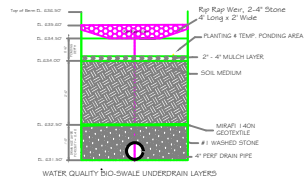
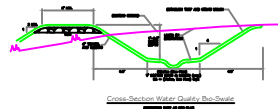


REQUIREMENTS FOR FILTERATION LAYER
 1. The filter layer shall be composed of clean, washed, angular material.
 2. The filter layer shall be composed of clean, washed, angular material.
 3. The filter layer shall be composed of clean, washed, angular material.
 4. The filter layer shall be composed of clean, washed, angular material.
 5. The filter layer shall be composed of clean, washed, angular material.
 6. The filter layer shall be composed of clean, washed, angular material.
 7. The filter layer shall be composed of clean, washed, angular material.
 8. The filter layer shall be composed of clean, washed, angular material.
 9. The filter layer shall be composed of clean, washed, angular material.
 10. The filter layer shall be composed of clean, washed, angular material.

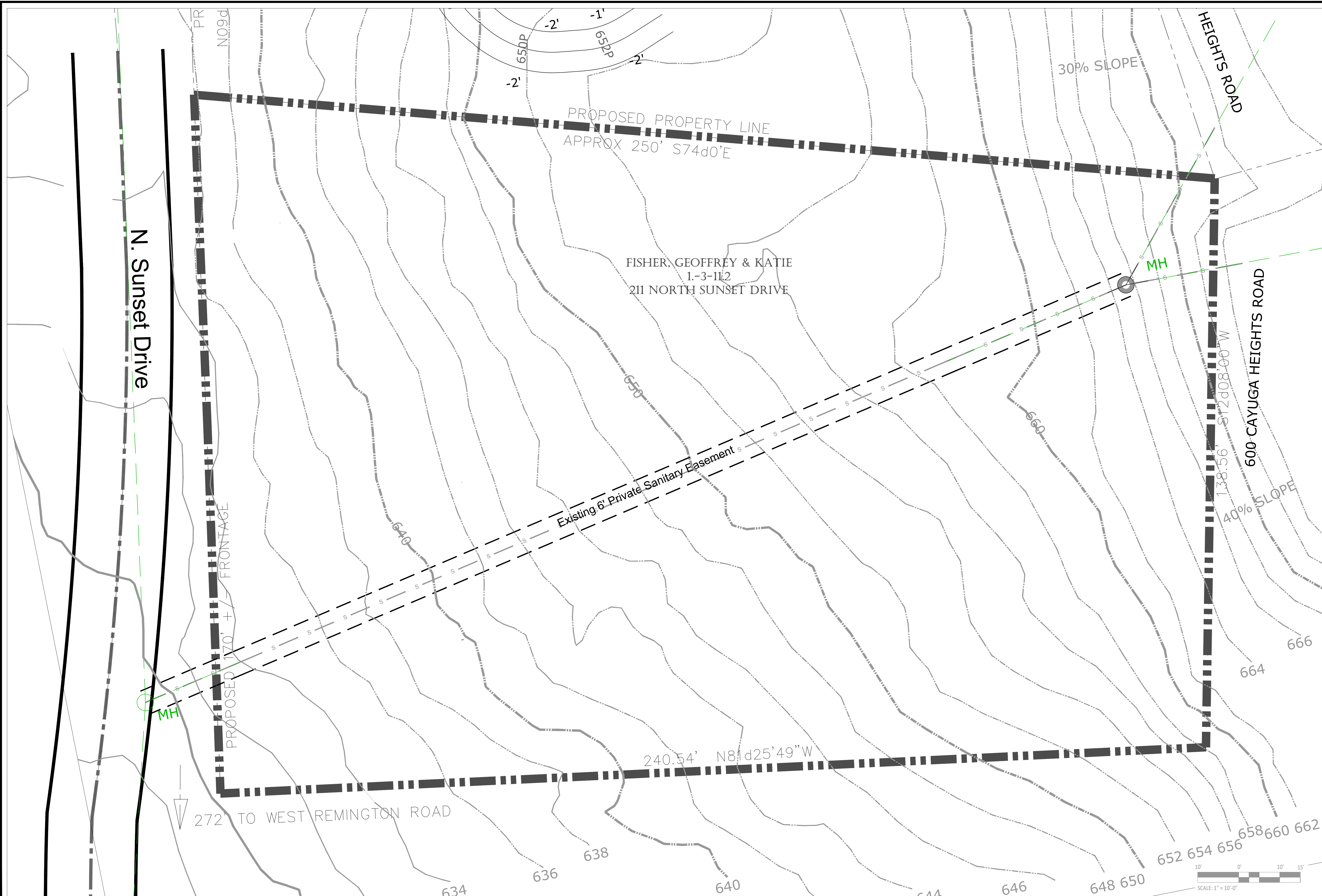


WATER QUALITY BIO-SWALE UNDERDRAIN LAYERS

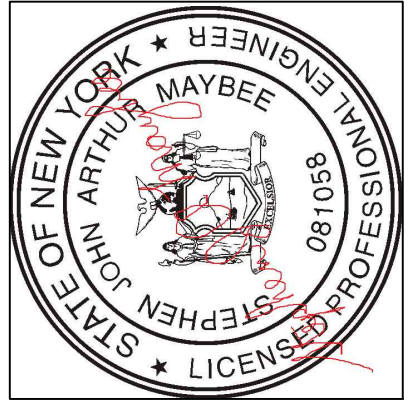


Flow Rate: Quality Volume Spacing
 $Q_{10} = 0.018 \text{ (1.0) } \times 1.1 \text{ (1) } (0.004 \text{ AC}^{-1})$
 $Q_{10} \text{ (GAL) } = 0.0003 \text{ AC}^{-1} \text{ or } 140 \text{ GPF}$
 $Q_{10} = 0.0003 \text{ (0.0003) } = 0.0003 \text{ (1.0) } \times 1.1 \text{ (1) } \times 1.1$
 Minimum $Q_{10} = 0.2$
 $Q_{10} = \text{flow area (sq ft)} \times 0.004 \text{ (AC}^{-1})$
 Practical floor surface area = 243.0 SF. This provides 100.0% of WQ treatment of runoff from 0.01 AC.

Flow Rate: Quality Volume Spacing



rev.	date	description
1		
2		
3		
4		
5		

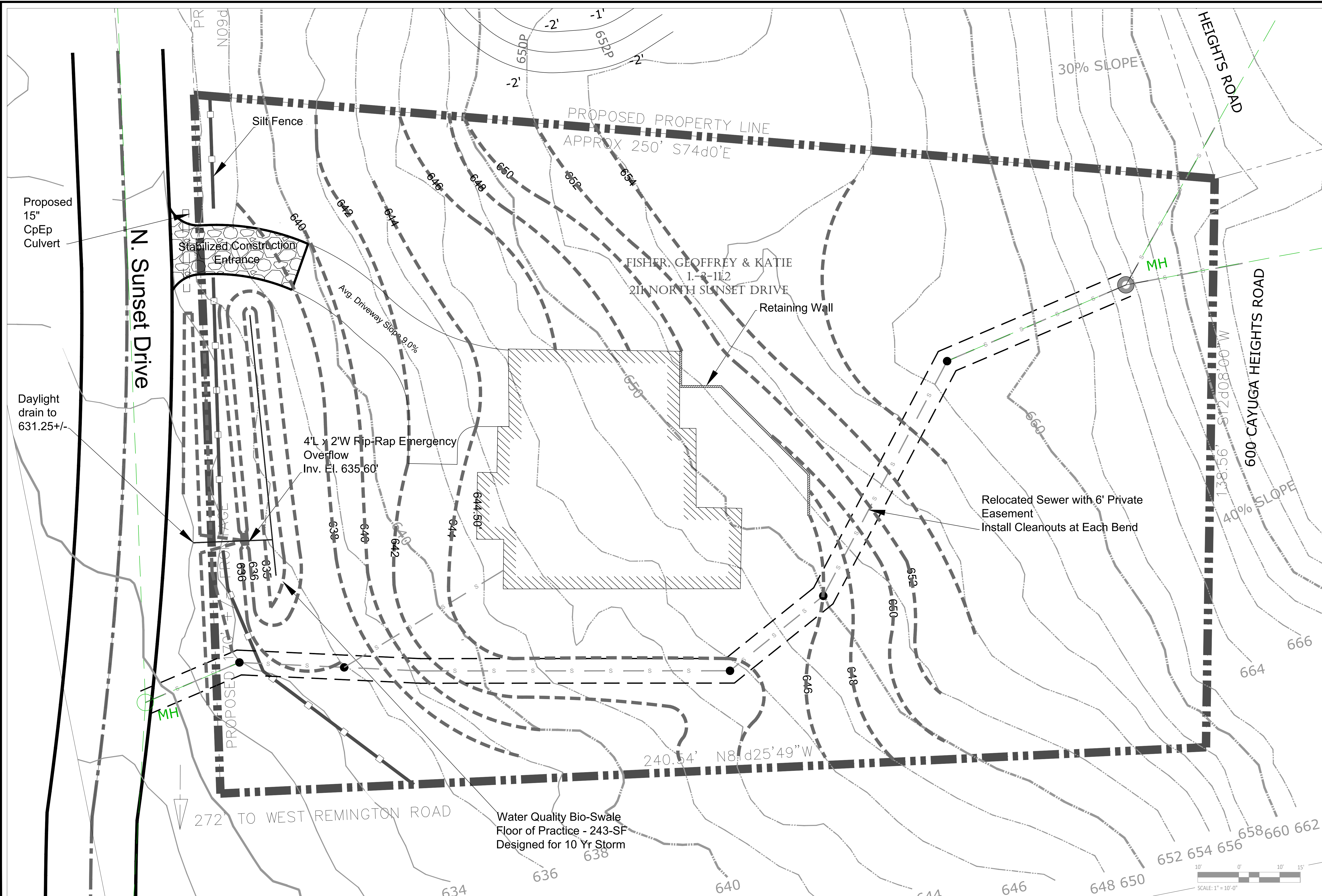


STARLAND BUILDERS
211 N. Sunset Park

EXISTING SITE

VILLAGE OF CAYUGA HEIGHTS, ITHACA, NEW YORK

drawn	S.G.	checked	
date	Feb 14, 2023	scale	1" = 10'
project no.	22-166		
sheet no.	S-1		

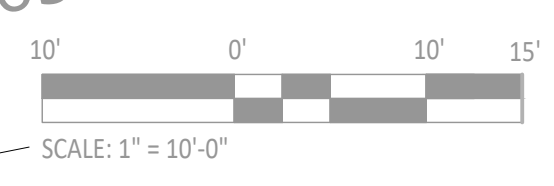


rev.	date	description
1		
2		
3		
4		
5		



STARLAND BUILDERS
211 N. Sunset Park
EROSION AND SEDIMENT
CONTROL PLAN
VILLAGE OF CAYUGA HEIGHTS, ITHACA, NEW YORK

drawn	S.G.	checked	
date	Feb 14, 2023	scale	1" = 10'
project no.	22-166		
sheet no.	S-2		



GENERAL NOTES

NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, NOVEMBER 2016

1. PHYSICALLY MARK LIMITS OF LAND DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, SO THAT WORKERS CAN SEE THE AREAS TO BE PROTECTED.

2. DIVERT OFF-SITE RUNOFF FROM HIGHLY ERODIBLE SOILS AND STEEP SLOPES TO STABLE AREAS.

3. CLEAR ONLY WHAT IS REQUIRED FOR IMMEDIATE CONSTRUCTION ACTIVITY. LARGE PROJECTS SHOULD BE CLEARED AND GRADED AS CONSTRUCTION PROGRESSES. AREAS EXCEEDING TWO ACRES IN SIZE SHOULD NOT BE DISTURBED WITHOUT A SEQUENCING PLAN THAT REQUIRES PRACTICES TO BE INSTALLED AND THE SOIL STABILIZED, AS DISTURBANCE BEYOND THE TWO ACRES CONTIGUOUS. MASS CLEARINGS AND GRADING OF ENTIRE SITE SHOULD BE AVOIDED.

4. RESTABILIZE DISTURBED AREAS AS SOON AS POSSIBLE AFTER CONSTRUCTION IS COMPLETED. ON SITES GREATER THAN TWO ACRES IN SIZE, WAITING UNTIL ALL DISTURBED AREAS ARE READY FOR SEEDING IS UNACCEPTABLE. FOURTEEN DAYS SHALL BE THE MAXIMUM EXPOSURE PERIOD. MAINTENANCE MUST BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. EXCEPT AS NOTED BELOW, ALL SITES SHALL BE SEEDED AND STABILIZED WITH EROSION CONTROL MATERIALS, SUCH AS STRAW MULCH, JUTE MESH, OR EXCLOSUR, INCLUDING AREAS WHERE CONSTRUCTION HAS BEEN SUSPENDED OR SECTIONS COMPLETED.

A. FOR ACTIVE CONSTRUCTION AREAS SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS AND AREAS WITHIN 50 FT. OF A BUILDING UNDER CONSTRUCTION, A PERIMETER SEDIMENT CONTROL SYSTEM CONSISTING, FOR EXAMPLE, SILT FENCING, SHALL BE INSTALLED AND MAINTAINED TO CONTAIN SOIL. EXPOSED DISTURBED AREAS ADJACENT TO A CONVEYANCE THAT PROVIDES RAPID OFF-SITE DISCHARGE OF SEDIMENT, SUCH AS A CUT SLOPE AT AN ENTRANCE, SHALL BE COVERED WITH PLASTIC OR, GEOTEXTILE FABRIC TO PREVENT SOIL LOSS UNTIL IT CAN BE STABILIZED. STABILIZED CONSTRUCTION ENTRANCES WILL BE MAINTAINED TO CONTROL VEHICLE TRACKING MATERIAL OFF-SITE.

B. ON THE CUT SIDE OF ROADS, DITCHES SHALL BE STABILIZED IMMEDIATELY WITH ROCK RIP-RAP OR OTHER NON-ERODIBLE LINERS (EG. ROLLED EROSION PRODUCTS), OR WHERE APPROPRIATE, VEGETATIVE MEASURES SUCH AS SOD.

C. PERMANENT SEEDING SHOULD OPTIMALLY BE UNDERTAKEN IN THE SPRING FROM MARCH THROUGH MAY, AND IN LATE SUMMER AND EARLY FALL FROM SEPTEMBER TO OCTOBER 15. DURING THE PEAK SUMMER MONTHS AND IN THE FALL AFTER OCTOBER 15, WHEN SEEDING IS FOUND TO BE IMPRACTICABLE, AN APPROPRIATE TEMPORARY MULCH SHALL BE APPLIED. PERMANENT SEEDING MAY BE UNDERTAKEN DURING THE SUMMER IF PLANS PROVIDE FOR ADEQUATE WATERING. TEMPORARY SEEDING WITH RYE CAN BE UTILIZED THROUGH NOVEMBER.

D. ALL SLOPES STEEPER THAN 3:1 (H:V), OR 33.3%, AS WELL AS PERIMETER DIKES, SEDIMENT BASINS AND TRAPS, AND EMBANKMENTS 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. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION.

E. TEMPORARY SEDIMENT TRAPPING DEVICES SHALL NOT BE REMOVED UNTIL PERMANENT STABILIZATION IS ESTABLISHED IN ALL CONTIBUTORY DRAINAGE AREAS. SIMILARLY, STABILIZATION SHALL BE ESTABLISHED PRIOR TO CONVERTING SEDIMENT TRAPS/BASINS INTO PERMANENT (POST-CONSTRUCTION) STORMWATER MANAGEMENT PRACTICES.

5. IF 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 THEIR USE DO NOT RESULT IN TURBIDITY AND SEDIMENT DOWNSTREAM. ALL CROSSING ACTIVITIES AND APPURTENANCES ON STREAMS REGULATED BY ARTICLE 15 OF THE ENVIRONMENTAL CONSERVATION LAW SHALL BE IN COMPLIANCE WITH A PERMIT ISSUED PURSUANT TO ARTICLE 15 OF THE ECL.

6. MAKE SURE THAT ALL CONTRACTORS AND SUB-CONTRACTORS UNDERSTAND THE ESC PLAN AND SIGN THE CERTIFICATION STATEMENT REQUIRED BY NYSDEC GP.

7. DESIGNATE RESPONSIBILITY FOR THE ESC PLAN TO ONE INDIVIDUAL. THIS PERSON SHALL BE NAMED IN THE NOTICE OF INTENT.

8. AN ESC PLAN INSPECTION PROGRAM MEETING THE REQUIREMENTS OF THE NYSDEC GP, IS NECESSARY TO DETERMINE WHEN ESC MEASURES NEED MAINTENANCE OR REPAIR. PAY PARTICULAR ATTENTION TO INSPECTIONS REQUIRED AFTER RAINFALL. THE INSPECTION PROGRAM SHALL ALSO STATE THE COMPLETION OF IDENTIFIED REPAIR AND MAINTENANCE ITEMS.

9. IF CONSTRUCTION ACTIVITIES CONTINUE DURING WINTER, ACCESS POINTS SHOULD BE ENLARGED AND STABILIZED TO PROVIDE FOR SNOW STOCKPILING. IN ADDITION SNOW MANAGEMENT PLAN SHOULD BE PREPARED WITH ADEQUATE STORAGE AND CONTROL OF MELTWATER. A MINIMUM 25 FOOT BUFFER SHALL BE MAINTAINED FROM PERIMETER CONTROL SUCH AS SILT FENCING. KEEP DRAINAGE STRUCTURES OPEN AND FREE OF SNOW AND ICE DAMS. INSPECTION AND MAINTENANCE ARE NECESSARY TO ENSURE THE FUNCTION OF THESE PRACTICES DURING RUNOFF EVENTS.

LAND GRADING SPECIFICATIONS

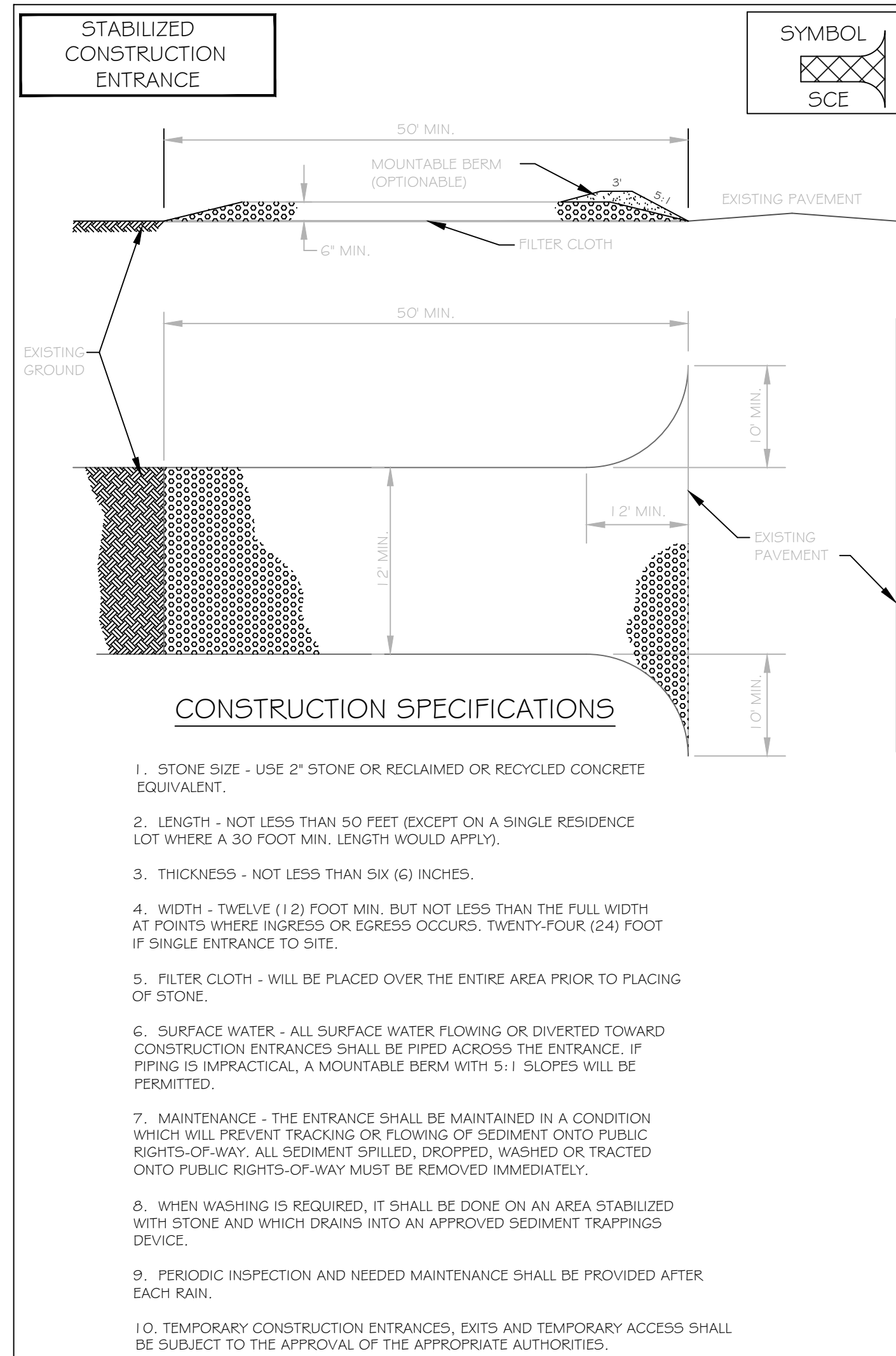
1. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER PROBLEMS. FILL INTENDING TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.

2. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.

3. FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.

4. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.

5. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.



TOP SOILING SPECIFICATIONS

1. PRESERVE EXISTING TOPSOIL IN PLACE WHERE POSSIBLE, THEREBY REDUCING THE NEED FOR ADDED TOPSOIL.

2. AS NEEDED, INSTALL EROSION CONTROL PRACTICES SUCH AS DIVERSIONS, CHANNELS, SEDIMENT TRAPS, AND STABILIZING MEASURES, OR MAINTAIN IF ALREADY INSTALLED.

3. COMPLETE ROUGH GRADING AND FINAL GRADE, ALLOWING FOR DEPTH OF TOPSOIL TO BE ADDED.

4. SCARIFY ALL COMPACT, SLOWLY PERMEABLE, MEDIUM AND FINE TEXTURED SUBSOIL AREAS. SCARIFY AT APPROXIMATELY RIGHT ANGLES TO THE SLOPE DIRECTION IN SOIL AREAS THAT ARE STEEPER THAN 5%. AREAS THAT HAVE BEEN OVERLY COMPACTED SHALL BE DECOMPACTED TO A MINIMUM DEPTH OF 12-INCHES WITH A DEEP RIPPER OR CHISEL PLOW PRIOR TO TOPSOILING.

5. REMOVE REFUSE, WOODY PLANT PARTS, STONES OVER 3-INCHES IN DIAMETER, AND OTHER LITTER.

6. TOPSOIL SHALL HAVE AT LEAST 6% BY WEIGHT OF FINE TEXTURED STABLE ORGANIC MATERIAL, AND NO GREATER THAN 20%. MUCK SOIL SHALL NOT BE CONSIDERED TOPSOIL.

7. TOPSOIL SHALL HAVE NOT LESS THAN 20% FINE TEXTURED MATERIAL (PASSING THE NO. 200 SIEVE) AND NOT MORE THAN 15% CLAY.

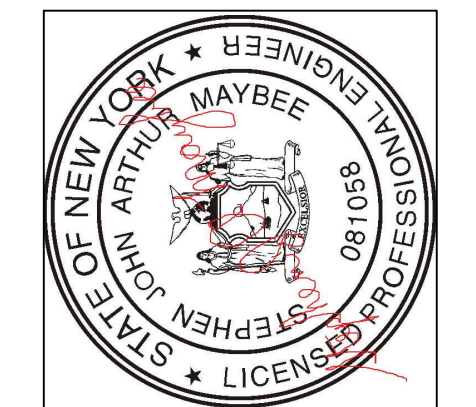
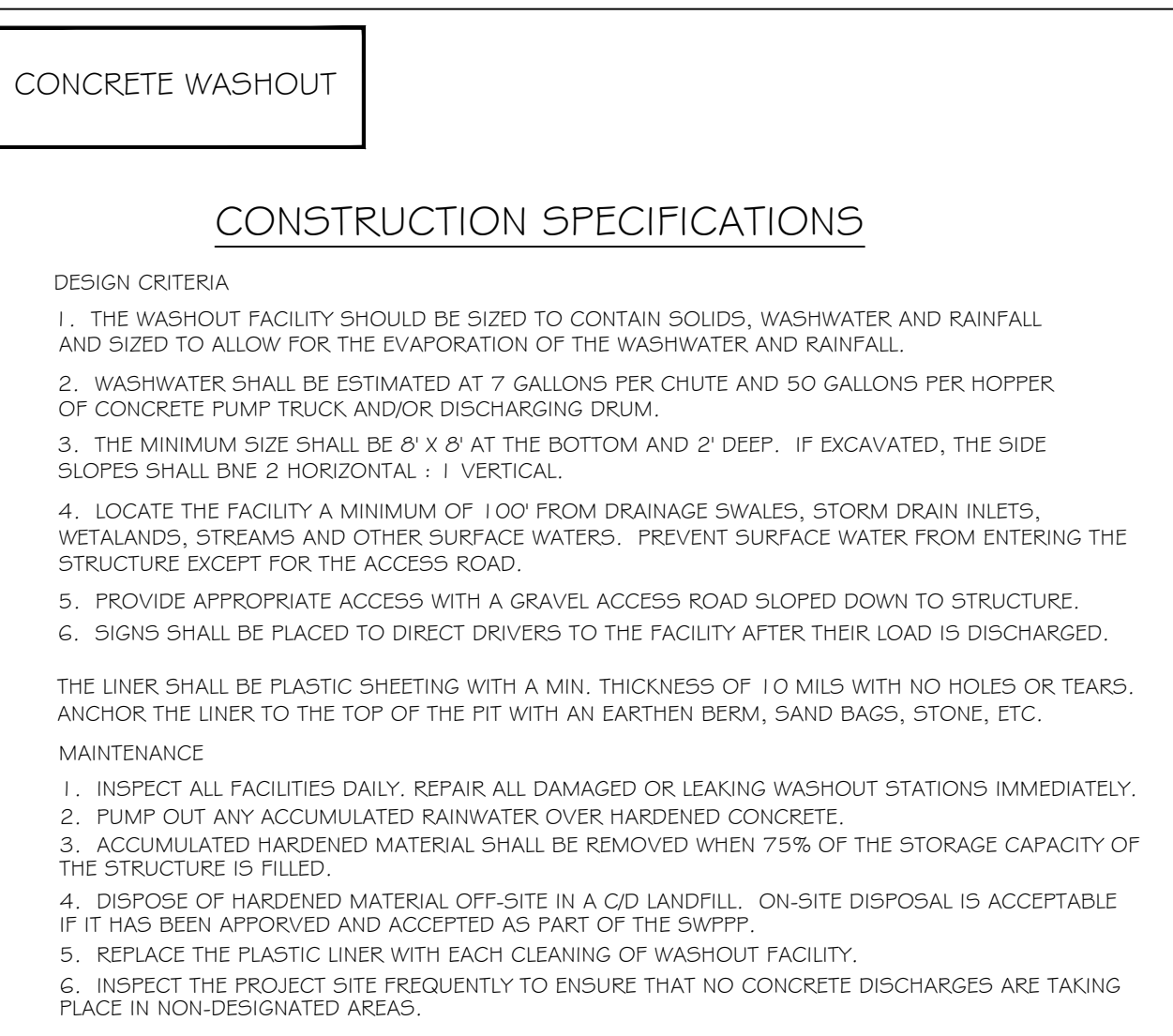
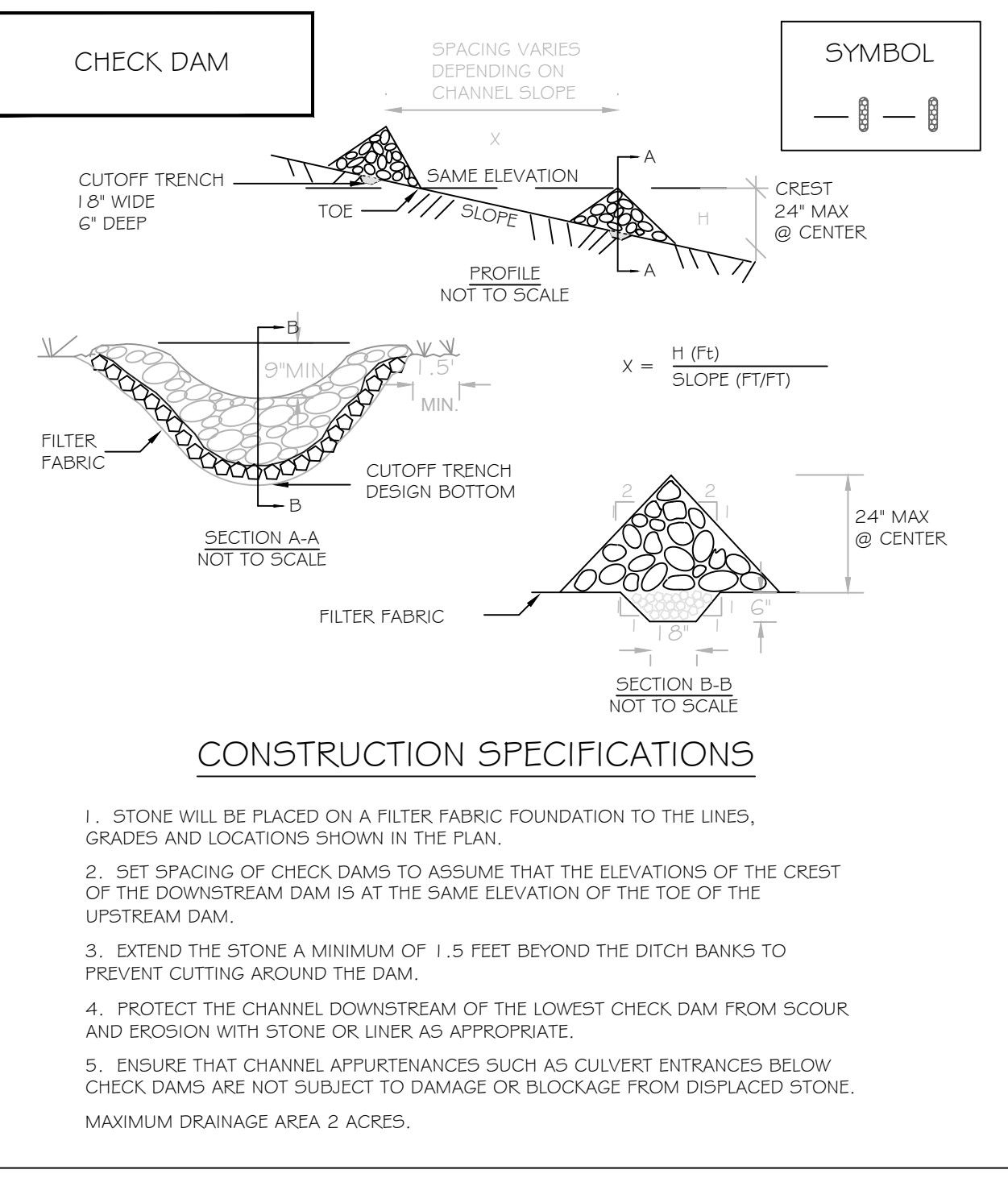
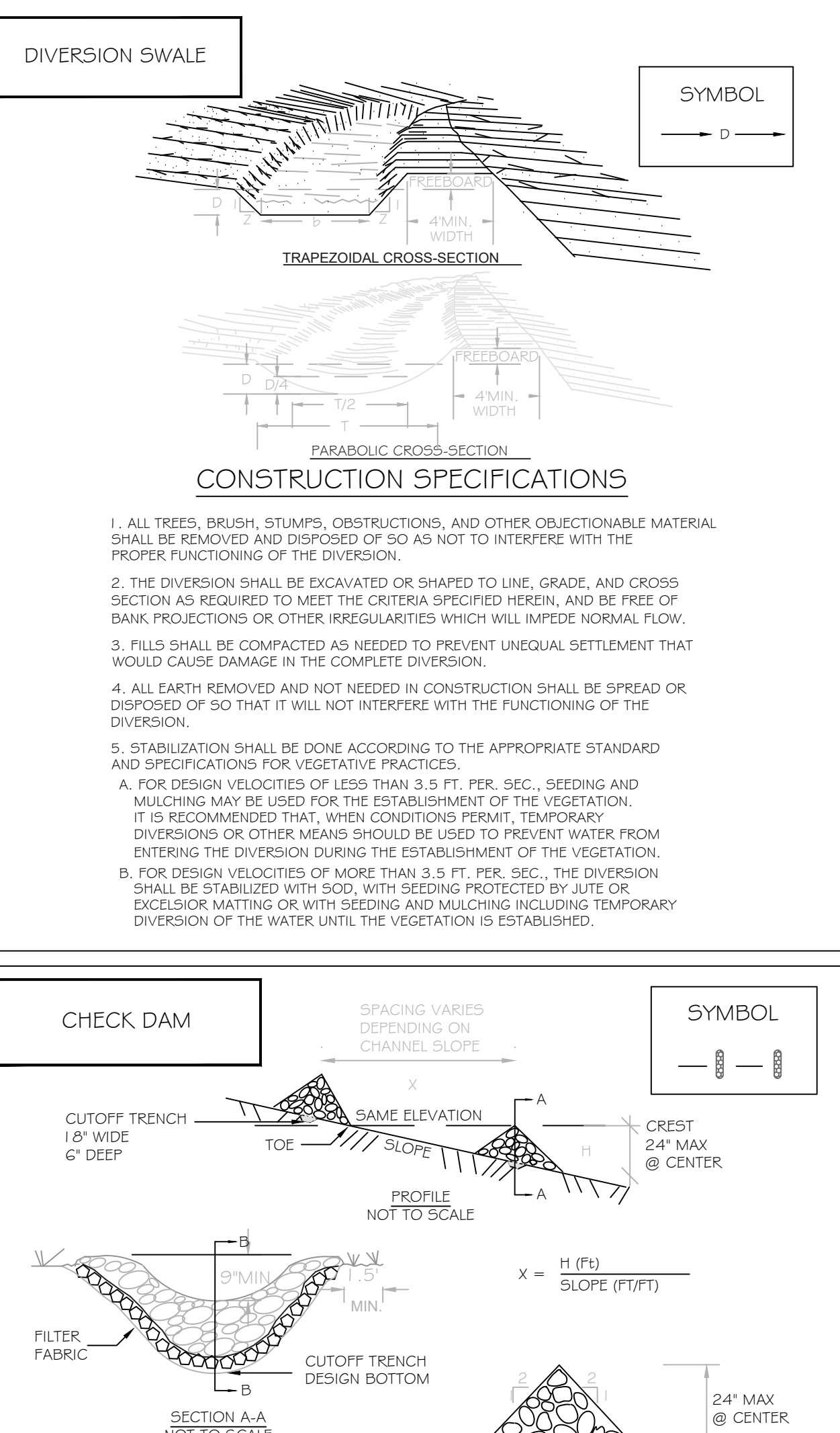
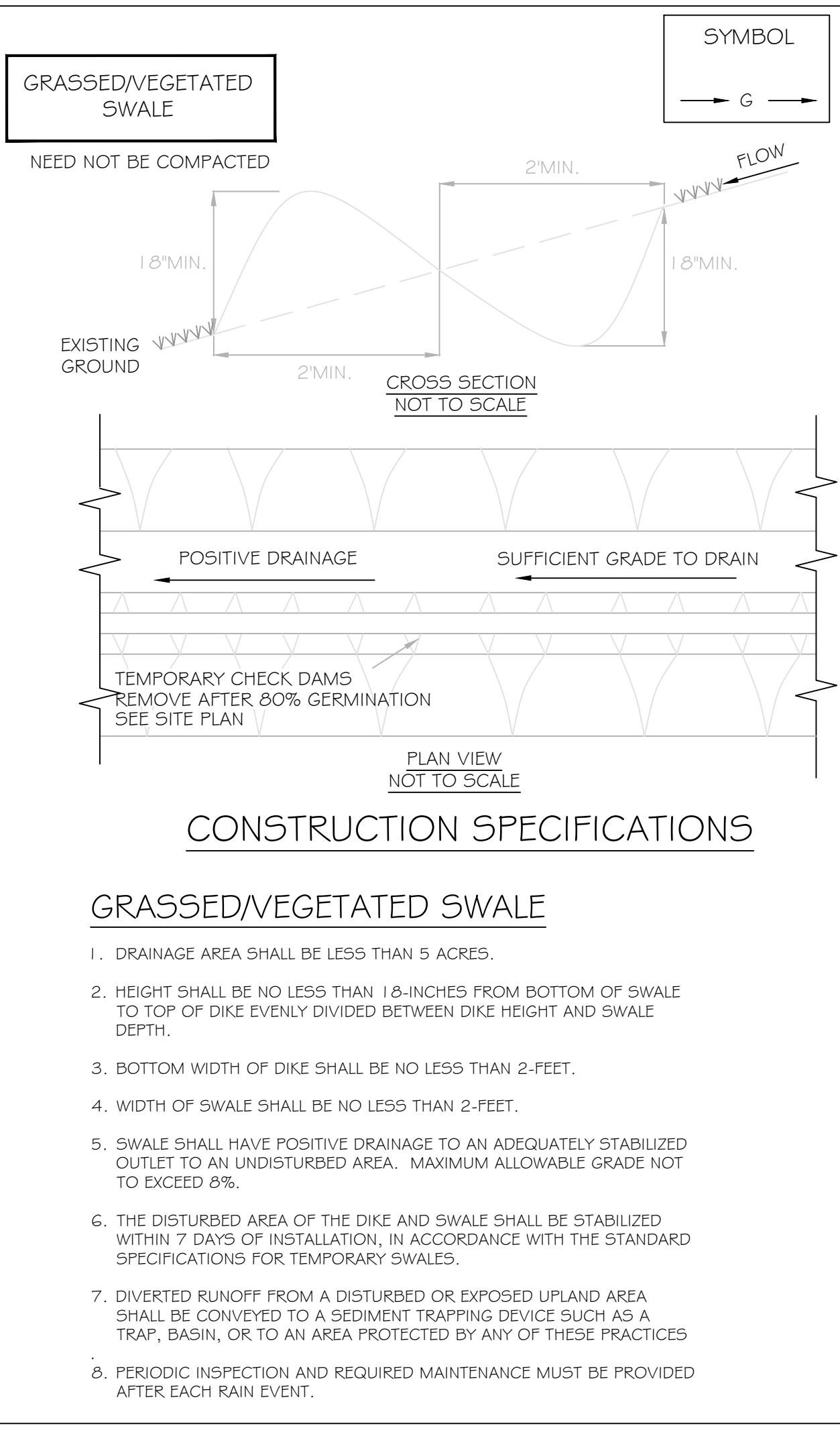
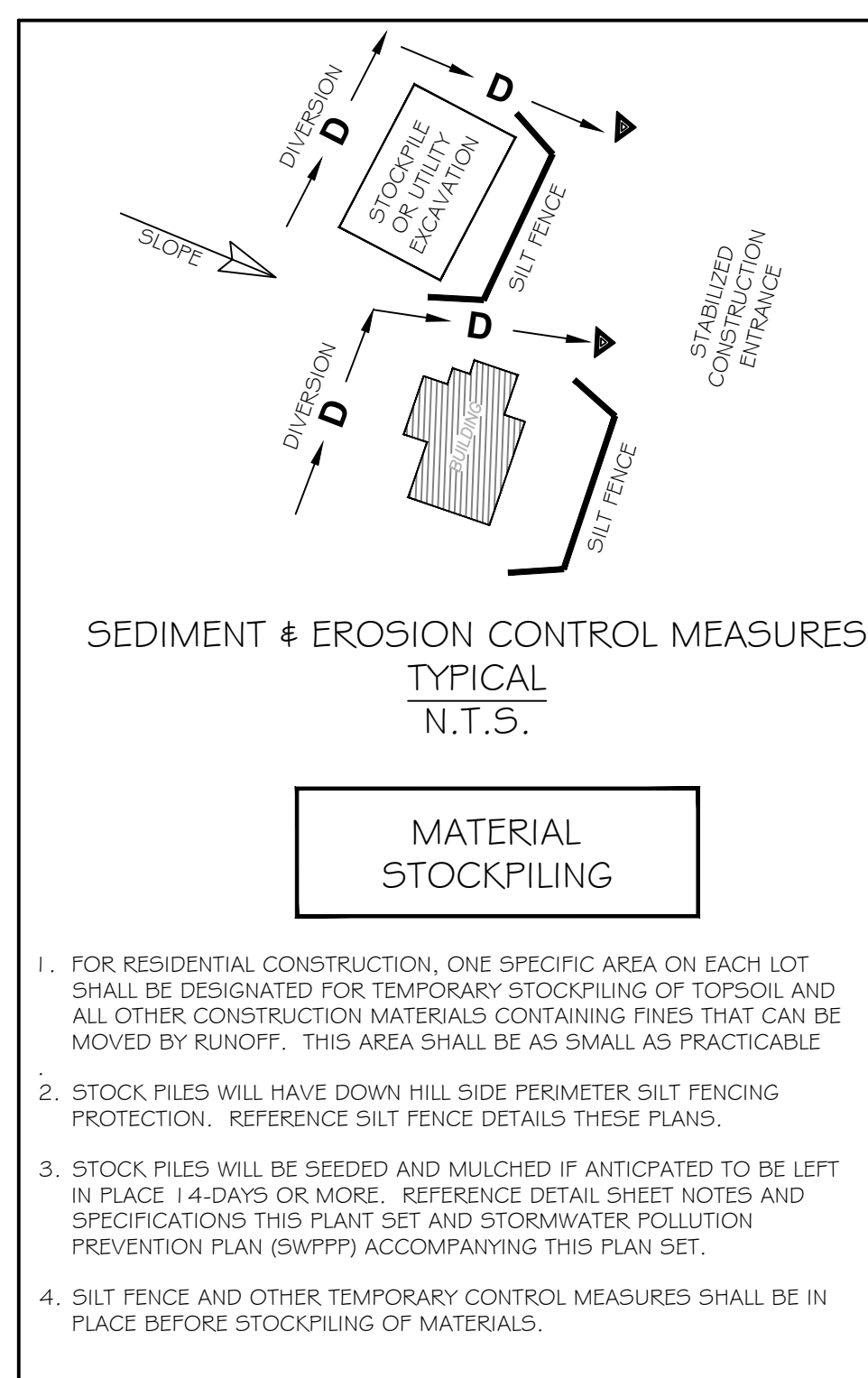
8. TOPSOIL TREATED WITH SOIL STERILANTS OR HERBICIDES SHALL BE SO IDENTIFIED TO THE PURCHASER.

9. TOPSOIL SHALL BE RELATIVELY FREE OF STONES OVER 1 1/2-INCHES IN DIAMETER, TRASH, NOXIOUS WEEDS SUCH AS NUT SEDGE AND QUACKGRASS, AND WILL HAVE LESS THAN 10% GRAVEL.

10. TOPSOIL CONTAINING SOLUBLE SALTS GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.

11. TOPSOIL SHALL BE DISTRIBUTED TO A UNIFORM DEPTH OVER THE AREA. IT SHALL NOT BE PLACED WHEN IT IS PARTIALLY FROZEN, MUDDY, OR ON FROZEN SLOPES OR OVER ICE, SNOW, OR STANDING WATER PUDDLES.

12. TOPSOIL PLACED AND GRADED ON SLOPES STEEPER THAN 5% SHALL BE PROMPTLY FERTILIZED, SEEDED, MULCHED, AND STABILIZED BY "TRACKING" WITH SUITABLE EQUIPMENT.



STARLAND BUILDERS
211 N. Sunset Park
E&S DETAILS

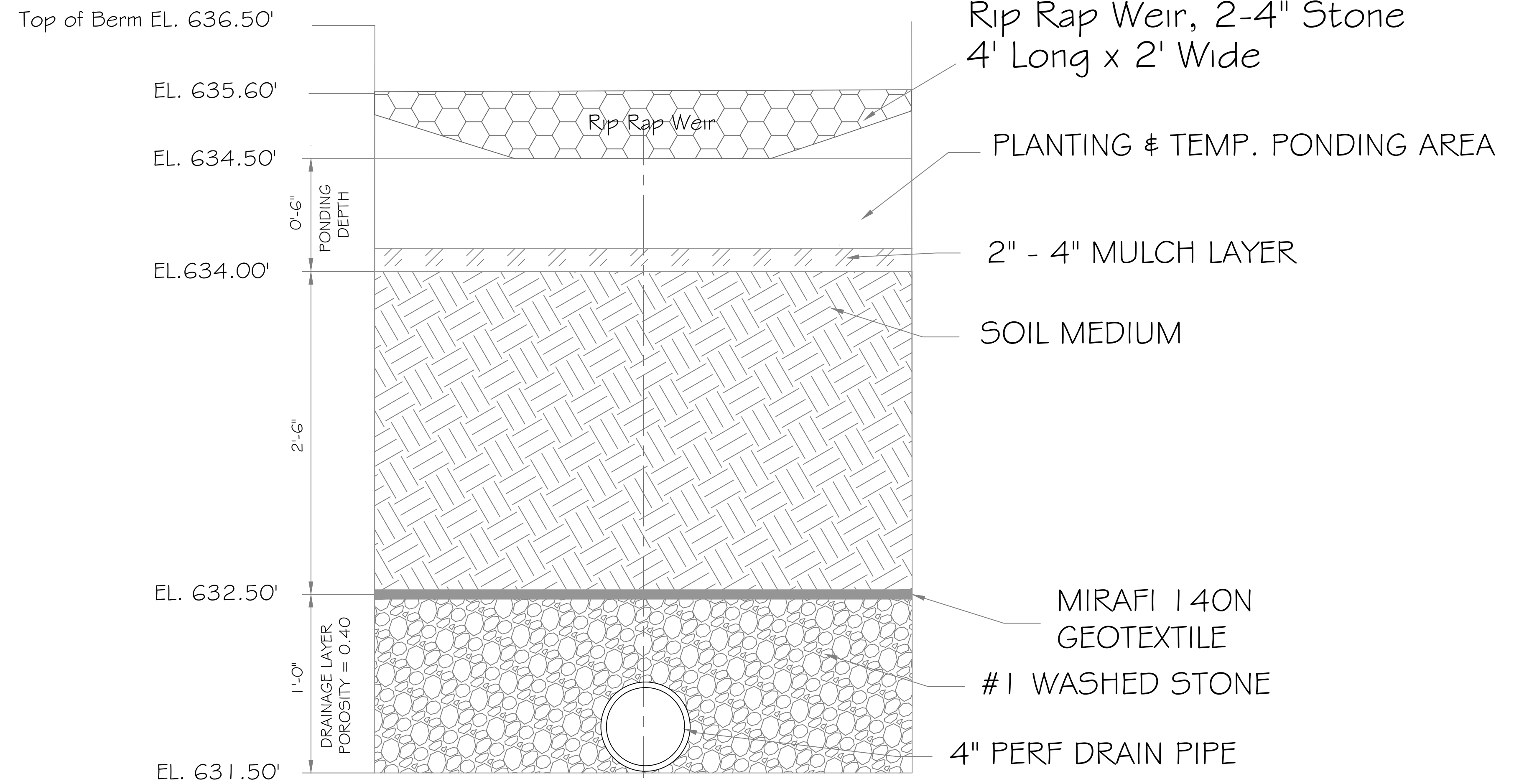
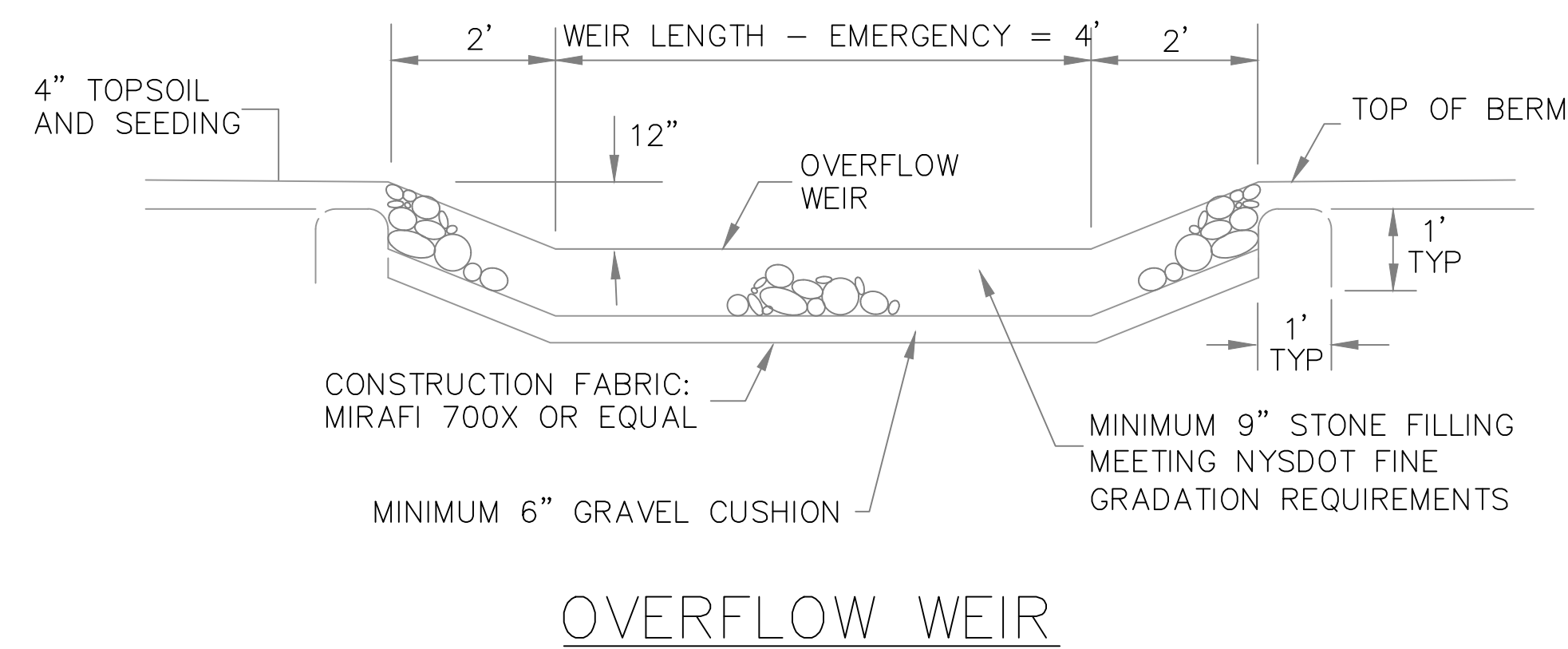
drawn	S.G.	checked	
date	Feb 14, 2023	scale	N.T.S.
project no.	22-166		
sheet no.	S-3		

SPECIFICATIONS FOR FILTRATION LAYER

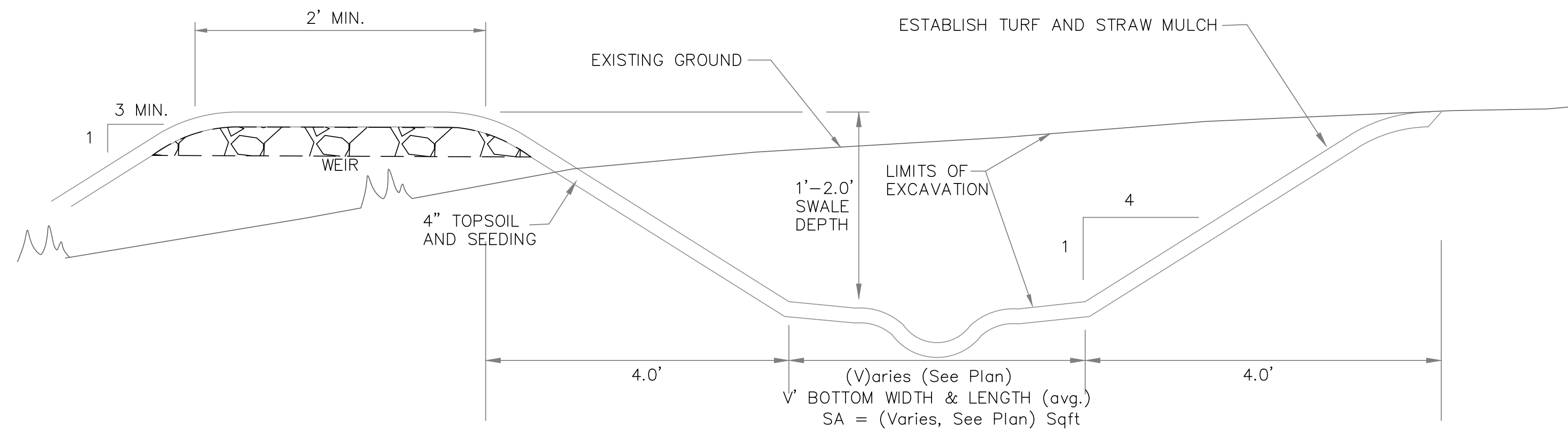
Planting Soil
 The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of noxious weeds.

Planting soil shall be of a sandy loam consistency containing approximately 75% concrete sand, 25% top soil and organics.

Compaction
 Minimize compaction of both the base of the bioretention area and the required backfill. Place soil in lifts 1 2" or greater. Do not use heavy equipment within the bioretention area basin.



WATER QUALITY BIO-SWALE UNDERDRAIN LAYERS



Cross-Section Water Quality Bio-Swale

DIMENSIONS VARY AS PER PLAN

Site Water Quality Volume Sizing

$$WQv = [(P)(Rv)(A)] / 12 = (1.0 * 0.064 * AC * 0.60AC) / 12 = 0.003AC-IN \text{ or } 140-CF$$

$$Rv = 0.05 + 0.009(I)$$

I = Impervious Cover (Percent) = 1.6% +/-
 Minimum Rv = 0.2
 A = site area in acres = 0.60AC

Practice floor surface area = 243-SF. This provides 230-CF of WQv treatment or, roughly 80%.



rev.	date	description
1		
2		
3		
4		
5		

STARLAND BUILDERS
 2111 N. Sunset Park

**WATER QUALITY SWALE
 DETAILS**

VILLAGE OF CAYUGA HEIGHTS, ITHACA, NEW YORK

drawn	checked
S.G.	
date	scale
Feb 14, 2023	N.T.S.
project no.	22-166
sheet no.	S-4

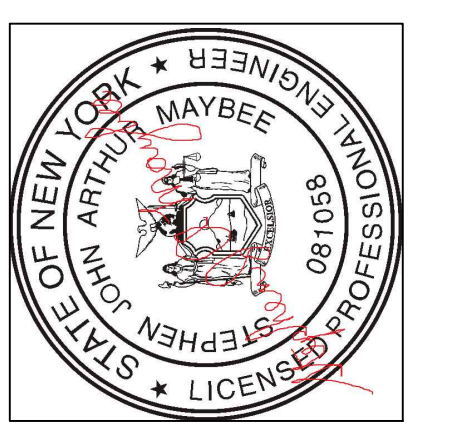


Existing Subcatchment

Proposed Subcatchment

Site Runoff Rates and Volumes		
	Existing	
1 Yr (2.00")	0.13 cfs	0.010 af
10 Yr (3.42")	0.79 cfs	0.043 af
	Proposed	
1 Yr (2.00")	0.23 cfs	0.018 af
10 Yr (3.42")	0.51 cfs	0.061 af

rev.	date	description
1		
2		
3		
4		
5		



STARLAND BUILDERS
2111 N. Sunset Park
VILLAGE OF CAYUGA HEIGHTS, ITHACA, NEW YORK

HYDRAULIC AND HYDROLOGIC ANALYSIS WORKSHEET

drawn	S.G.	checked	
date	Feb 14, 2023	scale	1" = 20'
project no.	22-166		
sheet no.	S-5		

