY FOR A BUILDERS RISK POLICY TO COVER THE PERIOD OF CONSTRUCTION. THE ENGINEER & OWNER SHALL BE NAMED AS ADDITIONAL INSURED. ALL CONTRACTORS EMPLOYED AT THE SITE SHALL BE COVERED BY WORKMAN'S COMPENSATION.

### GENERAL CONSTRUCTION NOTES

BLASTING ORDINANCES.

1. BENCH MARKS USING U.S.G.S. DATUM SHALL BE OF SUCH ELEVATION THAT THE GROUND WILL SLOPE AWAY FROM IT IN ALL DIRECTIONS. 2. CONSTRUCTION ACTIVITY SHALL BE LIMITED FROM 8:00 A.M. TO 6 P.M., AND NO CONSTRUCTION ACTIVITY SHALL OCCUR ON SUNDAYS OR LEGAL NEW YORK STATE HOLIDAYS. WHERE BLASTING IS NECESSARY, IT SHALL OCCUR FROM MONDAY THROUGH FRIDAY BETWEEN THE HOURS OF 8:00 A.M. AND 6:00 P.M. NO BLASTING SHALL OCCUR ON HOLIDAYS, SATURDAY OR SUNDAY. ALL BLASTING SHALL ALSO BE COMPLETED IN ACCORDANCE WITH THE TOWN OF YORKTOWN AND NEW YORK STATE

B. ANY SOIL THAT IS UNSUITABLE FOR DEVELOPMENT OF BUILDINGS OR ROADWAYS SHALL BE REMOVED FROM AREAS TO BE DEVELOPED AND SHALL BE DISPOSED OF WITHIN THE SITE IN NEW EMBANKMENTS WHERE STRUCTURAL LOADING, I.E. A BUILDING OR ROADWAY, WILL NOT TAKE PLACE. WHEN CONSTRUCTION IS PROPOSED TO OCCUR IN SPECIFIC AREAS WHERE SOILS ARE OF QUESTIONABLE SUITABILITY, THE APPLICANT SHALL PROVIDE SOILS ENGINEERING REPORTS AS REQUIRED BY THE PLANNING BOARD ENGINEER, PRIOR TO THE CONSTRUCTION OF ROADWAYS AND, AS REQUIRED BY THE BUILDING INSPECTOR, PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.

4. NO TOPSOIL SHALL BE REMOVED FROM THE SITE. 5. ROCK CUT STABILITY IS TO BE FIELD VERIFIED BY GEOTECHNICAL ENGINEER

AND SHALL BE MODIFIED IF REQUIRED. 6. NO CRUSHING/PROCESSING IS PERMITTED ON THE SITE WITHOUT PRIOR APPROVAL BY THE TOWN OF YORKTOWN PLANNING BOARD.

#### **GENERAL STORM DRAINAGE & UTILITY NOTES**

. ALL UTILITIES, INCLUDING ELECTRIC LINES, TELEPHONE, WATER, SANITARY SEWER LINES, AND STORM SEWER LINES SHALL BE LOCATED UNDERGROUND AND SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE TOWN OF YORKTOWN AND THE UTILITY COMPANIES HAVING LOCATION OF GAS AND WATER VALVES, ELECTRIC AND TELEPHONE POLES ARE TO BE DETERMINED BY PROPER AUTHORITIES AND APPROVED, AS TO LOCATION, BY THE TOWN ENGINEER. 3. EACH BUILDING CONSTRUCTED HEREON SHALL BE OF SUCH AN ELEVATION THAT THE GROUND WILL SLOPE AWAY FROM IT IN ALL DIRECTIONS. IN THE EVENT THAT THIS IS NOT FEASIBLE, THE CONTRACTOR SHALL INSTALL TYPICAL YARD DRAINS AS REQUIRED AND CONNECT THEM TO THE STORM DRAINAGE SYSTEM OR AS DIRECTED BY THE PROJECT ENGINEER.

1. ROOF LEADERS AND FOOTING DRAINS SHALL EMPTY INTO THE STORM DRAINAGE SYSTEM OR DISCHARGE DIRECTLY TO STORMWATER MANAGEMENT SYSTEMS IF GRADES PERMIT, AND CONNECTION TO THE STORM SYSTEM IS NOT FEASIBLE, FOOTING DRAINS ONLY MAY DISCHARGE TO DAYLIGHT AT THE REAR OF BUILDINGS. FOOTING DRAINS SHALL EXTEND A MINIMUM OF 30 FT. FROM THE REAR FACE OF THE BUILDING WHEN POSSIBLE. UNDER NO CIRCUMSTANCES SHALL THE DISCHARGE OF GROUND WATER OR STORM WATER, EITHER BY GRAVITY OR BY PUMPING, BE DISCHARGED TO ANY SANITARY SEWER SYSTEM.

5. ANY REVISIONS AND/OR ADDITIONS TO THE ROAD STORM DRAINAGE SYSTEMS CURRENTLY SHOWN ON THE PLANS WHICH ARE DEEMED NECESSARY DURING CONSTRUCTION MUST BE MADE BY THE CONTRACTOR AS REQUIRED BY THE TOWN AND SHALL BE SHOWN ON THE AS-BUILT DRAWINGS. 6. STORM DRAIN PIPING TO BE HIGH DENSITY POLYETHYLENE AS SHOWN ON THE CONSTRUCTION

DRAWINGS. MINIMUM COVER TO BE 2' UNLESS OTHERWISE NOTED. 7. INTERCEPTOR DRAINS ARE TO BE INSTALLED WHERE REQUIRED BY THE TOWN OR PROJECT ENGINEER DURING ROAD CONSTRUCTION. 8. ALL EXISTING UNDERGROUND DRAINS ENCOUNTERED DURING CONSTRUCTION OF PROPOSED ROADS

ARE TO BE CONNECTED TO PROPOSED DRAINAGE IMPROVEMENTS. CONNECTIONS TO BE APPROVED BY THE TOWN ENGINEER. . PRIOR TO FINAL APPROVAL AND OPERATION OF DRAINAGE SYSTEM, CONTRACTOR SHALL CLEAR ALL ACCUMULATED SEDIMENT AND/OR DEBRIS FROM DRAINAGE STRUCTURES, MANHOLES, CULVERTS,

OUTLETS AND DRAIN INLETS. ENGINEER SHALL BE NOTIFIED FOR FINAL INSPECTION. 0. ALL STRUCTURES SHALL BE SET ONE INCH BELOW PAVEMENT. 1. STREET OPENING PERMIT FROM THE TOWN OF YORKTOWN D.P.W. MAY BE REQUIRED FOR

INSTALLATIONS IN PUBLIC ROADS.

## WALL NOTES:

1. EXCAVATION IN GENERAL SHALL CONFORM TO THE LINES AND GRADES SHOWN ON THE CONTRACT DRAWINGS. THE ENGINEER SHALL BE NOTIFIED OF UNSUITABLE SUB-GRADE SOILS PRIOR TO PLACEMENT

BEARING CAPACITY OF 2 TSF. ALL OTHER CONDITIONS SHALL BE APPROVED BY THE GEOTECHINICAL ENGINEER. 4. TO INSURE A PROPER BEARING SURFACE, THE WALL SHALL BE CONSTRUCTED ON NATURAL IN-SITU SOIL, THE CONTRACTOR SHALL STRIP ALL TOP SOIL. THE AREA SHALL THEN BE COMPACTED USING SUITABLE COMPACTION EQUIPMENT. A MINIMUM OF 3 PASSES SHALL BE MADE. WALLS SHALL NOT BE CONSTRUCTED ON WET OR FROZEN GROUND. 6. SOILS USED AS BACKFILL SHALL CONSIST OF CLEAN DRY SOIL. THE MATERIAL SHALL BE GRANULAR

. WALLS TO BE CONSTRUCTED ON VIRGIN IN-SITU SOIL SHALL HAVE A MINIMUM ALLOWABLE

AND FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL. IN GENERAL THE SOIL SHALL BE NON-PLASTIC WITH A PLASTICITY INDEX LESS THAN 5 AND SHALL CONFORM TO THE AASHTO SOIL CLASSIFICATION SYSTEM FOR AN "A-1-A" SOIL . HOWEVER THE MAXIMUM SIZE SHALL BE 6". IN GENERAL ALL FILL SHALL BE APPROVED BY THE ENGINEER PRIOR TO IT'S USE. WET MATERIAL OR UNSUITABLE MATERIAL SHOULD NOT BE USED. . BACKFILL SHALL BE PLACED AND COMPACTED IN A MAXIMUM 12" LIFTS.

8. ALL BOULDER RETAINING WALLS SHALL HAVE A GEOTEXTILE FABRIC BACKING FOR THE FULL HIEGHT OF THE WALL AS MANUFACTURED BY MIRAFI OR APPROVED EQUAL. DETERMINE IF THE ADDITION OF AN UNDERDRAIN MAY BE REQUIRED. 0. THE CONTRACTOR SHALL NOT USE LARGE OR HEAVY CONSTRICTION EQUIPMENT WITHIN 5' OF THE RETAINING WALLS OR NEW FOUNDATION WALLS. HAND OPERATED COMPACTING

EQUIPMENT SHALL BE USED WITHIN 5' OF THE WALL FACE.

 ALTERNATE WALL DESIGNS MUST BE SEALED BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER THE MINIMUM FACTORS OF SAFETY FOR SLIDING AND OVERTURNING SHALL BE 2.0. 2. ALTERNATE WALL DESIGNS MUST BE SEALED BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER THE MINIMUM FACTORS OF SAFETY FOR SLIDING AND OVERTURNING SHALL BE 2.0.

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

### WATERMAIN NOTES

TO THE PIPE.

I. DISTRIBUTION SYSTEM - WATERMAIN

CHARGE. THE PHONE NUMBER IS 1-800-245-2828.

THE CONTRACTOR SHALL PERFORM THE NECESSARY EXCAVATION, BACKFILLING, CLEARING, GRUBBING, SHEETING, SHORING, DO ALL SHAPING OF TRENCHES, PUMPING AND BAILING, LAYING AND JOINING OF ALL PIPES, PROTECT AND SUPPORT EXISTING STRUCTURES AND REPAIR THEM, IF DAMAGED, AND ALL ELSE NECESSARY TO COMPLETE THE WORK.

B. SITE AND ACCESS CLEARING (WITHIN EASEMENTS) THE CONTRACTOR SHALL CONFINE ALL CLEARING OPERATIONS TO WITHIN THE IMMEDIATE AREAS THAT ARE ESSENTIAL FOR CONSTRUCTION OF THE WORK.

THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, LABOR, AND TOOLS

NECESSARY TO COMPLETE THE WORK IN A SAFE, NEAT, AND WORKMANLIKE MANNER.

C. STOCKPILING OF SUITABLE BACKFILL MATERIAL THE CONTRACTOR SHALL BE PREPARED WHEN EXCAVATING THE TRENCH TO SEPARATE SUITABLE BACKFILL MATERIAL FROM UNSUITABLE MATERIAL FOR USE AS BACKFILL ADJACENT

D. PROTECTION OF EXISTING STRUCTURES AND UTILITIES SPECIAL PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT OVERHEAD POWER LINES. WATERMAINS, GAS MAINS, ELECTRIC AND TELEPHONE CONDUITS, STORM AND SANITARY SEWERS, CULVERTS, BUILDINGS AND OTHER EXISTING STRUCTURES IN AND NEAR THE EXCAVATION. IN ALL CASES, WHETHER UNDERGROUND STRUCTURES HAVE OR HAVE NOT BEEN DELINEATED, THE TOWN ENGINEER, WATER SUPERINTENDENT, OR AUTHORIZED REPRESENTATIVE ACCEPTS NO RESPONSIBILITY

FOR THEIR LOCATION. 'UNDERGROUND UTILITIES" LOCATES EXISTING UNDERGROUND UTILITIES FREE OF

GUTTERS, SEWERS, DRAINS AND DITCHES SHALL BE KEPT OPEN AT ALL TIMES FOR SURFACE DRAINAGE. NO DAMMING OR PONDING OF WATER IN GUTTERS OR OTHER WATERWAYS WILL BE PERMITTED EXCEPT WHERE STREAM CROSSINGS ARE NECESSARY AND THEN ONLY TO AN EXTENT WHICH THE TOWN ENGINEER, WATER SUPERINTENDENT, OR AUTHORIZED REPRESENTATIVE SHALL CONSIDER NECESSARY. THE CONTRACTOR SHALL NOT DIRECT ANY FLOW OF WATER ACROSS OR OVER PAVEMENTS EXCEPT THROUGH APPROVED PIPES OR PROPERLY CONSTRUCTED TROUGHS OF SUCH SIZES AND LENGTHS AS MAY BE REQUIRED. AND PLACE THE SAME AS DIRECTED. THE GRADING IN THE VICINITY OF TRENCHES SHALL BE CONTROLLED SO THAT THE GROUND SURFACE IS PROPERLY PITCHED TO PREVENT WATER RUNNING IN THE TRENCHING. THE CONTRACTOR SHALL NOT COMMENCE OPERATIONS INVOLVING ANY PUBLIC UTILITY BEFORE HAVING GIVEN WRITTEN NOTICE TO THE COMPANY OR OWNER, OR ITS AGENTS. AND SHALL COOPERATE WITH THE COMPANY'S OR OWNER'S FORCES IN PROTECTING AND PREVENTING DAMAGE TO THE PROPERTY.

THE CONTRACTOR WILL. AT HIS OWN EXPENSE, BE RESPONSIBLE FOR DIRECT OR INDIRECT. DAMAGE THAT MAY BE DONE TO ANY UTILITY OR STRUCTURE IN THE PROSECUTION OF HIS WORK. THE LIABILITY OF THE CONTRACTOR IS ABSOLUTE AND IS NOT DEPENDENT UPON ANY QUESTIONS OF NEGLIGENCE ON HIS PART OR ON THE PART OF HIS AGENT, OR EMPLOYEES, AND THE NEGLECT OF THE TOWN ENGINEER, WATER SUPERINTENDENT, OR AUTHORIZED REPRESENTATIVE TO DIRECT THE CONTRACTOR TO TAKE ANY PARTICULAR PRECAUTION OR TO REFRAIN FROM DOING SUCH DAMAGE. SHOULD THE POSITION OF ANY PIPE, CONDUIT, POLE OR OTHER STRUCTURES, ABOVE OR BELOW THE GROUND, BE SUCH AS TO REQUIRE ITS REMOVAL, REALIGNMENT, OR CHANGE DUE TO WORK TO BE DONE, REALIGNMENT OR CHANGE WILL BE DONE BY OR UNDER SUPERVISION OF THE OWNER OF THE OBSTRUCTIONS. THE CONTRACTOR SHALL UNCOVER AND SUSTAIN THE STRUCTURES, AFTER SUCH

REALIGNMENT OR CHANGE. THE CONTACTOR SHALL NOT INTERFERE WITH ANY PERSONS, OR WITH THE OWNER IN PROTECTING. REMOVING, CHANGING OR REPLACING THEIR PIPES, CONDUITS, POLES OR OTHER STRUCTURES; BUT HE SHALL SUFFER SAID PERSONS OR THE OWNER TO TAKE ALL SUCH MEASURES AS THEY MAY DEEM NECESSARY OR ADVISABLE FOR THE PURPOSE AFORESAID, AND THE CONTRACTOR SHALL THEREBY BE IN NO WAY RELIEVED OF ANY OF HIS RESPONSIBILITIES.

THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH THE OWNER OF THE RESPECTIVE UTILITY PRIOR TO RELOCATION OR INTERRUPTION OF SERVICE. ALL WORK NECESSARY FOR THE RELOCATION SHALL BE PERFORMED BY THE CONTRACTOR, OR BY THE OWNER AT THE OWNER'S OPTION, AND TO THE SATISFACTION OF THE OWNER. WHERE SERVICE IS INTERRUPTED. THE CONTRACTOR SHALL COOPERATE IN RESTORING SERVICE PROMPTLY. ALL CHARGES FOR DAMAGES DONE TO UTILITIES SHALL BE PAID BY THE CONTRACTOR.

E. CONSTRUCTION OF ROAD RIGHT-OF-WAY CONSTRUCTION IN THE ROAD RIGHT-OF-WAY SHALL AT ALL TIMES BE PERFORMED WITH MINIMUM DISTURBANCE TO TRAFFIC WITH SUFFICIENT BARRICADES AND DIRECTION. DETOURS CAN BE INSTITUTED

WITH THE SPECIFIED MATERIALS.

F. EXCAVATION AND PREPARATION OF TRENCH THE CONTRACTOR SHALL PROCEED WITH CAUTION IN THE EXCAVATION AND PREPARATION OF THE TRENCH SO THAT THE EXACT LOCATION OF UNDERGROUND STRUCTURES, BOTH KNOWN AND UNKNOWN. MAY BE DETERMINED. THE TRENCH SHALL BE EXCAVATED SO THAT THE PIPE CAN BE LAID TO THE ALIGNMENT AND DEPTH REQUIRED. MINIMUM DEPTH OF COVER FROM SURFACE OF GROUND TO TOP OF PIPE BARREL SHALL BE FOUR FEET (4'). NO TRENCH SHALL BE EXCAVATED MORE THAN FIVE HUNDRED LINEAL FEET (500 LF) IN ADVANCE OF PIPE LAYING UNLESS AUTHORIZED BY THE TOWN ENGINEER, WATER SUPERINTENDENT, OR AUTHORIZED REPRESENTATIVE. THE TRENCH SHALL BE SO BRACED AND DRAINED THAT THE WORKMEN MAY WORK THEREIN SAFELY AND EFFICIENTLY. IT IS ESSENTIAL THAT THE DISCHARGE OF THE TRENCH DEWATERING PUMPS BE CONDUCTED TO NATURAL DRAINAGE CHANNELS OR DRAINS, AS IN ACCORDANCE WITH OSHA REQUIREMENTS.

WITH APPROVAL OF THE TOWN ENGINEER, WATER SUPERINTENDENT, OR AUTHORIZED REPRESENTATIVE.

OR STATE, COUNTY, OR LOCAL AUTHORITIES. PAVEMENT SHALL BE CUT PRIOR TO REMOVAL. HOLES AND

SETTLEMENTS IN THE TRENCHES SHALL BE IMMEDIATELY FILLED TO THE ORIGINAL GRADE ELEVATION

THE WIDTH OF THE TRENCH SHALL BE OF ADEQUATE SIZE TO PERMIT THE PIPE TO BE LAID AND JOINTED PROPERLY, BUT SHALL NOT EXCEED THE SUM OF TWENTY-FOUR INCHES(24") PLUS THE PIPE OUTSIDE DIAMETER, AND THE BACKFILL TO BE PLACED AND COMPACTED AS SPECIFIED.

LEDGE ROCK, BOULDERS AND LARGE STONES SHALL BE REMOVED TO PROVIDE A CLEARANCE OF AT LEAST SIX INCHES (6") BELOW AND ON EACH SIDE OF ALL PIPES AND FITTINGS.

THE TRENCH SHALL BE EXCAVATED TO THE DEPTH REQUIRED SO AS TO PROVIDE A UNIFORM AND CONTINUOUS BEARING AND SUPPORT FOR THE PIPE ON SOLID AND UNDISTURBED GROUND AT EVERY POINT. WHERE THE BOTTOM OF THE TRENCH AT A SUBGRADE IS FOUND TO BE UNSTABLE, OR TO INCLUDE ASHES, CINDERS, ALL TYPES OF REFUSE, VEGETABLE OR OTHER ORGANIC MATERIAL OR LARGE PICES OF FRAGMENTS OR INORGANIC MATERIAL WHICH IN THE JUDGEMENT OF THE TOWN ENGINEER, WATER SUPERINTENDENT, OR AUTHORIZED REPRESENTATIVE SHOULD BE REMOVED, THE CONTRACTOR SHALL EXCAVATE AND REMOVE SUCH UNSUITABLE MATERIAL TO THE WIDTH AND DEPTH ORDERED BY THE TOWN ENGINEER, WATER SUPERINTENDENT, OR AUTHORIZED REPRESENTATIVE. ANY PART OF THE BOTTOM OF THE TRENCH EXCAVATED BELOW THE SPECIFIED GRADE SHALL BE CORRECTED WITH APPROVED BEDDING MATERIAL. SUCH AS THOROUGHLY COMPACTED CRUSHED STONE, GRAVEL, OR CONCRETE AS DIRECTED BY THE TOWN ENGINEER, WATER SUPERINTENDENT, OR AUTHORIZED REPRESENTATIVE. THE FINISHED SUBGRADE SHALL BE PREPARED ACCURATELY BY MEANS OF HAND TOOLS.

## **GENERAL WATER MAIN NOTES:**

 ALL PROPOSED WATERMAIN MATERIALS, CONSTRUCTION AND INSTALLATION SHALL CONFORM TO ALL APPLICABLE RULES AND REGULATIONS OF THE TOWN OF YORKTOWN WATER DEPARTMENT AND THE WESTCHESTER COUNTY HEALTH DEPARTMENT STANDARDS AND SPECIFICATIONS. CONSTRUCTION MUST BE UNDER THE SUPERVISION OF A LICENSED AND REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NEW YORK WHO SHALL FURNISH A CERTIFICATE OF CONSTRUCTION COMPLIANCE AND TWO (2) SETS OF AS-BUILT PLANS AFTER THE COMPLETION OF THE PROJECT.

2. THE RECORDS OF THE TOWN OF YORKTOWN INDICATE THAT THERE IS ADEQUATE WATER PRESSURE AND CAPACITY AS REQURIED TO SERVE THIS PROJECT. 3. ALL BACKFLOW PREVENTION DEVICES ASSOCIATED WITH THE FIRE AND DOMESTIC SERVICES FOR EACH OF THE PROPOSED OFFICE SPACES IN THE TYPE "B" UNITS SHALL BE LOCATED INTERNAL TO THE BUILDING AND SHALL REQUIRE SEPARATE APPROVAL BY THE WESTCHESTER COUNTY DEPARTMENT OF

4. ALL FIRE AND DOMESTIC SERVICE CONNECTIONS FROM THE PROPOSED WATER MAIN SHALL BE INSTALLED WITH WET TAPS AFTER THE CONTRACTOR HAS INSTALLED THE MAIN AND IT HAS BEEN APPROVED BY THE TOWN OF YORKTOWN WATER DEPARTMENT AND THE WESTCHESTER COUNTY

DEPARTMENT OF HEALTH. 5. THE CONTRACTOR IS ADVISED THAT BEFORE HE CONNECTS TO THE EXISTING WATER SYSTEM, HE MUST ADVISE AND COORDINATE HIS OPERATIONS WITH THE TOWN OF YORKTOWN WATER DEPARTMENT'S SUPERINTENDENT. MEANS AND METHODS USED TO CONNECT TO THE EXISTING SERVICE SHALL BE APPROVED BY THE TOWN AND SHALL INCLUDE BUT NOT BE LIMITED TO WET TAPS

OR OTHERWISE. 6. THE CONTRACTOR IS TO MAINTAIN CONSTANT FLOW AND PRESSURE IN ALL WATER MAINS AT ALL TIMES. IF THE NEED SHOULD ARISE THAT WATER SERVICE IS TO BE INTERRUPTED FOR A SHORT PERIOD, IT MUST BE COORDINATED WITH AND APPROVED BY THE ENGINEER AND THE TOWN OF

YORKTOWN SUPERINTENDENT OF WATER. 7. WATER MAINS CROSSING HOUSE SEWERS, STORM SEWERS OR SANITARY SEWERS SHALL BE LAID TO PROVIDE A VERTICAL SEPARATION OF A MINIMUM OF 18" BETWEEN THE BOTTOM OF WATER MAIN AND

8. WATER MAINS PASSING UNDER HOUSE SEWERS, IN ADDITION, SHALL BE PROTECTED BY PROVIDING A VERTICAL SEPARATION OF 18" MINIMUM FROM THE BOTTOM OF THE SEWER TO THE TOP OF THE WATER MAIN AND ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER TO PREVENT EXCESSIVE DEFLECTION OF THE JOINTS AND THE SEWER SETTLING AND BREAKING THE WATER MAIN. IN ADDITION THE LENGTH OF WATER PIPE IS TO BE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER. NO WATER MAIN SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER OR SEWER MANHOLE.

9. THE COVER OVER THE TOP OF THE WATER MAIN SHALL BE A MINIMUM OF 4 FEET TO A MAXIMUM OF 5.5 10. WATER MAINS SHALL BE CLASS 52 DUCTILE IRON PIPES (DIP) TYTON JOINT TYPE AND FITTINGS SHALL BE FACTORY CEMENT LINED CLASS 52. ALL FITTINGS SHALL HAVE MECHANICAL JOINTS AND SHALL BE PRESSURE RATED AT 250 PSI. ALL NECESSARY JOINT MATERIALS SHALL BE FURNISHED. WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH AWWA STANDARDS. LATEST REVISION.

AWWA STANDARDS, LATEST REVISION. 12. ALL SERVICE CONNECTIONS AND SMALL DIAMETER EXTENSIONS SHALL CONFORM TO AWWA C-151. 13. RETAINER GLANDS AND CONCRETE THRUST BLOCKS OR RODS SHALL BE USED AT ALL LOCATIONS

11. ALL GATE VALVES SHALL BE MUELLER RESILIENT WEDGE (TURN LEFT OPEN) TYPE AND SHALL MEET

WHERE RESTRAINTS EXIST. 14. INSTALLATION AND TESTING OF THE WATER MAIN SHALL BE INSPECTED BY THE WESTCHESTER COUNTY DEPARTMENT OF HEALTH. THE CONTRACTOR SHALL PROVIDE THE HEALTH DEPARTMENT A MINIMUM 48 HOURS NOTICE PRIOR TO ANY PRESSURE/LEAKAGE TESTS AND/OR DISINFECTION AND BACTERIOLOGICAL TESTS PERFORMED ON THE PROPOSED WATER MAIN. THE RESULTS OF THE ABOVE TESTS MUST BE ACCEPTED BY THE WCHD PRIOR TO USE OF THE MAIN.

15. ASBUILT DRAWINGS SHALL SHOW DIMENSIONS BETWEEN ALL VALVE TURNING NUTS AND FINISH GRADE. 16. INSTALLATION, DISINFECTION AND TESTING TO BE WITNESSED AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER OR TOWN OF YORKTOWN ENGINEER.

17. ALL HYDRANTS AND VALVES SHALL BE AS MANUFACTURED BY THE MUELLER COMPANY. 18. THE FINAL LOCATIONS OF FIRE HYDRANTS AND SIAMESE CONNECTIONS SHALL BE DETERMINED BY AND COORDINATED WITH THE TOWN OF YORKTOWN FIRE DEPARTMENT. 19. IF, DURING CONSTRUCTION, IT IS FOUND THAT THE REQUIRED SEPARATION OF WATER MAINS.

SANITARY SEWERS, STORM SEWERS, AND BUILDING SEWERS CANNOT BE MET, THE DEVELOPER OR HIS

HEALTH. APPROVAL BY THE WCHD IS REQUIRED PRIOR TO ANY FIELD CHANGES THAT WILL AFFECT MINIMUM WATER/SEWER SEPARATION DISTANCES. 20. ALL TYPES OF INSTALLED PIPE SHALL BE PRESSURE TESTED AND LEAKAGE TESTED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA STANDARD C-600.

21. ALL NEW, CLEANED OR REPAIRED WATER MAINS SHALL BE DISINFECTED AND BACTERIOLOGICAL

AUTHORIZED REPRESENTATIVE SHALL CONTACT THE WESTCHESTER COUNTY DEPARTMENT OF

TESTING PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA STANDARD C-651-05 (EXCEPT FOR SECTION 4.4.2 WHICH IS NOT APPROVABLE). THE SPECIFICATIONS INCLUDE DETAILED PROCEDURES FOR THE ADEQUATE FLUSHING, DISINFECTION, AND MICRO- BIOLOGICAL TESTING OF ALL WATER MAINS.

22. ROAD OPENINGS SHALL BE DONE IN ACCORDANCE WITH CONDITIONS OF PERMIT, AND COORDINATED WITH THE TOWN OF YORKTOWN. 23. UPON COMPLETION AND PRIOR TO USE, TWO (2) SETS OF AS-BUILT PLANS AND ACCEPTABLE BACTERIOLOGICAL SAMPLE AND WATER MAIN HYDROSTATIC TEST RESULTS MUST BE SUBMITTED ALONG WITH THE DESIGN PROFESSIONAL'S CERTIFICATION OF CONSTRUCTION TO THE WESTCHESTER COUNTY DEPARTMENT OF HEALTH.

### SANITARY SEWER TESTING

PROCEDURE AND METHOD OF TESTING - THE TEST LENGTH INTERVALS AND TYPE OF LEAKAGE TEST SHALL BE APPROVED BY THE OWNER'S FIELD REPRESENTATIVE AND SITE ENGINEER. IN THE CASE OF SEWERS LAID ON STEEP GRADES, THE LENGTH OF LINE TO BE TESTED BY EXFILTRATION AT ANY ONE TIME MAY BE LIMITED BY THE MAXIMUM ALLOWABLE INTERNAL PRESSURE ON THE PIPE AND JOINTS AT THE LOWER END OF THE LINE. THE WCHD SHALL BE NOTIFIED 48 HRS IN ADVANCE SO THEY MAY WITHNESS THE TESTING DEPENDING ON FIELD. CONDITIONS AND/OR DESIRE OF THE CONTRACTOR, THE FOLLOWING TESTS FOR LEAKAGE MAY 1. HYDROSTATIC TEST

THE TEST PERIOD, WHEREIN THE MEASUREMENTS ARE TAKEN SHALL NOT BE LESS THAN FOUR (4) HOURS IN FITHER TYPE OF TEST. THE TOTAL LEAKAGE OF ANY SECTION TESTED SHALL NOT EXCEED THE RATE OF 100 GALLONS PER MILE OF PIPE PER 24 HOURS PER INCH OF NOMINAL PIPE DIAMETER. FOR PURPOSES OF DETERMINING THE MAXIMUM ALLOWABLE LEAKAGE, MANHOLES SHALL BE CONSIDERED AS SECTIONS OF PIPE AND SHALL BE TESTED AT A LEVEL ABOVE THE HIGHEST JOINT PRIOR TO THE CONCRETE/RIM CONNECTION.

(I) INFILTRATION TEST -THIS TEST MAY BE USED ONLY WHEN GROUND WATER LEVELS ARE AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE FOR THE ENTIRE LENGTH OF THE SECTION TO BE TESTED DURING THE ENTIRE PERIOD OF THE TEST. GROUND WATER I EVELS MAY BE MEASURED IN AN OPEN TRENCH OR IN STANDPIPES PREVIOUSLY PLACED IN BACKFILLED TRENCHES DURING THE BACKFILLING OPERATIONS. WHEN STANDPIPES ARE INSTALLED IN THE BACKFILL FOR GROUND WATER MEASUREMENT, THE LOWER ENDS OF THESE SHALL BE SATISFACTORILY EMBEDDED IN A MASS OF CRUSHED STONE OR GRAVEL TO MAINTAIN FREE PERCOLATION AND DRAINAGE. INFILTRATION THROUGH JOINTS SHALL BE MEASURED BY USING A WATERTIGHT WEIR OR ANY OTHER APPROVED DEVICE FOR VOLUMETRIC MEASUREMENT INSTALLED AT THE LOWER END OF THE SECTION UNDER TEST. (II) EXFILTRATION TEST -

THIS TEST CONSISTS OF FILLING THE PIPE WITH WATER TO PROVIDE A HEAD OF AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE OR TWO (2) FEET ABOVE GROUND WATER. WHICHEVER IS HIGHER, AT THE HIGHEST POINT OF THE PIPE LINE UNDER TEST, AND THEN MEASURING THE LOSS OF WATER FROM THE LINE BY THE AMOUNT WHICH MUST BE ADDED TO MAINTAIN THE ORIGINAL LEVEL. IN THIS TEST THE LINE MUST REMAIN FILLED WITH WATER FOR AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO THE TAKING OF MEASUREMENTS. EXFILTRATION SHALL BE MEASURED BY THE DROP OF WATER LEVEL IN A CLOSED-END STANDPIPE OR IN ONE OF THE SEWER MANHOLES AVAILABLE FOR CONVENIENT MEASURING.

WHEN A STANDPIPE AND PLUG ARRANGEMENT IS USED IN THE UPPER MANHOLE OF A LINE UNDER TEST, THERE MUST BE SOME POSITIVE METHOD OF RELEASING ENTRAPPED AIR IN THE SEWER PRIOR TO TAKING MEASUREMENTS.

2. VACUUM TESTING OF MANHOLES - TESTED AS PER ASTM STANDARD - C-1244 THIS TEST METHOD IS ONLY APPLICABLE TO PRECAST CONCRETE MANHOLES. ALI LIFTING HOLES AND EXTERIOR JOINTS SHALL BE FILLED AND POINTED WITH AN APPROVED NON-SHRINKING MORTAR. NO STANDING WATER SHALL BE ALLOWED IN THI MANHOLE EXCAVATION WHICH MAY AFFECT THE ACCURACY OF THE TEST. ALL PIPES AND OTHER OPENINGS INTO THE MANHOLE SHALL BE SUITABLY PLUGGED IN SUCH A MANNER AS TO PREVENT DISPLACEMENT OF THE PLUGS WHILE THE VACUUM IS DRAWN INSTALLATION AND OPERATION OF THE VACUUM EQUIPMENT AND INDICATING DEVICES SHALL BE IN ACCORDANCE WITH EQUIPMENT SPECIFICATIONS AND INSTRUCTIONS PROVIDED BY THE MANUFACTURER. THE TEST HEAD MAY BE PLACED IN THE CONE SECTION OF THE MANHOLE. THE RIM-CONE JOINT IS NOT USUALLY TESTED. A VACUUM OF 10 INCHES OF MERCURY SHALL BE DRAWN. THE TIME FOR THE VACUUM TO DROP TO 9 INCHES OF MERCURY SHALL

FOR MANHOLES 6 FT. IN DIAMETER, ADD AN ADDITIONAL 30 SECONDS TO THE TIME REQUIREMENTS FOR FOUR FOOT DIAMETER MANHOLES. 3. LOW-PRESSURE AIR TEST OF PIPE LINES - TESTED PER ASTM STANDARD F-1417 PLUG ALL OPENINGS IN THE TEST SECTION. ADD AIR UNTIL THE INTERNAL PRESSURE OF THE LINE IS RAISED TO APPROXIMATELY 4.0 PSI. AFTER THIS PRESSURE IS REACHED, ALLOW THE PRESSURE TO STABILIZE. THE PRESSURE WILL NORMALLY DROP AS THE AIR TEMPERATURE STABILIZES. THIS USUALLY TAKES 2 TO 5 MIN. DEPENDING ON THE PIPE SIZE. THE PRESSURE MAY BE REDUCED TO 3.5 PSI BEFORE STARTING THE TEST. WHEN THE PRESSURE HAS STABILIZED AND IS AT OR ABOVE THE STARTING TEST PRESSURE OF 3.5 PSI, START THE TEST. IF THE PRESSURE DROPS MORE THAN 1.0 PSI DURING THE TEST TIME THE LINE IS PRESUMED TO HAVE FAILED THE TEST. IF A 1.0-PSI DROP DOES NOT OCCUR WITHIN THE TEST TIME. THE LINE HAS PASSED THE TEST.

BE RECORDED. ACCEPTANCE FOR 4 FT. DIAMETER MANHOLES SHALL BE DEFINED AS

FOR MANHOLES 5 FT. IN DIAMETER, ADD AN ADDITIONAL 15 SECONDS;

WHEN THE TIME TO DROP TO 9 INCHES OF MERCURY MEETS OR EXCEEDS THE FOLLOWING:

TEST TIMES ARE FOR A 1.0 PSI PRESSURE DROP FROM 3.5 TO 2.5 PSI. IF THE SECTION OF LINE TO BE TESTED INCLUDES MORE THAN ONE PIPE SIZE, CALCULATE THE TEST TIME FOR EACH SIZE AND ADD THE TEST TIMES TO ARRIVE AT THE TOTAL TEST TIME FOR THE SECTION. MINIMUM TEST TIMES FOR VARIOUS PIPE SIZES IN INCHES ARE AS FOLLOWS:

SIZE TIME (INCHES) (MIN./100 FT.

4. DEFLECTION TESTING OF PIPES-

IN ACCORDANCE WITH THE TEN STATES "RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES - SECTION DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE PIPE. THE TEST SHALL BE CONDUCTED AFTER THE FINAL

BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS TO PERMIT STABILIZATION OF THE SOIL-PIPE SYSTEM. NO PIPE SHALL EXCEED A DEFLECTION OF 5 PERCENT. IF DEFLECTION EXCEEDS 5 PERCENT. THE PIPE SHALL BE EXCAVATED. REPLACEMENT OR CORRECTION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH REQUIREMENTS IN THE APPROVED SPECIFICATIONS.

THE RIGID BALL OR MANDREL USED FOR THE DEFLECTION TEST SHALL HAVE A DIAMETER NOT LESS THAN 95 PERCENT OF THE BASE INSIDE DIAMETER OR AVERAGE INSIDE DIAMETER OF THE PIPE DEPENDING ON WHICH IS SPECIFIED IN THE ASTM SPECIFICATION, INCLUDING THE APPENDIX, TO WHICH THE PIPE IS MANUFACTURED. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.

#### SANITARY SEWER NOTES:

STATES STANDARDS, LATEST VERSION.

1. ALL WORK TO BE DONE IN ACCORDANCE WITH THE CODE OF THE TOWN OF YORKTOWN AND THE REGULATIONS OF THE WESTCHESTER COUNTY DEPARTMENT OF HEALTH.

2. SANITARY MANHOLES/CLEANOUT MANHOLES SHALL BE PRECAST CONCRETE. 3. ALL WORK SHALL BE MANUFACTURED IN ACCORDANCE WITH APPROVED STANDARDS AND SHALL BE SPACED A MAXIMUM DISTANCE OF 300' ON STRAIGHT RUNS AND INSTALLED AT EVERY CHANGE IN ALIGNMENT. MANHOLE POSITIONING SHALL BE AS TO PREVENT THE ENTRANCE OF SURFACE WATER DURING STORMS. MANHOLE RIMS ARE TO BE WATER TIGHT IN AREAS SUBJECT TO POSSIBLE FLOODING CONDITIONS.

4. ALL BUILDING LATERALS TO BE INSTALLED BY PLUMBERS, LICENSED IN THE TOWN OF YORKTOWN ACCORDING TO THE REQUIREMENTS OF THE TOWN OF YORKTOWN. 5. SANITARY SEWER CONSTRUCTION SHALL MEET ALL SEWER CONSTRUCTION SPECIFICATIONS FOR THE TOWN OF

6. THE TOWN ENGINEER SHALL BE NOTIFIED 48 HOURS PRIOR TO THE START OF ANY WORK.

7. A CODE 53 SHALL BE CALLED BEFORE THE START OF ANY EXCAVATION WORK. 8. A STREET OPENING PERMIT SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO ANY WORK BEING STARTED IN 9. ALL SEWERS SHALL BE LAID AT LEAST 10 FT HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE

DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS IMPRACTICAL TO MAINTAIN A 10 FOOT SEPARATION THE WESTCHESTER COUNTY DEPARTMENT OF HEALTH MAY ALLOW DEVIATION ON A CASE-BY-CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. 10. MANHOLE STEPS SHALL BE CAST IRON NEENAH NO. R-1981-0 OR CAMPBELL FOUNDRY NO. 2588-1 OR

POLYPROPYLENE COATED STEEL (SEE SPECIFICATIONS) OR APPROVED EQUAL. 11. UNLESS OTHERWISE SPECIFIED, SANITARY SEWER MANHOLES SHALL HAVE THE LETTERS "SEWER" CAST ON THE 12. MANHOLE COVERS AND STRUCTURES SHALL MEET OR EXCEED A.S.T.M. AND O.S.H.A. REQUIREMENTS AND MUST BE RATED FOR H-20 LOADING. MANHOLES MUST BE MIN. 48" DIAMETER. 13. ALL SANITARY STRUCTURES SHALL RECEIVE 2 MIL COATS OF BITUMINOUS MATERIAL "INERTOL NO. 49" KOPPERS

SUPPER SERVICE BLACK OR APPROVED EQUAL, APPLIED IN ACCORDANCE WITH MANUFACTURE'S SPECIFICATIONS. 14. 0-RING JOINTS TO CONFORM TO A.S.T.M. DESIGNATION C-443 LATEST REVISION. JOINTS TO BE MORTARED INSIDE AND OUT USING NON-SHRINKING MORTAR 15. PRE-CAST MANHOLE SECTIONS TO BE IN ACCORDANCE WITH "PRE-CAST REINFORCED CONCRETE MANHOLE SECTIONS" A.S.T.M. DESIGNATION C-478, LATEST REVISION, MINIMUM COMPRESSIVE STRENGTH TO BE 4000 P.S.I. 22.

WHERE SEWER MAIN IS TO BE INSTALLED 10' DEEP OR GREATER, PVC SDR-26 SHALL BE USED. 16. WHEN SEWER IS TO BE INSTALLED IN FILL MATERIAL, THE SUPPORTING FILL IS TO BE COMPACTED TO MINIMUM STANDARD PROCTOR DENSITY OF 95%, AND SHALL BE CERTIFIED TO THE TOWN. 17. WATER MAINS CROSSING HOUSE SEWERS, STORM SEWERS OR SANITARY SEWERS SHALL BE LAID TO PROVIDE A VERTICAL SEPARATION OF A MINIMUM OF 18" BETWEEN THE BOTTOM OF WATER MAIN AND TOP OF SEWER. IN ADDITION, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT EXCESSIVE DEFLECTION OF THE JOINTS AND THE SEWER SETTLING AND BREAKING THE WATER MAIN. IN ADDITION THE LENGTH OF WATER PIPE IS TO BE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER. NO WATER MAIN SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART

OF A SEWER OR SEWER MANHOLE. 18. MANHOLES AND SANITARY SEWER LINES SHALL BE TESTED TO CONFORM WITH WESTCHESTER COUNTY DEPARTMENT OF HEALTH RULES AND REGULATIONS AND AS PER SANITARY SEWER TESTING NOTES BELOW. 19. THE WESTCHESTER COUNTY DEPARTMENT OF HEALTH SHALL BE PROVIDED A 48 HOUR NOTICE PRIOR TO THE TESTING OF THE INSTALLED UTILITIES TO ALLOW WITNESSING OF TESTING BY THE DEPARTMENT.

20. ALL INSTALLATIONS AND TESTING SHALL BE IN ACCORDANCE WITH ASTM STANDARDS F-1417, C-1244 AND THE TEN

## **GENERAL EROSION CONTROL NOTES**

THROUGHOUT THE COURSE OF CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL SEDIMENT AND EROSION CONTROL PRACTICES. THE SEDIMENT AND EROSION CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED. ROAD SURFACE FLOWS FROM THE SITE SHOULD BE DISSIPATED WITH TRACKING PAD OR APPROPRIATE MEASURES DURING ADJACENT ROAD SHOULDER REGRADING. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL DEVICES

2. CATCH BASIN INLET PROTECTION MUST BE INSTALLED AND OPERATING AT ALL TIMES UNTIL TRIBUTARY AREAS HAVE BEEN STABILIZED. WHEN POSSIBLE FLOWS SHOULD BE STABILIZED BEFORE REACHING INLET PROTECTION STRUCTURE. TIMELY MAINTENANCE OF SEDIMENT CONTROL STRUCTURES IS THE

RESPONSIBILITY OF THE CONTRACTOR. 3. ALL STRUCTURES SHALL BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES. THE SEDIMENT LEVEL IN ALL SEDIMENT TRAPS SHALL BE CLOSELY

MONITORED AND SEDIMENT REMOVED PROMPTLY WHEN MAXIMUM LEVELS ARE REACHED OR AS ORDERED BY THE ENGINEER. ALL SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED ON A REGULAR BASIS, AND AFTER EACH HEAVY RAIN TO INSURE PROPER OPERATION AS DESIGNED. AN INSPECTION

SCHEDULE SHALL BE SET FORTH PRIOR TO THE START OF CONSTRUCTION. 4. THE LOCATIONS AND THE INSTALLATION TIMES OF THE SEDIMENT CAPTURING STANDARDS SHALL BE AS SPECIFIED IN THESE PLANS, AS ORDERED BY THE ENGINEER, AND IN ACCORDANCE WITH THE LATEST EDITION OF THE "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL"

5. ALL TOPSOIL SHALL BE PLACED IN A STABILIZED STOCKPILE FOR REUSE ON THE SITE. ALL STOCKPILE MATERIAL REQUIRED FOR FINAL GRADING AND STORED

ON SITE SHALL BE TEMPORARILY SEEDED AND MULCHED WITHIN 7 DAYS. REFER TO SOIL STOCKPILE DETAILS. 6. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 7 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATELY RECEIVE TEMPORARY SEEDING. MULCH SHALL BE USED IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER. DISTURBED AREAS SHALL NOT BE

LIMED AND FERTILIZED PRIOR TO TEMPORARY SEEDING. 7. IN AREAS WHERE SOIL DISTURBANCE ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED, THE APPLICATION OF SOIL STABILIZATION MEASURES MUST BE INITIATED BY THE END OF THE NEXT BUSINESS DAY AND COMPLETED WITHIN SEVEN (7) DAYS FROM THE DATE THE CURRENT SOIL DISTURBANCE ACTIVITY

8. ALL DISTURBED AREAS WITHIN 500 FEET OF AN INHABITED DWELLING SHALL BE WETTED AS NECESSARY TO PROVIDE DUST CONTROL. 9. THE CONTRACTOR SHALL KEEP THE ROADWAYS WITHIN THE PROJECT CLEAR OF SOIL AND DEBRIS AND IS RESPONSIBLE FOR ANY STREET CLEANING NECESSARY DURING THE COURSE OF THE PROJECT.

10. SEDIMENT AND EROSION CONTROL STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED BY PERMANENT MEASURES. 11. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH CURRENT EDITION OF NYSSESC.

12. ALL REGRADED AREAS MUST BE STABILIZED APPROPRIATELY PRIOR TO ANY ROCK BLASTING, CUTTING, AND/OR FILLING OF SOILS. SPECIAL CARE SHOULD BE TAKEN DURING CONSTRUCTION TO INSURE STABILITY DURING MAINTENANCE AND INTEGRITY OF CONTROL STRUCTURES. 13. ANY SLOPES GRADED AT 3:1 OR GREATER SHALL BE STABILIZED WITH EROSION BLANKETS TO BE STAKED INTO PLACE IN ACCORDANCE WITH THE

MANUFACTURES REQUIREMENTS. EROSION BLANKETS MAY ALSO BE REQUIRED AT THE DISCRETION OF TOWN OFFICIALS OR PROJECT ENGINEER. WHEN STABILIZED BLANKET IS UTILIZED FOR CHANNEL STABILIZATION, PLACE ALL OF THE VOLUME OF SEED MIX PRIOR TO LAYING NET, OR AS RECOMMENDED BY THE MANUFACTURER. 14. TO PREVENT HEAVY CONSTRUCTION EQUIPMENT AND TRUCKS FROM TRACKING SOIL OFF-SITE, CONSTRUCT A PERVIOUS CRUSHED STONE PAD. LOCATE

AND CONSTRUCT PADS AS DETAILED IN THESE PLANS. 15. CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST BY SPRINKLING EXPOSED SOIL AREAS PERIODICALLY WITH WATER AS REQUIRED. CONTRACTOR TO

MAINTENANCE OF TEMPORARY EROSION AND SEDIMENT CONTROL STRUCTURES: N.Y.S.D.E.C. GP-0-15-002 EXPOSURE RESTRICTIONS - STATES THAT ANY EXPOSED EARTHWORK SHALL BE STABILIZED IN ACCORDANCE WITH THE GUIDELINES OF

1. TREES AND VEGETATION SHALL BE PROTECTED AT ALL TIMES AS SHOWN ON THE DETAIL DRAWING AND AS DIRECTED BY THE ENGINEER.

16. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION INSPECTIONS AS PER NYSDEC GP-0-15-002 AND TOWN OF YORKTOWN CODE.

2. CARE SHOULD BE TAKEN SO AS NOT TO CHANNEL CONCENTRATED RUNOFF THROUGH THE AREAS OF CONSTRUCTION ACTIVITY ON THE SITE. 3. FILL AND SITE DISTURBANCES SHOULD NOT BE CREATED WHICH CAUSES WATER TO POND OFF SITE OR ON ADJACENT PROPERTIES. 4. RUNOFF FROM LAND DISTURBANCES SHALL NOT BE DISCHARGED OR HAVE THE POTENTIAL TO DISCHARGE OFF SITE WITHOUT FIRST BEING INTERCEPTED BY A CONTROL STRUCTURE, SUCH AS A SEDIMENT TRAP OR SILT FENCE. SEDIMENT SHALL BE REMOVED BEFORE EXCEEDING 50% OF THE RETENTION STRUCTURE'S CAPACITY.

5. FOR FINISHED GRADING, ADEQUATE GRADE SHALL BE PROVIDED SO THAT WATER WILL NOT POND ON LAWNS FOR MORE THAN 24 HOURS AFTER RAINFALL EXCEPT IN SWALE FLOW AREAS WHICH MAY DRAIN FOR AS LONG AS 48 HOURS AFTER RAINFALL. 6. ALL SWALES AND OTHER AREAS OF CONCENTRATED FLOW SHALL BE PROPERLY STABILIZED WITH TEMPORARY CONTROL MEASURES TO PREVENT EROSION AND SEDIMENT TRAVEL. SURFACE FLOWS OVER CUT AND FILL AREAS SHALL BE STABILIZED AT ALL TIMES.

7. ALL SITES SHALL BE STABILIZED WITH EROSION CONTROL MATERIALS WITHIN 7 DAYS OF FINAL GRADING. 8. TEMPORARY SEDIMENT TRAPPING DEVICES SHALL BE REMOVED FROM THE SITE WITHIN 30 DAYS OF FINAL STABILIZATION

## MAINTENANCE SCHEDULE

	DAILY	WEEKLY	MONTHLY	AFTER RAINFALL	NECESSARY TO MAINTAIN FUNCTION	AFTER APPROVAL OF INSPECTOR		
SILT FENCE			INSP.	INSP.	CLEAN OF SEDIMENT/ REPLACE IF NEEDED	REMOVE		
STABILIZED CONST. ENT.	CLEAN OF SEDIMENT	INSP.			REPLACE REMOVE			
SEDIMENT TRAP		INSP.	INSP.	INSP.	CLEAN OF SEDIMENT/ REPLACE IF NEEDED	REMOVE		
SOIL STOCKPILE		INSP.	INSP.	INSP.	SEED AS NECESSARY	REMOVE		
DEWATERING PIT		INSP.	INSP.	INSP.	CLEAN OF SEDIMENT/ REPLACE IF NEEDED REMOVE			
OUTLET/ INLET STRUCTURES & PROTECTION		INSP.	INSP.	INSP.	CLEAN OF SEDIMENT/ REPLACE IF NEEDED	REMOVE		

### POST CONSTRUCTION MAINTENANCE SCHEDULE

Control to be Inspection Frequency		Maintenance Threshold Criteria	Maintenance Procedure			
Drain Inlets/ Filter Insert	Quarterly	3"+ accumulated sediment	Remove debris and sediment annually.			
Cistern/ Detention	Annually	3"+ accumulated sediment	Remove debris and sediment annually.			
DC-740 Chambers	Bi-Annually	3"+ accumulated sediment	Remove debris and sediment.			
Sand Filter	Bi-annually	1"+ accumulated sediment, Ponding for more than 48 hours	Remove debris and sediment.			
Stormwater Planter	Bi-annually	1"+ accumulated sediment, Ponding for more than 48 hours	Remove debris and sediment; weed and replace plants and mulch as needed.			
Rain Garden	Quarterly	Ponding for more than 48 hours	Remove accumulated sediment and debris; weed and replace plants and mulch as needed.			
Tree Planting	Quarterly	Ponding for more than 48 hours	Remove accumulated sediment and debris; weed and replace dead trees with new ones and mulch as needed.			
Permeable Paver/Porous Concrete	Quarterly	Paving does not dewater between storms	Clean area of debris and sediment; vacuum sweep area.			

## CISTERN WINTER SHUTDOWN NOTES

. BEGINING AT THE START OF NOVEMBER AND ENDING AT THE BEGINNING OF APRIL ENTRANCE TO THE IRRIGATION PUMP CHAMBER SHALL BE CLOSED, AND THE PUMP SHALL BE SHUT OFF TO PREVENT DAMAGE TO THE IRRIGATION SYSTEM

SEEDING

Cereal oats

SEEDING:

Existing topsoil will be removed and stored in piles sufficiently as to avoid mixing with other excavation. Stockpiles shall be surrounded by erosion control as

outlined on these plans. The furnishing of new topsoil shall be of a better or equal to the following criteria (SS713.01 NYSDOT) 1. The pH of the material shall be 5.5 to 7.6. 2. The organic content shall not be less than 2% or more than 70%.

Gradation: <u>SIEVE SIZE</u> % PASSING BY WGT. 1 INCH 85 TO 100 1/4 INCH 65 TO 100 NO. 200 MESH 20 TO 80

## PERMANENT VEGETATIVE COVER:

 Site preparation: Install erosion control measures. Scarify compacted soil areas. Lime as required to ph 6.5.

Fertilize with 10-6-4 4 lbs/1,000 S.F. Incorporate amendments into soil with disc harrow.

2. Seed mixtures for use on swales and cut and fill areas. KENTUCKY BLUE GRASS CREEPING RED FESCUE RYE GRASS OR REDTOP CREEPING RED FESCUE

TALL FESCUE/SMOOTH BLOOMGRASS

3.1. Prepare seed bed by raking to remove stones, twigs, roots and other foreign material.

Apply seed uniformly by cyclone seeder culti-packer or hydro-seeder at rate indicated.

Stabilize seeded areas in drainage swales. Irrigate to fully saturate soil layer, but not to dislodge planting soil. Seed between April 1st and May 15th or August 15th and October 15th.

Apply soil amendments and integrate into soil.

Seeding may occur May 15th and August 15th if adequate irrigation is provided. TEMPORARY VEGETATIVE COVER: SITE PREPARATION:

1. Install erosion control measures.

2. Scarify areas of compacted soil.

Same as permanent vegetative cover

3. Fertilize with 10-10-10 at 400/acre. 4. Lime as required to ph 6.5. SEED SPECIES: Rapidly germinating annual ryegrass (or approved equal) Perennial ryegrass

### OWNER/OPERATOR CERTIFICATION

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

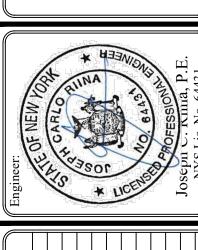
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Phone
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Signature
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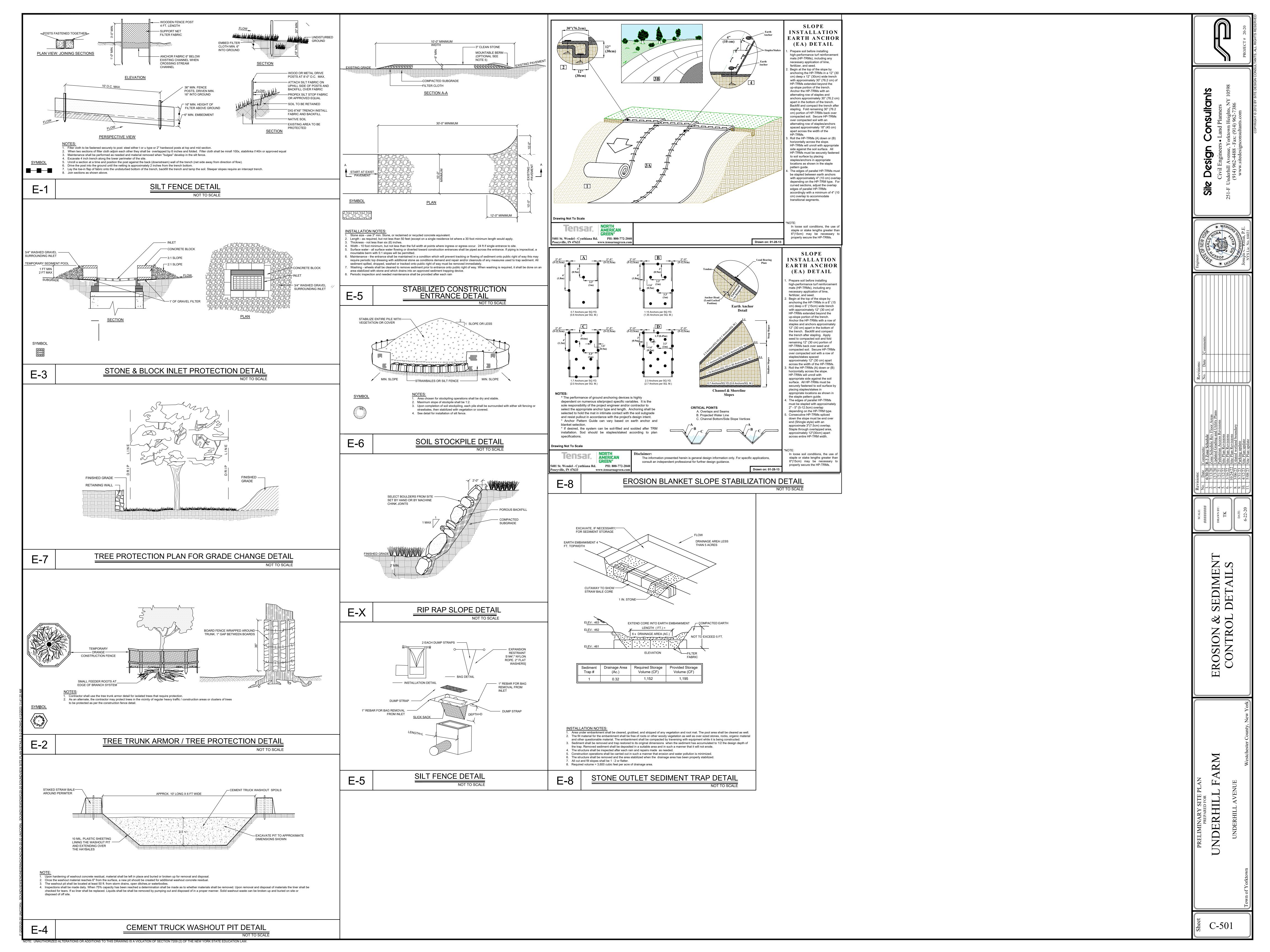
## OWNER/OPERATOR CERTIFICATION

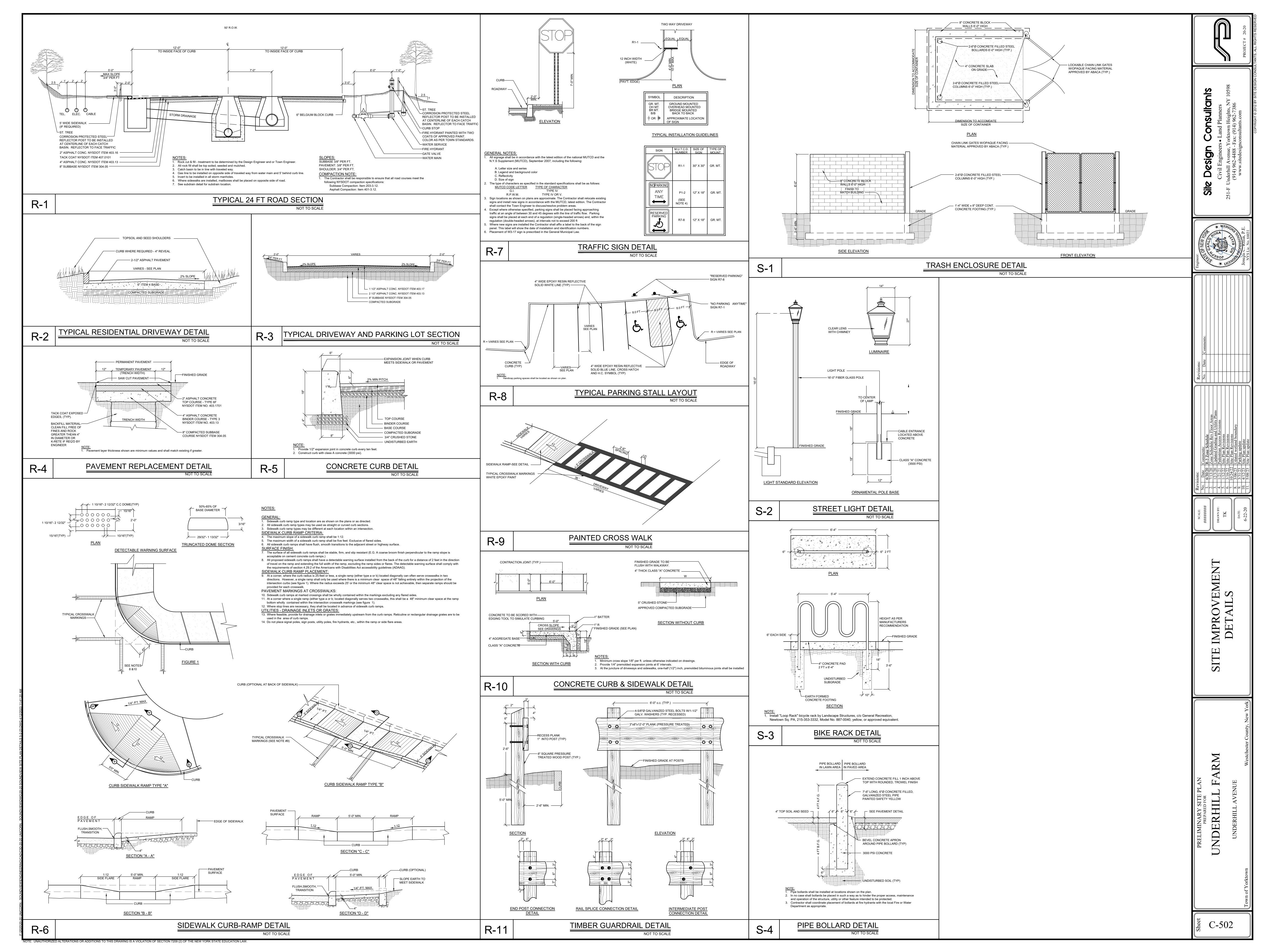
"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

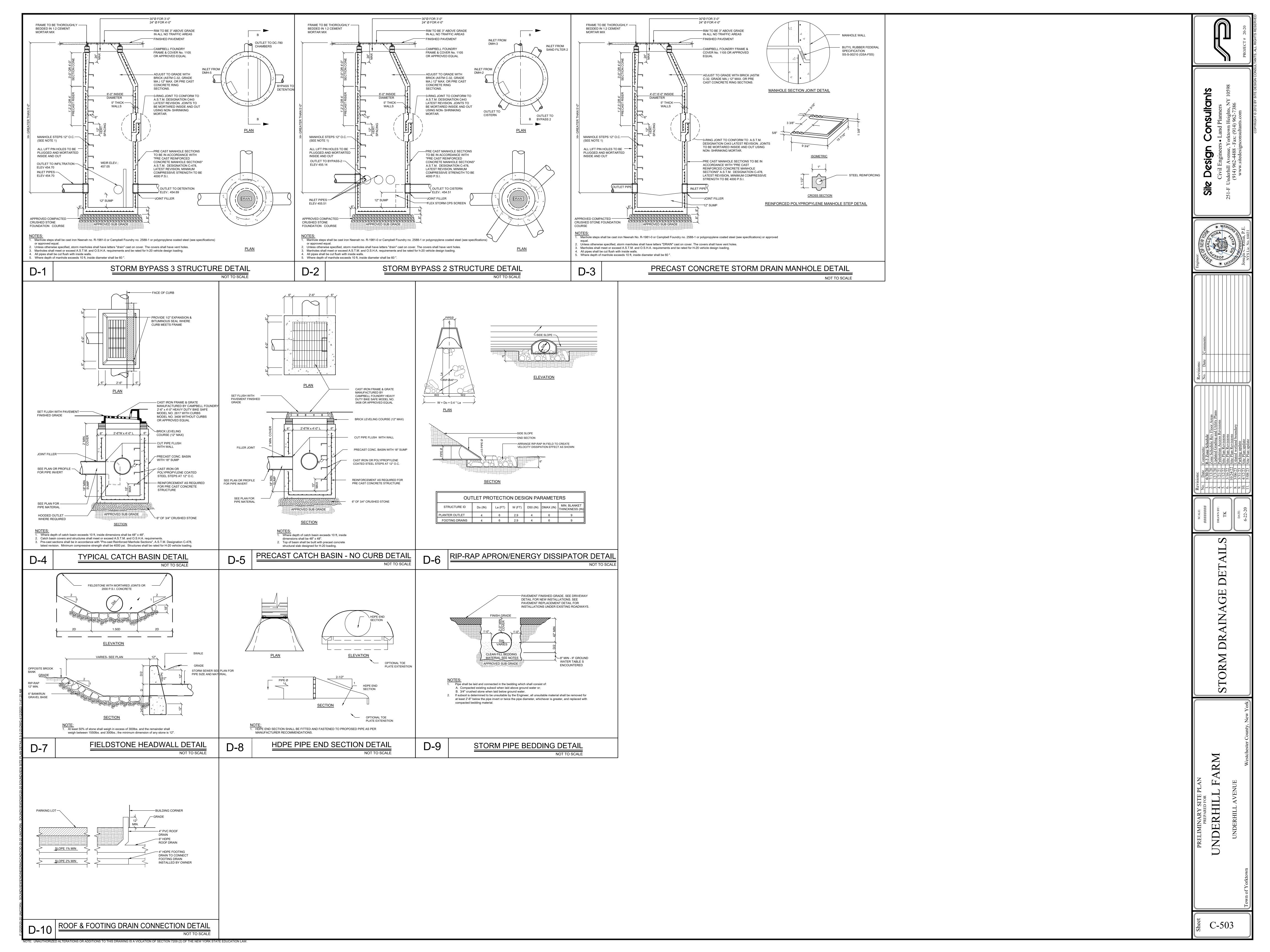
Name (please print)	 	
Title	 	
Date		
Address	 	
Phone		
E-mail		
Signature		
Name of Trained Individual		











SUGGESTED POCKET WETLAND PLANTINGS **LOW & HIGH MARSH** - PROPOSED SEDIMENT MARKER Narrowleaf Cattail (Typha angustifolia) Lizard's Tail (Saururus cernuus) SEE PLANTING PLAN — Pickerel Weed (Pontederia cordata) FOR DETAILS TOP OF BERM 388.5 Swamp Milkweed (Asclepias incarnata) Soft Stem Bulrush (Scirpus validus) Arrow arum (Peltandra virginica) 100 YEAR STORM WATER ELEVATION 387.95 Smartweed (Polygonum spp.) <u>HIGH MARSH</u> ELEVATION 386.73 Blue Flag (Iris Versicolor) YEAR STORM WATER Blue Joint (Calamagrotis canadensis) ELEVATION 385.89 Marsh Marigold (Caltha Palustris) GRASS LINED BERM -Yellow Flag (Iris Pseudocorus) PERMANENT WATER ELEVATION 385.00 RIP RAP CHANNE BUFFER FRINGE leadowsweet (Spirea latifolia) MICRO POOL 4:1 SIDE SLOPE Rose-Rugosa (Rosa rugosa) FLUCTUATING MARSH ZONE Flowering Dogwood (Cornus florida) Shadblow (Amelanchier canadensis) HIGH MARSH ELEV .: 384.5 -BOTTOM ELEV.: 381.0 — Black Chokeberry (Aronia melanocarpa) Redosier Dogwood (Cornus sericea) LOW MARSH ELEV.: 383.5 Buttonbush (Cephalanthus occidentalis) Inkberry (llex glabra) PLANTING SOIL MIX — Silky Dogwood (Cornus amomum) BUFFER UPLAND 4"-6" IMPERVIOUS LAYER OF A 50/50 White Ash (Fraxinus americana) - HUMUS - CLAY MIX TO BE PLACED AT -White Oak (Quercus alba) 2:1 SIDE SLOPE THE BOTTOM STAGE OF THE WET POND Tulip Poplar (Lirodendron tulipifera) - MICRO POOL BOTTOM ELEV.: 380.0 THE BASIN SHOULD BE SEEDED WITH THE TEMPORARY SEED MIX DURING THE CONSTRUCTION PHASE WHEN IT IS BEING USED AS A SEDIMENT TRAP. ONCE THE ENTIRE SITE IS STABLI THE FINAL SHAPING AND PREPARATION OF THE POCKET POND SHALL BE COMPLETED. THE PLANTINGS SHALL BE DONE AT THE START OF SPRING OR FALL WET SEASONS TO INSURE SURVIVAL OF PLANT MATERIALS. TEMPORARY VEGETATIVE COVER SPECIFICATIONS FOR DETENTION BASIN SIDE SLOPES 2. ALL PLUGS SHALL BE SPACED 18" O.C. FOR HIGH AND LOW NORTHEAST WETLAND GRASS SEED MIX 3. BUFFER FRINGE SHRUBS SHALL BE PLACED 5' O.C. AS SUPPLIED BY SOUTHERN TIER CONSULTING, INC. WEST CLARKSVILLE NY (716) 968-8120 4. BUFFER UPLAND PLANTINGS SHALL BE PER THE PLAN SPACED AGROSTIS STOLONIFERA CREEPING BENTGRASS APPLY AT 1 LB/3000 SF 5. SHRUBS PLANTINGS SHALL BE OF MATURE PLANTS. POA TRIVIALS ROUGHBLUEGRASS 6. IF A MINIMUM COVERAGE OF 50% IS NOT ACHIEVED IN THE

- 4" ASPHATL MIX 1" NOMINAL MAX. AGGREGATE SIZE> 18% AIR VOID DRAINDOWN < 0.3% 4" SUBBASE NYSDOT ITEM 733-0404 TYPE 4 \_ - TENSAR TX-5 GEOGRID 4" SUBBASE NYSDOT ITEM 733-0404 TYPE 4 COMPACTED SUBGRADE — 2" LAYER 1/2" - 1-1/2" DOUBLE-WASHED STONE - 4" MIN AASHTO NO. 2 (1-1/2" - 2-1/2") STONE Limits of area designated for installation of porous pavement system shall be as shown on the plans. AGGREGATE DOUBLE WASHED FOR WATER 2. The length of the reservoir shall vary based on the slope of the driveway to reach the specified reservoir depths. — 4" PERVIOUS CONCRETE 4" SUBBASE NYSDOT ITEM 733-0404 TYPE 4 \_ - TENSAR TX-5 GEOGRID \_\_ 4" SUBBASE NYSDOT ITEM 733-0404 TYPE 4 COMPACTED SUBGRADE - 12" MIN AASHTO NO. 2 (1-1/2" - 2-1/2") STONE AGGREGATE DOUBLE WASHED FOR WATER . Limits of area designated for installation of porous pavement system shall be as shown on the plans. 2. The length of the reservoir shall vary based on the slope of the sidewalk to reach the specified reservoir depths. Pervious concrete shall match the requirements established by the FHWA sheets included in the SWPPP.

SW-3 STORMTECH SC-740/DC-780 CHAMBER DETAIL

ALOPECURUS ARUNDINACEUS MEADOW FOXTAIL PLANTED WETLAND ZONES AFTER THE SECOND GROWING PANICUM CLANDESTINUM DEERTONGUE SEASON, A REINFORCEMENT PLANTING IS REQUIRED. POCKET WETLAND (W-4) TYPICAL SECTION

R-14

7. Retract the vactor hose from the vessel.

damaged components or blockages.

9. Securely replace the grate or lid.

8. On the Maintenance Log provided by Hydro International,

and gross debris removed, and the depth of sediment

record the date, unit location, estimated volume of floatables

measured. Also note any apparent irregularities such as

TYPICAL POROUS ASPHALT/CONCRETE SECTION

Downstream Defender® Operation and Maintenance Manual

SW-4

directly over the hollow center shaft.

Maintenance events may include Inspection, Oil & Floatables

the internal components of the Downstream Defender® to be

removed. In the case of inspection and floatables removal, a

vactor truck is not required. However, a vactor truck is required if

the maintenance event is to include oil removal and/or sediment

The frequency of cleanout is determined in the field after

inspected every six months to determine the rate of sediment and

log (see page 9) to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil/floatables

Determining Your Maintenance Schedule

The Downstream Defender® allows for easy and safe inspection, Inspection Procedures monitoring and clean-out procedures. A commercially or Inspection is a simple process that does not involve entry into the municipally owned sump-vac is used to remove captured sediment Downstream Defender®. Maintenance crews should be familiar and floatables. Access ports are located in the top of the manhole. with the Downstream Defender® and its components prior to On the 6-ft (1.8m), 8-ft (2.4m), 10-ft (3.0m) and 12-ft (3.7m) units, inspection. the floatables access port is above the outlet pipe between the concrete manhole wall and the dip plate. The sediment removal Scheduling access ports for all Downstream Defender® models are located • It is important to inspect your Downstream Defender® every

six months during the first year of operation to determine your site-specific rate of pollutant accumulation Removal, and Sediment Removal. Maintenance events do not Typically, inspection may be conducted during any season require entry into the Downstream Defender®, nor do they require

Sediment removal is not required unless sediment depths

STORMTECH SC-740/DC-780 CROSS SECTION DETAIL

exceed 75% of maximum clean-out depths stated in Table 1

Recommended Equipment Safety Equipment and Personal Protective Equipment (traffic cones, work gloves, etc.) installation. During the first year of operation, the unit should be • Crow bar or other tool to remove grate or lid

floatables accumulation. A simple probe such as a Sludge Judge® • Pole with skimmer or net can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance Sediment probe (such as a Sludge Judge®)

Trash bag for removed floatables removal, for a 6-ft (1.8m) Downstream Defender® typically takes

 Downstream Defender® Maintenance Log less than 30 minutes and removes a combined water/oil volume of about 500 gallons (1900 liters).

Unit Diameter		Total Oil Storage		Oil Clean-out Depth		Total Sediment Storage		Sediment Clean-out Depth		Max. Liquid Volume Removed	
(ft)	(m)	(gal)	(L)	(in)	(cm)	(yd³)	(m³)	(in)	(cm)	(gal)	(L)
4	1.2	70	265	<16	<41	0.70	0.53	<18	<45	384	1,454
6	1.8	216	818	<23	<58	2.10	1.61	<24	<61	1,239	4,690
8	2.4	540	2,044	<33	<84	4.65	3.56	<30	<76	2,884	10,91
10	3.0	1,050	3,975	<42	<107	8.70	6.65	<36	<91	5,546	20,99
12	3.7	1,770	6,700	<49	<125	14.70	11.24	<42	<107	9,460	35,810

1. Refer to Downstream Defender® Clean-out Detail (Fig.2) for measurement of depths. 2. Oil accumulation is typically less than sediment, however, removal of oil and sediment during the same service is recommended.

**3.** Remove floatables first, then remove sediment storage volume. 4. Sediment removal is not required unless sediment depths exceed 75% of maximum clean-out depths stated in Table 1.

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

Inspection Procedures



NOT TO SCALE



7. Securely replace the grate or lid. port or grate of the Downstream Defender® as stipulated by 8. Take down safety equipment.

local ordinances. Safety equipment should notify passing 9. Notify Hydro International of any irregularities noted during inspection. 2. Remove the lids to the manhole (Fig. 4). NOTE: The 4-ft Floatables and Sediment Cleanout

(1.2m) Downstream Defender® will only have one lid. Floatables cleanout is typically done in conjunction with sediment removal. A commercially or municipally owned sump-vac is used 3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities. See to remove captured sediment and floatables (Fig.6). Floatables and loose debris can also be netted with a skimmer

4. Without entering the vessel, use the pole with the skimmer net and pole. The access port located at the top of the manhole to remove floatables and loose debris from the outer annulus provides unobstructed access for a vactor hose and skimmer of the chamber. 5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the

1. Set up any necessary safety equipment around the access

pedestrian and road traffic that work is being done.

Fig.7 and 8 for typical inspection views.

vessel (Fig.5). 6. On the Maintenance Log (see page 9), record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or

Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com



Fig.8 View of outer annulus of floatables and oil collection zone. **Hydro International** (Stormwater), 94 Hutchins Drive, Portland ME 04102

## Downstream Defender® Operation and Maintenance Manual

Recommended Equipment Safety Equipment (traffic cones, etc)

STORMTECH SC-740/DC-780 ISOLATOR ROW DETAIL

 Crow bar or other tool to remove grate or lid Pole with skimmer or net (if only floatables are being removed)

 Sediment probe (such as a Sludge Judge®) Vactor truck (6-inch/150mm diameter flexible hose recommended)

 Downstream Defender® Maintenance Log Floatables and Sediment Clean Out Procedures 1. Set up any necessary safety equipment around the access

port or grate of the Downstream Defender® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done. 2. Remove the lids to the manhole NOTE: The 4-ft (1.2m)

Downstream Defender® will only have one lid. 3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.

4. Using the Floatables Port for access, remove oil and floatables pole to be lowered to the base of the sump. stored on the surface of the water with the vactor hose or the skimmer net (Fig.9, top).

 Floatables and sump cleanout are typically conducted once a year during any season. If sediment depths are greater than 75% of maximum cleanout depths stated in Table 1, sediment removal is required.

and record it in the Maintenance Log (Pg.9). 6. Once all floatables have been removed, drop the vactor hose to Floatables and sump cleanout should occur as soon as the base of the sump via the Central Access Port. Vactor out possible following a spill in the contributing drainage area. the sediment and gross debris off the sump floor (Fig.6 and 9).

Fig.9 Floatables and sediment are removed with a vactor hose Maintenance at a Glance Frequency

**5.** Using a sediment probe such as a Sludge Judge®, measure the

depth of sediment that has collected in the sump of the vessel

 Regularly during first year of installation Inspection - Every 6 months after the first year of installation - Once per year, with sediment removal Oil and Floatables - Following a spill in the drainage area Removal Once per year or as needed Sediment Removal Following a spill in the drainage area NOTE: For most cleanouts it is not necessary to remove the entire volume of liquid in the vessel. Only removing the first few inches of oils/floatables and the sediment storage volume is required.

## Downstream Defender® Operation and Maintenance Manual

Introduction The Downstream Defender® operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirement and is manufactured from durable non-corrosive components. No manual procedures are required to operate the unit and maintenance is limited to monitoring accumulations of stored pollutants and periodic clean-outs. The Downstream Defender® has been designed to allow for easy and safe access for inspection/monitoring and clean-out procedures. Entry into the unit or removal of the internal components is not necessary orifices and internal weirs can increase the risk of blockage within for maintenance, thus safety concerns related to confined-space-

Operation

entry are avoided.

Pollutant Capture and Retention The internal components of the Downstream Defender® have Overview been designed to protect the oil/floatables and sediment storage 
The Downstream Defender® protects the environment by volumes so that separator performance is not reduced as pollutants removing a wide range of pollutants from stormwater runoff. accumulate between clean-outs (Fig.2). The Downstream Periodic removal of these captured pollutants is essential to the Defender® vessel remains wet between storm events. Oil and continuous, long-term functioning of the Downstream Defender®. floatables are stored on the water surface in the outer annulus

The Downstream Defender® will capture and retain sediment and separate from the sediment storage volume in the sump of the oil until the sediment and oil storage volumes are full to capacity. unit providing the option for separate oil disposal, and accessories

When sediment and oil storage capacities are reached, the such as adsorbant pads. Since the oil/floatables and sediment

Downstream Defender® will no longer be able to store removed storage volumes are isolated from the active separation region, the potential for re-suspension and washout of stored pollutants between clean-outs is minimized.

The sump of the Downstream Defender® retains a standing water

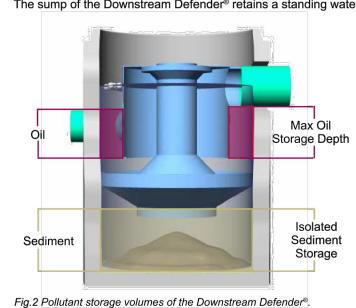


Fig.2 Pollutant storage volumes of the Downstream Defender®.

level between storm events. The water in the sump prevents stored sediment from solidifying in the base of the unit. (The clean-out procedure becomes more difficult and labor intensive if the system allows fine sediment to dry-out and consolidate. Dried sediment must be manually removed by maintenance crews. This is a labor intensive operation in a hazardous environment.)

The Downstream Defender® has large clear openings and no internal restrictions or weirs, minimizing the risk of blockage and hydraulic losses. In addition to increasing the system headloss,

## Maintenance

sediment and oil. Maximum pollutant storage capacities are provided in Table 1.

watch the Downstream Defender® maintenance training video at www.hydro-int.com/us/products/downstream-defender. Maintenance providers are also encouraged to participate in Hydro International's Maintenance Contractor Certification Program (see

Hydro International recommends that maintenance crews

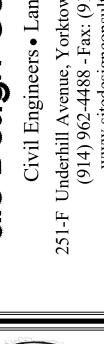


Fig.3 Watch the Downstream Defender® instructional maintenance video at www.hydro-int.com/us/products/downstream-defender.

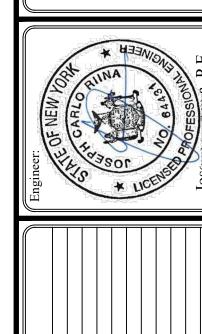
**Hydro International** (Stormwater), 94 Hutchins Drive, Portland ME 04102 Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

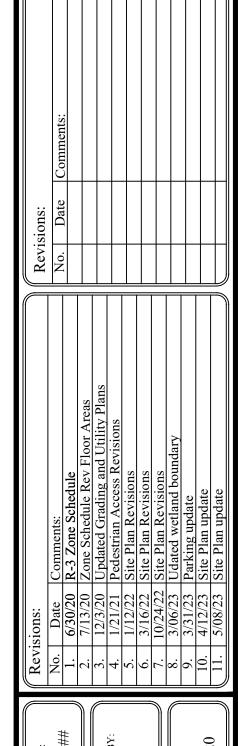
NOTE: THESE PAGES HAVE BEEN TAKE FROM THE DOWNSTREAM DEFENDER MAINTENANCE AND OPERATIONS MANUAL. THEY ILLUSTRATE THE INPSECTION AND MAINTENANCE PROCEDURE FOR THE SYSTEM

HYDRODYNAMIC SEPARATOR









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