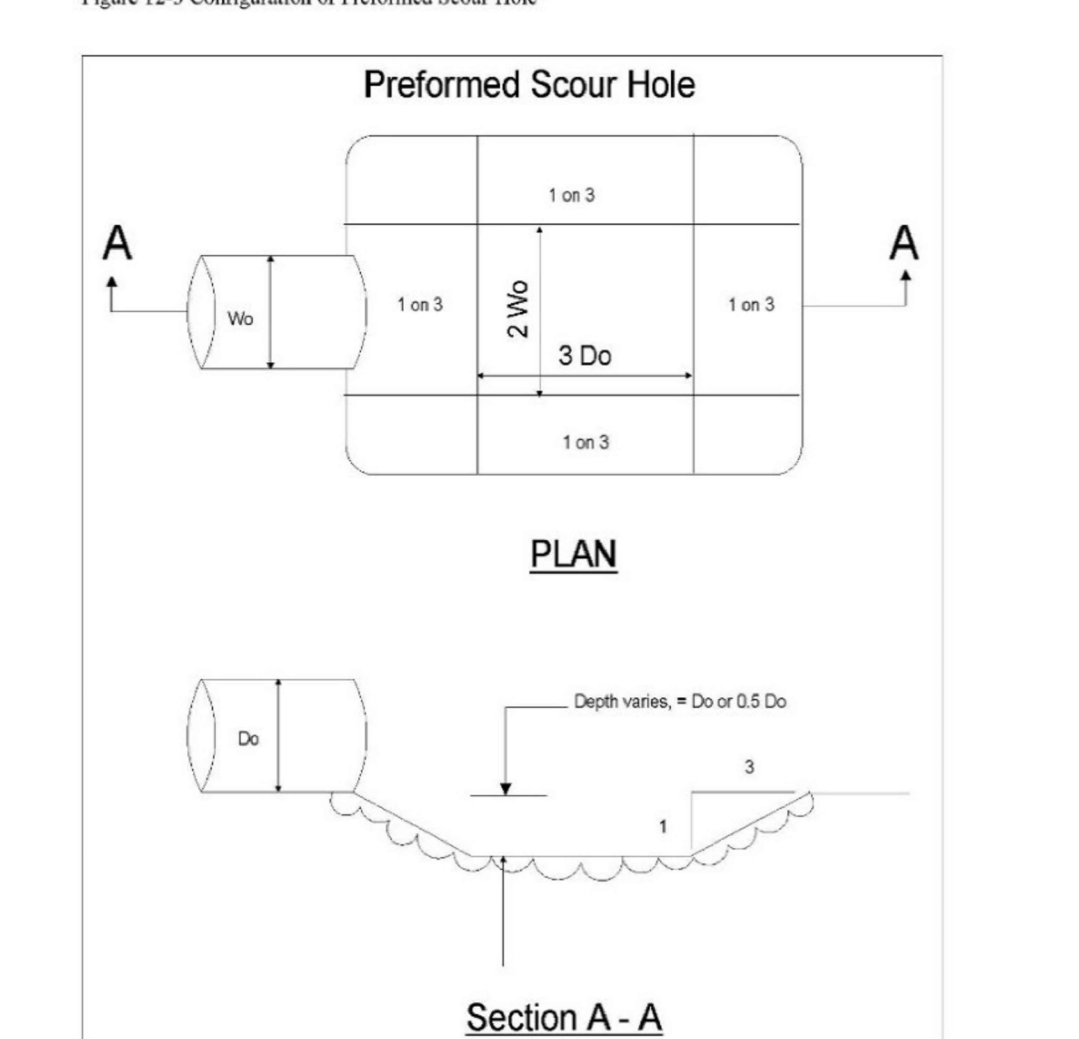


Standards for Soil Erosion and Sediment Control in New Jersey January 2014
Figure 12-3 Configuration of Performed Scour Hole



SSESC, NJ 2014 CHPTR 12 CONDUIT OUTLET PROTECTION - PREFORMED SCOUR HOLE				
SCOUR HOLE FOR BASIN OUTLET				
Q = 25yr peak flow cfs - USE FLOW FOR NO INFILTRATION SCENARIOS @ 3.86 CFS				
FOR 0.5D ₅₀	L = 2(0.5*Do*3)+3*Do	W = 2(0.500*3)+2Wo		
FOR D ₅₀	L = 2Do*3)+3*Do	W = 2D0*3+2Wo		
q = Q/W _o sq ft		W _o = ID outlet (ft)		
FOR 0.5D ₅₀	d50 = (0.0125/Tw)*q ^{1.33}			
FOR D ₅₀	d50 = (0.0082/Tw)*q ^{1.33}			
For areas where T _w cannot be computed use 0.2D ₅₀ , therefore 0.2 * 0.67" for 8" opening				
OUTLET STRUCTURE TENNIS CNTR			PREFORMED SCOUR HOLE AT D ₅₀	
Q25 4.14 cfs	Tw = 0.2 ft	d50 = 0.271 ft		
q = 4.14 sf	q ^{1.33} = 6.62	use 4" 1.0 FT THICK		
Do = ft 1 12" Round Pipe	ELEV. 358.1	L 9.00 ft		
Wo = ft 1 12" Round Pipe		W 8.00 ft		
OUTLET STRUCTURE TENNIS CNTR			PREFORMED SCOUR HOLE AT 0.5D ₅₀	
Q25 3.86 cfs	Tw = 0.2 ft	d50 = 0.377 ft		
q = 3.86 sf	q ^{1.33} = 6.03	use 6" 1.5 FT THICK		
Do = ft 1 12" Round Pipe	Do x 0.5 = 0.50	L 6.00 ft		
Wo = ft 1 8" Round Pipe	ELEV. 358.1	W 5.00 ft		

SSESC, NJ 2014 CHPTR 12 CONDUIT OUTLET PROTECTION - PREFORMED SCOUR HOLE				
SCOUR HOLE DRIVEWAY PIPE OUTLET IN BASIN				
Q = 25yr peak flow cfs - USE FLOW FOR NO INFILTRATION SCENARIOS @ 3.28CFS				
FOR 0.5D ₅₀	L = 2(0.5*Do*3)+3*Do	W = 2(0.500*3)+2Wo		
FOR D ₅₀	L = 2Do*3)+3*Do	W = 2D0*3+2W _o		
q = Q/W _o sq ft		W _o = ID outlet (ft)		
FOR 0.5D ₅₀	d50 = (0.0125/Tw)*q ^{1.33}			
FOR D ₅₀	d50 = (0.0082/Tw)*q ^{1.33}			
For areas where T _w cannot be computed use 0.2D ₅₀ , therefore 0.2 * 0.67" for 8" opening				
OUTLET FOR DRIVEWAY PIPE TO BASIN			PREFORMED SCOUR HOLE AT D ₅₀	
Q25 3.28 cfs	Tw = 0.2 ft	d50 = 0.199 ft		
q = 3.28 sf	q ^{1.33} = 4.85	use 4" 1.0 FT THICK		
Do = ft 1 12" Round Pipe	ELEV. 358.6	L 9.00 ft		
Wo = ft 1 12" Round Pipe	W 8.00 ft			
OUTLET FOR DRIVEWAY PIPE TO BASIN			PREFORMED SCOUR HOLE AT 0.5D ₅₀	
Q25 3.28 cfs	Tw = 0.2 ft	d50 = 0.303 ft		
q = 3.28 sf	q ^{1.33} = 4.85	use 6" 1.5 FT THICK		
Do = ft 1 12" Round Pipe	Do x 0.5 = 0.50	L 6.00 ft		
Wo = ft 1 12" Round Pipe	ELEV. 358.1	W 5.00 ft		

DUST CONTROL MATERIALS			
MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS / ACRE
ANIONIC ASPHALT EMULSION	7 : 1	COURSE SPRAY	1200
LATEX EMULSION	12.5 : 1	FINE SPRAY	235
RESIN IN WATER	4 : 1	FINE SPRAY	300
POLYACRYLAMIDE (PAM) - SPRAY ON POLYACRYLAMIDE (PAM) - DRY SPREAD			
ADJULATED SOY BEAN SOAP STICK	NONE	COARSE SPRAY	1200

TILLAGE: TO ROUGHEN SURFACE AND BRING CLOS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL PLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12' APART & SPRING-TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

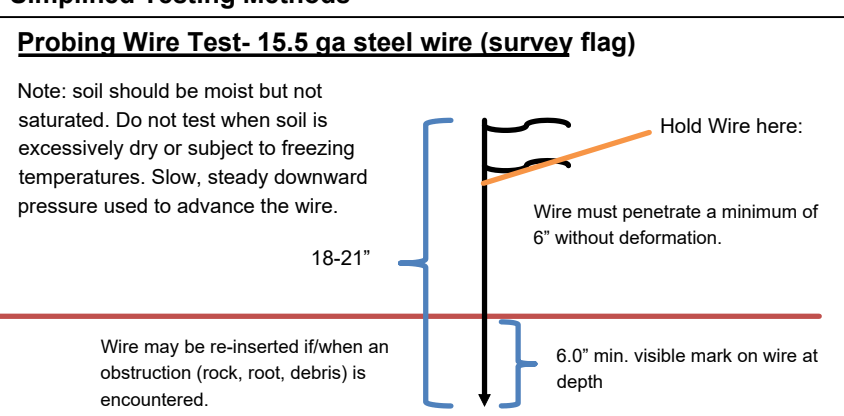
SPRINKLING: SITE IS SPRINKLED UNTIL SURFACE IS WET.

BARRIERS: SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, HAY BALES AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.

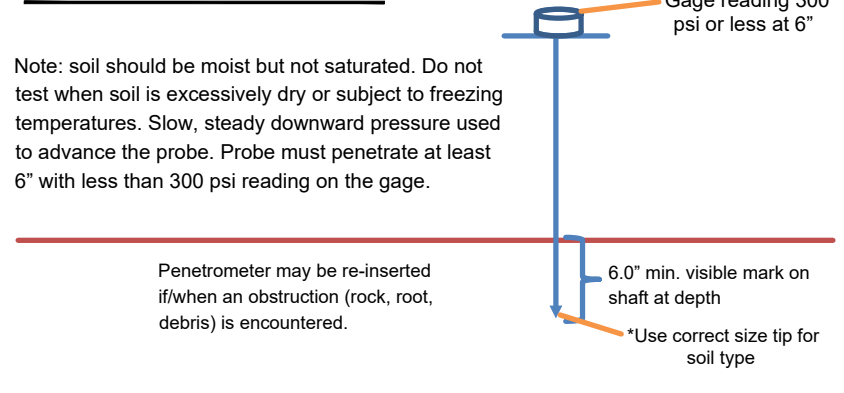
CALCIUM CHLORIDE: SHALL BE IN THE FORM OF LOOSE, DRY GRANULES OR FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS, OR ACCUMULATION AROUND PLANTS.

STONE: COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

Simplified Testing Methods



Handheld Soil Penetrometer Test



SOIL EROSION AND SEDIMENTATION NOTES AND SPECIFICATIONS

- The Hunterdon County Soil Conservation District requires an advanced 48-hour written notification prior to the start of any land disturbance. A failure of this notification prior to the start of construction will result in the issuance of a Stop Construction Order and may be cause for legal action. Notice may be faxed to (908) 788-0795 or mailed to: **Hunterdon County Soil Conservation District 687 Pitkin Road Fretchtown, NJ 08825**
- Land disturbance and construction work start includes any demolition or clearing that takes place on the project site. Appropriate Soil Erosion and Sediment Control measures must be installed and maintained at the proposed disturbance area.
- The project applicant and contractor are to be aware that additional Soil Erosion and Sediment Control measures may be required by the Soil Conservation District or Municipal Engineer if field conditions or unforeseen situations warrant them.
- The Hunterdon County Soil Conservation District encourages the installation and stabilization of permanent detention or retention facilities from the start of the project. This is particularly important in areas of steep topography and soils of Hunterdon County. Priority should be to set up the detention basin or retention basin facility prior to any significant amount of land disturbance. Sediment rises can be used on a detention basin at any time as long as they meet the criteria of the state Soil Erosion and Sediment Control Standards. If a Sediment Basin is designed, as either within the permanent basin area or as a stand-alone basin, they are to be design fully in compliance with the Standards and are to be properly maintained during construction. All detention/retention basins be completed and **permanently stabilized** (along with conduit outlet protection and low-flow channel) before any storm drainage piping is installed to the basin and same piping is functioning. No paving is to take place on the project site until all stormwater detention/retention facilities are adequately stabilized as per plan. Failure to maintain a detention, retention, or sediment facility in working order during construction may be grounds for issuance of a stop construction order by the Soil Conservation District.
- The Hunterdon County Soil Conservation District does not support nor endorse mass excavation. The amount of soil disturbed at one time, and subject to erosion, is to be kept to a minimum. It is the policy of the Hunterdon County Soil Conservation District that large disturbances of soil exposed at one time on a project will require a detailed plan and time-line for getting areas stabilized. The standard for sediment barriers will be used for limiting large areas of excavation. If excavations are proposed that exceed the sediment barrier standard, then additional measures are to be designed and detailed and a detailed sequence of construction be submitted for re-certification and approval. As a minimum, soils exposed for longer than 30 days will require temporary stabilization following the Agronomic Specifications on the plan.
- A copy of the certified Soil Erosion and Sediment Control Plan is to be kept on the project site during construction and available for review by the contractor and Soil Conservation District Inspectors.
- The land disturbance is to proceed in accordance with the approved sequence of construction and the certified plan. All required soil erosion and sediment control measures must be installed and maintained as outlined in the plan.
- The Soil Conservation District is to be notified and represented at a preconstruction conference (usually held at the municipal engineers office) prior to the start of construction or any land disturbance.
- All disturbed areas that are not being graded, not under active construction, or not scheduled to be permanently seeded within 30 days must be temporarily stabilized as per specifications below.
- All exposed areas which are to be permanently vegetated, are to be seeded and mulched within 10 days of final grading.
- Straw mulch (hay mulch may be substituted if approved by the District) is to be applied to all seedings at a rate of 1-1/2 to 2 tons per acre (approx. 100 to 130 bales per acre).
- Straw mulch (hay mulch may be substituted if approved by the District) is to be applied to all seedings at a rate of 1-1/2 to 2 tons per acre (approx. 100 to 130 bales per acre).
- Existing weedy and poorly-vegetated areas with less than 80 percent perennial grass cover must receive permanent stabilization (as specified below). This is to include all acreage of the subject property and/or former cropland fields that were left fallow.
- All bags need to be saved for lime, fertilizer, seed, and liquid mulch binder (if mulch anchoring method). Such proofs need to be submitted to the District inspector for verification of materials and quantities used for all seedings.
- An additional fee per inspection (as per the current Hunterdon County Soil Conservation District Fee Schedule at the time of inspection) will be assessed on those sites where additional inspections are necessitated as a result of non-compliance with the approved plan. This includes additional inspections performed after the failure of an initial Report of Compliance inspection. The entire project site is inspected at the time of a request for Report of Compliance.
- Soils in Hunterdon County require that all stone tracking pads (stabilized construction entrance) be installed at a minimum of 100 ft. in length for roadway grades of 0% to 2% and 200 ft. for access grades greater than 2%. This requirement is the same, regardless if mass project entrance or individual dwelling lot. Stone tracking pads for other measures approved by the Soil Conservation District are to be installed at all construction accesses to pavement. See detail plan sheet.

The construction entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto roadsways. This may require periodic top dressing with additional stone or additional length as conditions demand and repair and/or cleanup of any measures used to trap sediment. All sediment spilled, dropped, washed, or tracked onto roads (public or private) or other impervious surfaces must be removed immediately.

Where accumulating of dust/sediment is inadequately cleaned or removed by conventional methods, a power broom or street sweeper will be required to clean paved or impervious surfaces. All other access points, which are not stabilized, shall be adequately blocked off.

- Conduit Outlet Protection (rip-rap aprons or scour holes) must be designed and installed at all pipe outlets as per the certified plans and Standards for Soil Erosion and Sediment Control in New Jersey. Conduit Outlet Protection must be maintained as per design until the completion of the project and issue of final Report of Compliance. See Conduit Outlet Protection detail and specification table on plan sheet ____.
- All stormwater inlet protection needs to be maintained periodically with fresh haybales or clean stone berms (stone sized 1 1/2"-2 1/2") or approved method to completely encircle, but not block the inlets. See detail on plan sheet ____.
- Inspections of stormwater inlet protection shall be frequent. Maintenance, repair, and replacement shall be made promptly, as needed. Inlet protection needs to be maintained until all areas of the site, or as a minimum the area draining to the inlet, are permanently stabilized and approved by Soil Conservation District Inspectors.
- Dust control measures are to be used during all phases of construction of the project. See Standards for Soil Erosion and Sediment Control in New Jersey pages 16-1 and 16-2. See Dust Control Materials table on plan sheet ____.
- All trees that are to be protected from environmental and mechanical injury during construction are to be adequately marked in fenced-off prior to construction and maintained during construction. For further information see Standards for Soil Erosion and Sediment Control in New Jersey pages 9-1 through 9-7. See proper tree protection detail on plan sheet ____.
- Dewatering methods are to be followed to properly remove suspended sediments in water from excavations and/or trenches prior to discharge to downstream areas and/or watercourses. These methods are to be as follows those found in the Standards for Soil Erosion and Sediment Control in New Jersey, pages 14-1 to 14-7.
- On subdivision plans, individual lots on steep slopes (greater than 10%) or in close proximity to a drainage way, require an individual Soil Erosion and Sediment Control Grading to be submitted and certified prior to obtaining a building permit and before any land disturbance on that lot. These individual lot plans are considered minor revisions to a certified plan and will be subject to a resubmission for review and certification for the current Hunterdon County Soil Conservation District Fee Schedule at the time of submission. The lots requiring individual lot plans for this project are ____.
- As per the Traffic Control Standard in the Standards for Soil Erosion and Sediment Control in New Jersey (page 33-1) field banks, wetland buffers, waterways, and other sensitive areas are to be avoided by construction traffic. Wetland buffer and wetland areas are to be adequately marked in step prior to construction and maintained during construction.
- Any former agricultural crop fields that are either in crops, crop residue, or annual weed cover are to be stabilized following the Agronomic Specifications for Hunterdon County. This is to be either a cover crop from the end of last harvest and construction start-up or temporary stabilization through seeding and mulching. Areas that are not going to be either built on or continued to be farmed are to receive permanent stabilization.
- If excess fill or any other material is to be removed from the site, the project owner/applicant shall be responsible for its proper disposal and will notify the Hunterdon County Soil Conservation District as to the planned disposal site location. If applicable, a Soil Erosion and Sediment Control Plan must be submitted to, reviewed and certified by the Hunterdon County Soil Conservation District prior to any material removal from the project site. Removal of any soil material from the project site without written authorization from the Hunterdon County Soil Conservation District is a violation of the state Soil Erosion and Sediment Control Act.
- Stockpiling of fines (sand, quarry-process-blend, etc.) is not allowed on paved surfaces of the project site.
- Any gabion baskets used on the project are to be coated with plastic or PVC and filled with 4"-7" angular rock. The gabion thickness is to be at least the calculated stone D50 size of a regular rip-rap apron. Filter fabric is to be installed between the subgrade and the gabions.
- The limits of disturbance shown on the plans are not to be exceeded unless authorized by the Hunterdon County Soil Conservation District and a revised plan submitted for certification.
- All disturbed roadside areas need to be topsoiled, final-graded, limed, fertilized, seeded, mulched, and mulch-anchored (following District Agronomic Specifications for Permanent Seeding) for a minimum duration approved by the District back from the curb-line prior to approval of permanent improvement.
- The Hunterdon County Soil Conservation District does not recommend the use of rip-rap D50 sizes smaller than 6" for aprons or scour holes since smaller stone sizes (3" or 4") tend to wash/erode under high intensity rain storms. The Hunterdon District recommends that the smallest D50 stone size be specified as 6" with thickness specified as 12" with filter fabric or 18" without fabric.
- Temporary diversions to direct water off of a graded right-of-way onto a stable area are needed during construction. For further information refer to the Standards for Soil Erosion and Sediment Control in New Jersey (page 15-1 item 2 and figure 15-1) for the required dimensions and spacing. See detail and spacing on plan sheet ____.
- A sediment barrier must be installed above any detention/retention basins (between the roadway/building construction and detention basin). This is to protect the detention basin newly graded/seeded areas while the other construction is being completed and all upstream areas are permanently stabilized.
- Hydroseeding/Hydromulching are not recommended practices in Hunterdon County due to the high failure rate of seedings, steep topography, poor seed-to-soil contact and poor ground surface coverage. All seed must be incorporated into the soil. Hydroseeding equipment may be used in conjunction with straw/hay mulch for the purpose of anchoring the mulch with liquid mulch binders.
- If subsurface water problems are discovered during construction, they will be rectified following the Standards for Soil Erosion and Sediment Control in New Jersey (Subsurface Drainage, page 32-1 through 32-4).
- All development roadways are to be kept scraped/swept to remove sediment accumulations along curbs and around stormwater inlets.
- The maximum allowable vegetated slope is 2:1. Slopes in excess of 3:1 (between 2:1 and 3:1) require temporary erosion control matting, such as excelsior "curlex" or equivalent, for stabilization. The matting is to be properly installed with specified overlap, check slots, anchoring spacing, and anchoring device type, gauge, and size.
- All disturbed areas that are not being graded, not under active construction, or not scheduled to be permanently seeded within 30 days must be temporarily stabilized as per the Agronomic Specifications.
- A Report of Compliance from the Soil Conservation District is required for each dwelling lot prior to issuance of a Certificate of Occupancy on that lot. Failure to maintain or comply with the Soil Erosion and Sediment Control Plan for the project will be cause for compliance failure on an individual lot.
- It is the owner/applicant responsibility to notify the District of all property conveyances and sale of individual lots on a project. Soil Erosion and Sediment Control Plan Applications are to be filed by any new owners on project lots when construction activity on the lot still take place.
- Pursuant to the New Jersey Soil Erosion and Sediment Control Act, Chapter 251, P.L. 1975, the Hunterdon County Soil Conservation District has reviewed the plans for this project and certifies the Soil Erosion and Sediment Control Plan. The approval of the Soil Erosion and Sediment Control Plans by The Soil Conservation District is limited to the soil erosion, sedimentation, and related stormwater management controls specified in this plan. It is not authorization to engage in the proposed land use unless the municipality or other controlling agency has previously approved such use.
- Plans submitted to the Hunterdon County Soil Conservation District must be consistent with plans any plans submitted to a regulatory agency such as NJDEP, municipality, etc. Any revisions required by any reviewing authority would require a resubmission to the District for review.
- All revisions and municipal renewals of this project will require resubmission and approval by the Soil Conservation District.
- Report of Compliance: A Report of Compliance approving permanent stabilization measures (or a Soil Erosion and Sediment Control Completion Bond Agreement with temporary stabilization for the winter season) is to be issued by the Soil Conservation District on all projects at their completion. Before any Certificate of Occupancy (permanent or temporary) can be granted by the municipality or state, a written Report of Compliance must be issued by the Soil Conservation District.
- Pursuant to authority granted by N.J.S.A. 4:24-47, The Hunterdon County Soil Conservation District periodically inspects the project site for compliance with the Certified Soil Erosion and Sediment Control Plans and the state Soil Erosion and Sediment Control Act. Failure to comply with the plans and the act may be cause for court action and penalties, pursuant to N.J.S.A. 4:24-53. The maximum statutory penalty provided by law for violations of the Soil Erosion and Sediment Control Act is a fine of up to \$3,000 each day and an injunctive order of the Superior Court.
- It is policy of the Hunterdon County Soil Conservation District to periodically evaluate all projects to determine if the costs for review and inspection exceed the paid fees. Prior to the fees being exceed an additional fee will be assessed. This fee will be based on the incomplete percentage(s) of the project, regardless if presently under construction or not, as per the current Hunterdon County Soil Conservation District Fee Schedule at the time of evaluation.
- Soil Compaction: Areas of travel within a project site and/or staging and parking areas may have soils compacted during the course of project construction. All soil compaction is to be corrected prior to any permanent stabilization and completion of project. The Topsoiling Standard (NJ SEASC Standards page 8-2) states that where there is compaction, the surface is to be scarified to a depth of 6" to 12". The Soil Conservation District will be inspecting for this to be scarified to a depth of 6" to 12". The Soil Conservation District will be inspecting for this to be scarified prior to any permanent stabilization and prior to issue of any Report of Compliance. Where topsoil is not being stripped during construction, pre and post compaction test may be used to verify that construction traffic has not caused a soil compaction problem to the site.

AGRONOMIC SPECIFICATIONS FOR LAWNS AND CONSTRUCTION SITES

- All disturbed areas that are not being graded, not under active construction, or not scheduled to be permanently seeded within 30 days must be temporarily stabilized as per specifications below.
- All exposed areas which are to be permanently vegetated, are to be seeded and mulched within 10 days of final grading.
- Straw mulch (hay mulch may be substituted if approved by the District) is to be applied to all seedings at a rate of 1-1/2 to 2 tons per acre (approx. 100 to 130 bales per acre).
- Mulch anchoring is required after mulching to minimize loss by wind or water. This is to be done using one of the methods (crimping, liquid mulch binders, nettings, etc.) in the "Standards for Soil Erosion and Sediment Control in New Jersey".
- Existing weedy and poorly-vegetated areas with less than 80 percent perennial grass cover must receive permanent stabilization (as specified below). This is to include all acreage of the subject property and/or former cropland fields that were left fallow.
- All bags need to be saved for lime, fertilizer, seed, and liquid mulch binder (if mulch anchoring method). Such proofs need to be submitted to the District inspector for verification of materials and quantities used for all seedings.
- An additional fee of \$125.00 per inspection will be assessed on those sites where additional inspections are necessitated as a result of non-compliance with the approved plan. This includes additional inspections performed after the failure of an initial Report of Compliance inspection. The entire project site is inspected at the time of a request for Report of Compliance.

SEEDBED PREPARATION FOR ALL SEEDINGS

SUB-SOIL PREPARATION: Immediately prior to seeding and topsoil applications, the surface should be scarified to a depth of 6" to 12" where there has been soil compaction (e.g. areas of heavy construction traffic). This practice is to be applied to all compacted areas where there is no danger to underground utilities (cables, irrigation systems, etc.).

TOPSOILING: Areas to be seeded should have a minimum of 5" of friable, loamy, topsoil free of objectionable weeds, stones and debris.

FINAL GRADING: Grading is to be smooth of ruts and free of objectionable stones, depressions, vehicle tracks, and rough edges. There is to be positive drainage away from all buildings and dwellings. Refuse from seeded preparation (roots, sticks, stones, construction debris) must be disposed of properly.

LIMING/FERTILIZING:

Apply lime/stone and fertilizer to soil test recommendations or as follows:

A. Lime is to be applied at the rate of 2 tons (4000 lbs.) per acre. Lime may be any product type as long as the CCE Calcium Carbonate Equivalency = 2 tons per acre. Pelletized and liquid products may be preferred because they lack dust and ease of handling but must meet the fore-mentioned criteria.

B. Starter fertilizer, specified as 10-20-10, is to be applied at 500 lbs. per acre.

C. Lime and fertilizer are to be worked into the soil to a depth of 4 inches.

TEMPORARY STABILIZATION WITH MULCH ONLY

Straw mulch (hay mulch may be substituted if approved by the District) is to be spread uniformly at the rate of 2 to 2 1/2 tons per acre (total ground surface coverage). This practice is limited to periods when vegetative cover cannot be established due to the season or other conditions. Mulch must be anchored in accordance with New Jersey Standards for Soil Erosion and Sediment Control. Mulch alone can only be used for short periods and will require maintenance and renewal. Other mulch materials may be utilized if approved by the District.

TEMPORARY SEEDING

Temporary seeding is to be used on all disturbed areas where permanent stabilization will not be accomplished for a period of up to 6 months.

Product	Rate	Recommended optimum seeding dates
---------	------	-----------------------------------

Perennial Ryegrass	100 lbs. per acre	3/15-5/15 & 8/15-10/1
Spring Oats	86 lbs. per acre	3/15-6/1 & 8/1-10/1
Winter Cereal Rye	112 lbs. per acre	8/1-11/15
Winter Barley	96 lbs. per acre	8/15-10/1
Pearl Millet	20 lbs. per acre	5/15-8/15
German or Hungarian Millet	30 lbs. per acre	5/15-8/15

STABILIZATION WITH SOD

Stabilization with sod is permitted in areas where maintenance and irrigation are adequate to insure proper establishment and longevity. Seeded preparation is to be consistent with any other stabilization requirements. (Lime and fertilizer bags are to be retained for District inspection). On slopes greater than 3 to 1, sod must be properly anchored to the slope in accordance with the NJ Standards for Soil Erosion and Sediment Control.

PERMANENT SEEDING

- Seed is to be incorporated into the soil to a depth of 1/4" - 1/2".
- Lawn seedings are to be a mixture of bluegrass, turf-type ryegrasses, and turf-type perennial ryegrasses to insure longevity, tolerance, and durability. No seed shall be accepted with a germination test date of more than 12 months old unless retested.
- Professional seed mixtures are recommended rather than mixing seeds yourself.
- Seed mixture (as specified below) is to be applied at a minimum rate of 200 lbs. per acre of perennial seed.
- Optimum seeding period for Hunterdon County is from March 1 to May 15 and August 15 to October 1. Outside of those periods, the seeding rates are to be increased by 50% (i.e.: 300 lbs. per acre of perennial seed instead of the required 200 lbs. per acre during optimum periods).
- Seedings should receive an application of fertilizer such as 10-10-10 or equivalent at 400 lbs. per acre approximately 6 months after first application.

SEEDING MIXTURE FOR GENERAL SEEDING - (example: lawns)

40% turf-type tall fescue	60% Kentucky bluegrass
10% creeping red fescue	20% turf-type perennial ryegrass
10% chewings fescue	20% chewings fescue
10% Kentucky bluegrass	
30% turf-type perennial ryegrass	

SEEDING MIXTURE FOR HIGH TRAFFIC & CRITICAL AREAS

80% turf-type tall fescue	
10% Kentucky bluegrass	
10% turf-type perennial ryegrass	

Other seed mixtures, such as blended varieties of perennial turf-type ryegrasses, turf-type tall fescues, or bluegrasses may also be acceptable if approved by the District.

Soil De-compaction and Testing Requirements

- Soil Compaction Testing Requirements
- Subgrade soils prior to the application of topsoil (see permanent seeding and stabilization notes for topsoil requirements) shall be free of excessive compaction to a depth of 6.0 inches to enhance the establishment of permanent vegetative cover.
 - Areas of the site which are subject to compaction testing and/or mitigation are **graphically denoted** on the certified soil erosion control plan.
 - Compaction testing locations are denoted on the plan, a copy of the plan or portion of the plan shall be used to mark locations of tests, and attached to the compaction remediation form, available from the local soil conservation district. This form must be filled out and submitted prior to receiving a certificate of compliance from the district.
 - In the event that testing indicates compaction in excess of the maximum thresholds indicated for the simplified testing methods (see details below), the contractor/owner shall have the option to perform either (1) compaction mitigation over the entire mitigation area denoted on the plan (excluding exempt areas), or (2) perform additional, more detailed testing to establish the limits of excessive compaction whereupon only the excessively compacted areas would require compaction mitigation. Additional detailed testing shall be performed by a trained, licensed professional.

Compaction Testing Methods

- Probing wire test (see detail)
- Hand-held penetrometer test (see detail)
- Tube bulk density test (licensed professional engineer required)
- Nuclear density test (licensed professional engineer required)

Note: Additional testing methods which conform to ASTM standards and specifications, and which produce a dry weight, soil bulk density measurement may be allowed subject to district approval.

Soil Compaction Testing & Not Required: If when subsoil compaction remediation (scarification/village (6" minimum depth) or similar) is proposed as part of the sequence of construction. Procedures for Soil Compaction Mitigation procedures shall be used to mitigate excessive soil compaction prior to placement of topsoil and establishment of permanent vegetative cover.

Restoration of Compacted Soils shall be through deep scarification/village (6" minimum depth) where there is no danger to underground utilities (cables, irrigation systems, etc.), in the alternative, another method as specified by a new Jersey licensed professional engineer may be substituted subject to district approval. (see detail for simplified testing methods)

REV.	DATE	DESCRIPTION	BY
1	07/09/2021	REVISED PER BOA HEARING/PROFESSIONAL REVIEW	JAH

FREY ENGINEERING, LLC
1117 STATE HWY 31
LEBANON, NEW JERSEY 08833
Phone 908-238-0502
www.freyengineering.com
No. 24G2807300

Preliminary Site Plan & Major Subdivision
S.E.S.C. DETAILS & NOTES
PROPOSED IN-DOOR TENNIS COURTS
BRANT SWITZLER

PREPARED FOR:
**TAX MAP SHEET 16, BLOCK 55, LOT 2
DELAWARE TOWNSHIP, HUNTERDON COUNTY, NJ**

CHK:	JAH	SCALE:	AS SHOWN	DRAWING NO.	REV. NO.
ENG:	JAH	CAD FILE NO.	Switzler SD 2021	C-6	1
DATE:	JULY 2020	SHEET			

