

Environmental Conditions Report Prepared For 360 Franklin Boulevard Lot 14.02 Block 286 Franklin Township Somerset County, New Jersey VCEA #1509FS

> December 22, 2017 Revised March 24, 2022 Revised February 24, 2024

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Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

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Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

Project Data

The project involves the acquisition and subdivision of a vacant lot that is presently comprised of approximately 2.77 acres of woods. The woods will be removed to accommodate the construction of five single-family homes, a roadway, manufactured treatment devices (MTDs) and a pond constructed wetland.

Mapping

The property is located in the R-10 zoning district within the Township of Franklin. Figure 1 depicts the location of the map on a USGS quadrangle. Figure 2 depicts an aerial map of the tract and the surrounding neighborhood. The relevant tax map is provided in Appendix D and a site plan is provided in Appendix C. According to the National Flood Insurance Program (NFIP) Flood Insurance Rate Map (FIRM), Panel 188 of 301 for Somerset County, NJ (Figure 4), the property is located in Zone X, which is considered to be outside of the 500-year flood plain.

Existing Environmental Features

Natural Resources:

The property is presently comprised entirely of woods. Figure 3 indicates that no wetlands are present on the site. The soils consist entirely of Klinesville Channery Loam which belongs to Hydrologic Soil Group D. A soil map is provided in Appendix E. There are no steep slopes on the property.

Man-made Resources:

The property is presently vacant and comprised entirely of woods. The adjacent properties along the northern, southern and western property boundaries are dedicated to residential uses. The adjacent property along the eastern property boundary is dedicated to the Mount Carmel Church. The tract does not currently generate any noise since it is undeveloped. The adjacent properties do not generate any significant noise either since they are dedicated to residential and institutional uses. The proposed development is not expected to produce any significant noise because it will be dedicated to a residential use too. The property is located in the R-10 zoning district and it can be accessed via the proposed roadway that will connect to Belmar Street. The proposed dwellings will be provided with water and wastewater service via connections to the existing municipal systems.

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Human Resources:

The property is presently vacant and comprised entirely of woods. It does not contain any unique aesthetic features or exhibit a historical character. Annotated photographs of the site are provided in Appendix A.

Pollution Problems:

The property is presently vacant and comprised entirely of woods. There are no indications of any existing pollution problems.

Construction Phase

The proposed sequence of construction is indicated on the Soil Erosion & Sediment Control Details sheet in Appendix F.

Impact of the Proposed Project

The development will result in a loss of approximately 2.77 acres of woods. The impact on noise levels and the Township road system is expected to be minimal since this development will be dedicated to a residential use. Furthermore, only five single-family homes will be constructed and the majority of the neighboring properties are dedicated to residential uses.

Adverse Impacts

• Destruction of Natural Resources

Project Alternatives

• No Project or No Action

Ameliorative Measures

Soil erosion and sedimentation will be minimized by adhering to the Standards for Soil Erosion and Sediment Control in New Jersey. Details pertaining to soil erosion and sediment control are provided in Appendix F.

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

Required Approvals

Franklin Township Planning Board	-	Preliminary Site Plan Approval
Somerset County Planning Board	-	Site Plan Approval
Somerset-Union Soil Conservation Distric Certification	ct-	Soil Erosion Sediment Control Plan
Delaware & Raritan Canal Commission	-	Certification - Site Plan
Franklin Township Water Department	-	Public Water Service Connections
Franklin Township Sewerage Authority	-	Sanitary Sewer Service Connection
Franklin Township	-	Road Opening Permit for Utility Connections and Driveway
County Public Works	-	Road Opening Permit for Utility Connections and Driveway
Franklin Township	-	Building Construction Related Permits

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FIGURES

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey



Figure 1: USGS Site Location Site circled in red.

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey



Figure 2: Aerial Map

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey



Copyright NJDEP - Map Printed 2017-12-19 On 10:24

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County 600 Series	
e Roads NJ (Centerlines) (1:50000 to 1:5000 scale)	Applications/NJGW_Land Wetlands (2012)

Figure 3: NJDEP I- Map with wetland areas in region. Area boxed in red.

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Figure 4: FEMA Flood Zone Map Site area is boxed in red.

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APPENDIX A

Annotated Color Photographs

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey



Photo No. 1 Looking north-west from the parking lot of Mt. Carmel Orthodox Presbyterian Church at the site location.



Photo No. 2 Looking south-west at the intersection of Rogers Avenue and Belmar Street at the proposed entrance to the new development.

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey



Photo No. 3 The existing detention basin behind the parking lot of the Mt. Carmel Orthodox Presbyterian Church.



Photo No. 4 Looking toward the project location from Viking Avenue between house number 49 and 53.

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey



Photo No. 5 Intersection of Franklin Boulevard and Belmar Street.



Photo No. 6 Facing the intersection of Rogers Avenue and Belmar Street at the location of the proposed new roadway that would allow access to the new residential houses.

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

APPENDIX B

Existing Conditions Plan



Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

APPENDIX C

Proposed Conditions Plan (Site Plan)



Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

APPENDIX D

Municipal Tax Map



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Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

APPENDIX E

Soil Map



Hydrologic Soil Group-Somerset County, New Jersey



Natural Resources Conservation Service

NSDA

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

APPENDIX F

Soil Erosion & Sediment Control Details

GENERAL NOTES FOR SOIL EROSION AND SEDIMENT CONTROL PLANS

1. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.

Soil De-compaction and Testing Requirements

Soil Compaction Testing Requirements

- 1. 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.
- 2. Areas of the site which are subject to compaction testing and/or mitigation are graphically denoted on the certified soil erosion control plan.
- 3. **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.
- 4. 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) D.

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 is not required if/when subsoil compaction remediation (scarification/tillage (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/tillage (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 maybe substituted subject to District Approval.

Simplified Testing Methods

Probing WireTest- 15.5 ga steel wire (survey flag)





LIMITED TO THE FOLLOWING:

- 1. WITHIN 20 FEET OF BUILDING FOUNDATIONS WITH BASEMENTS, 12 FEET FROM SLAB OR CRAWL SPACE CONSTRUCTION. 2. WHERE SOILS OR GRAVEL SURFACES WILL BE REQUIRED TO SUPPORT POST-CONSTRUCTION VEHICULAR TRAFFIC LOADS SUCH AS ROADS, PARKING LOTS AND DRIVEWAYS (INCLUDING GRAVEL SURFACES), BICYCLE PATHS OR PEDESTRIAN WALKWAYS (SIDEWALKS ETC)
- AIRPORTS, RAILWAYS OR OTHER TRANSPORTATION FACILITIES AREAS REQUIRING INDUSTRY OR GOVERNMENT SPECIFIED SOIL DESIGNS, INCLUDING GOLF COURSES, LANDFILLS,
- WETLAND RESTORATION, SEPTIC DISPOSAL FIELDS, WET/LINED PONDS, ETC. 5. AREAS GOVERNED OR REGULATED BY OTHER LOCAL, STATE OR FEDERAL REGULATIONS WHICH DICTATE SOIL CONDITIONS
- 6. BROWNFIELDS (CAPPED USES), URBAN REDEVELOPMENT AREAS, IN-FILL AREAS, RECYCLING YARDS, JUNK YARDS,
- SLOPES DETERMINED TO BE INAPPROPRIATE FOR SAFE OPERATION OF EQUIPMENT PORTIONS OF A SITE WHERE NO HEAVY EQUIPMENT TRAVEL OR OTHER DISTURBANCE HAS TAKEN PLACE
- AREAS RECEIVING TEMPORARY VEGETATIVE STABILIZATION IN ACCORDANCE WITH THE STANDARD 10. WHERE THE AREA AVAILABLE FOR REMEDIATION PRACTICES IS 500 SQUARE FEET OR LESS IN SIZE
- 11. LOCATIONS CONTAINING SHALLOW (CLOSE TO THE SURFACE) BEDROCK CONDITIONS.

- TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE. ACCORDING TO NJ STATE STANDARDS PERMANENT VEGETATION SHALL BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL
- GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED
- 4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
- 5. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OR PRELIMINARY GRADING.
- IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING ALL CRITICAL AREAS SUBJECT TO EROSION (I.E.: STEEP SLOPES, ROADWAY EMBANKMENTS) WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE NJ STATE STANDARDS.
- ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E.: SLOPES GREATER THAT 3:1)
- 8. TRAFFIC CONTROL STANDARDS REQUIRE THE INSTALLATION OF A 50'X30'X6'PAD OF 1 1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INITIAL SITE DISTURBANCE.
- 9. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
- 10. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
- 11. IN THAT NJSA 4:24-39 ET SEQ., REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES ALL SITE WORK FOR SITE PLANS AND ALL WORK AROUND INDIVIDUAL LOTS IN SURDIVISIONS WILL HAVE TO BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
- 12. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
- 13. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT NJ STATE SOIL EROSION & SEDIMENT CONTROL STANDARDS.
- 14. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP. 15. MULCHING TO THE NJ STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONALS
- ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING. 16. CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF CONSTRUCTION PROJECT.
- 17. THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION AT THE REQUEST OF THE SOMERSET-UNION SOIL CONSERVATION DISTRICT.
- 18. HYDRO SEEDING IS A TWO- STEP PROCESS. THE FIRST STEP INCLUDES SEED, FERTILIZER, LIME, ETC., ALONG WITH MINIMAL AMOUNTS OF MULCH TO PROMOTE CONSISTENCY, GOOD SEED TO SOIL CONTACT, AND GIVE A VISUAL INDICATION OF COVERAGE. UPON COMPLETION OF SEEDING OPERATION, HYDRO-MULCH SHOULD BE APPLIED AT A RATE OF 1500 LBS. PER ACRE IN SECOND STEP. THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE NJ STANDARDS.

BASIN COMPACTION NOTES

- IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" INCHES WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
- 2. INSPECT SITE JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILED AND FIRMED IN ACCORDANCE WITH ABOVE.
- IMMEDIATELY PRIOR TO TOPSOILING. THE SURFACE SHOULD BE SCARIFIED 6" TO 12" INCHES WHERE THERE HAS BEEN SOIL COMPACTION. THIS WILL HELP INSURE A GOOD BOND BETWEEN THE TOPSOIL AND SUBSOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
- . SOIL COMPACTION RESULTING FROM LAND GRADING ACTIVITIES CAN IMPACT THE INFILTRATION RATE OF THE SOIL. RESTORATION OF COMPACTED SOILS THROUGH DEEP TILLAGE (6" TO 12") AND THE ADDITION OF ORGANIC MATTER MAY BE REQUIRED IN PLANNED PERVIOUS AREAS TO ENHANCE THE INFILTRATION RATE OF THE DISTURBED SOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLE, IRRIGATION SYSTEMS, ETC.).
- 5. TO PREVENT COMPACTION OF THE SUBSOIL WHICH WILL REDUCE ITS INFILTRATION CAPACITY, BASINS SHOULD BE EXCAVATED WITH LIGHT EARTH MOVING EQUIPMENT. PREFERABLY WITH TRACKS OR OVER-SIZED TIRES RATHER THAN THE NORMAL RUBBER TIRES. ONCE THE FINAL CONSTRUCTION PHASE IS REACHED, THE FLOOR OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND SMOOTHED OVER WITH A LEVELING DRAG OR FOUIVALENT GRADING FOUIPMENT.
- 6. FOR BASINS, ANNUAL TILLING OPERATIONS MAINTAIN INFILTRATION CAPACITY. THESE TILLED AREAS SHOULD BE RE-VEGETATED IMMEDIATELY TO PREVENT EROSION. DEEP TILLING CAN BE USED TO BREAKUP CLOGGED SURFACE LAYERS FOLLOWED BY REGARDING AND LEVELING. SAND OR ORGANIC MATTER CAN BE TILLED INTO THE BASIN FLOOR TO PROMOTE A RESTORED INFILTRATION CAPACITY. SEDIMENT REMOVAL PROCEDURES SHOULD NOT BE UNDERTAKEN UNTIL THE BASIN IS THOROUGHLY DRY. THE TOP LAYER SHOULD BE REMOVED BY LIGHT EQUIPMENT TO PREVENT COMPACTION. THE REMAINING SOIL CAN BE RETILED AND DISTURBED VEGETATION REPLANTED.

AGRONOMIC RECOMMENDATIONS SEED, FERTILIZE, LIME AND TOPSOIL (IF REQUIRED) ALL SCALPED AREAS IMMEDIATELY AFTER FINISHED GRADING IS COMPLETED. LIME AND FERTILIZE RECOMMENDATIONS ARE AS FOLLOWS OR ACCORDING TO RESULTS OF SOIL TESTS:



- B. TEMPORARY SEEDING:
- LIME: 2 TONS PER ACRE GROUND AREA FERTILIZER: 500 LBS. PER ACRE 10-20-10 SEED: USE THE FOLLOWING SEED MIXTURE(S) AND RATES BASED ON TIME OF YEAR:
- EARLY SPRING/LATE SUMMER TO EARLY FALL
 - 100 % PERENNIAL RYEGRASS
 - RATE = 100 LBS/ACRE– LATE FALL
 - 100 % CEREAL RYE
 - RATE = 112 LBS/ACRE- MID-SUMMER
 - 40 % PEARL MILLET 40 % MILLET (GERMAN OR HUNGARIAN)
 - 20 % WEEPING LOVEGRASS RATE = 100 LBS/ACRE
- C. PERMANENT SEEDING: (TO BE APPLIED DURING PERIODS OF 3/01 11/15, TEMPORARY SEEDING TO BE APPLIED ALL OTHER TIMES OF THE YEAR)

LIME: 2 TONS PER ACRE GROUND AREA FERTILIZER: 500 LBS. PER ACRE 10-20-10 SEED: LAWNS - QUALITY SUN AND SHADE

45 % PERENNIAL RYEGRASS*	
20 % CHEWING FESCUE	
20 % CREEPING RED FESCUE	
15 % KENTUCKY BLUEGRASS	

(* INCLUDE AT LEAST TWO DIFFERENT VARIETIES IN MIX) RATE = 200 LBS/ACRE

ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A

- MINIMUM STABILIZATION REQUIREMENTS I. <u>SITE PREPARATION</u>
- A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION. SEEDING, MULCH APPLICATION AND ANCHORING AND MAINTENANCE. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING.
- B. INSTALL NEEDED EROSION CONTROL PRACTICES AND FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES. SEDIMENT BASINS AND WATERWAYS.
- II. <u>SEEDBED PREPARATION</u>
- A. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS THOSE OFFERED BY RUTGERS UNIVERSITY SOIL TESTING LABORATORY. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL COOPERATIVE EXTENSION SERVICE OFFICE. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITE OR WHERE TIMING IS CRITICAL, FFRTILIZER MAY BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 1 POUNDS PER 1,000 SQUARE FEET OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. APPLY LIMESTONE AS FOLLOWS:

SOIL TEXTURE		_
CLAY, CLAY LOAM AND HIGH ORGANIC SOIL	3 135	
SANDY LOAM, LOAM, SILT	LOAM 2 90	
LOAMY SAND, SAND	1 45	

PULVERIZED DOLOMITIC LIMESTONE IS PREFERRED FOR MOST SOILS SOUTH OF THE NEW BRUNSWICK-TRENTON LINE.

- B. WORK LIME AND FERTILIZER INTO SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC. SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM, FINE SEEDRED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
- C. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL
- D. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED AS ABOVE.

ACID SOIL CONDITIONS

SOILS HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH OF 5 OR MORE BEFORE SEEDBED PREPARATION. THE ADDED SOIL SHALL BE LIMED AS ABOVE.

III. SEEDING

- A. SEE AGRONOMIC RECOMMENDATIONS OR USE MIXTURE RECOMMENDED BY THE COOPERATIVE EXTENSION SERVICE OR SOIL CONSERVATION SERVICE WHICH IS APPROVED BY THE SOIL CONSERVATION DISTRICT.
- B. APPLY SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL, CULTIPACKER SEEDER OR HYDROSEEDER. THE LATTER MAY BE JUSTIFIABLE FOR LARGE, STEEP AREAS WHERE CONVENTIONAL VEHICLES CANNOT TRAVEL. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH THI SEED. EXCEPT FOR DRILLED, HYDROSEEDED OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL, TO A DEPTH OF 1/4 TO 1/2 INCH. BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/2 INCH DEEPER ON COARSE TEXTURED SOIL.
- C. AFTER SEEDING, FIRMING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT. RESTORE CAPILLARITY AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

MULCHING

MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND FARLIE ESTABLISHMENT. (THE EXISTENCE OF SATISFACTORY PERMANENT VEGETATION AT THE TIME OF PROJECT OR UNIT COMPLETION SHALL BE DEEMED AS COMPLIANCE WITH THIS MULCHING REQUIREMENT).

- A. MULCH MATERIALS SHOULD BE UNROTTED SMALL GRAINS OF STRAW, HAY FREE OF SEEDS OR SALT HAY TO BE APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT). THE RATE OF APPLICATION MUST BE DOUBLE THE LOWER RATE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MATERIAL.
- B. SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 75 PERCENT TO 95 PERCENT OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.
- C. MULCH ANCHORING SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS. DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES AND COSTS.
- 1. PEG AND TWINE DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.
- MULCH NETTINGS STAPLE PAPER, JUTE, COTTON OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED.
- CRIMPER (MULCH ANCHORING TOOL) A TRACTOR-DRAWN IMPI FMENT. SOMEWHAT LIKE A DISC-HARROW, ESPECIALLY DESIGNED TO PUSH OR CUT SOME OF THE BROADCAST LONG FIBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT. THIS TECHNIQUE IS LIMITED TO AREAS TRAVERSABLE BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE. NO TACKIFYING OR ADHESIVE AGENT IS REQUIRED.
- 4. LIQUID MULCH-BINDERS MAYBE USED TO ANCHOR SALT HAY, HAY OR STRAW MULCHES.
- A. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.
- B. USE OF THE FOLLOWING: SYNTHETIC OR ORGANIC BINDERS - BINDERS SUCH AS
- CURASOL, DCA-70, PETRO-SET AND TERRA-TACK MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS.
- NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.

SOIL NOTE:

NO SOIL CAN BE IMPORTED TO OR REMOVED FROM THE SITE UNTIL A SOIL IMPORTATION OR EXPORTATION PERMIT HAS BEEN OBTAINED FROM THE TOWNSHIP, AS REQUIRED BY ORDINANCE.

V. IRRIGATION (WHERE FEASIBLE)

IF SOIL MOISTURE IS DEFICIENT AND MULCH IS NOT USED, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER (A MINIMUM OF 1/4 INCH TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED). THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES.

- VI. <u>TOPDRESSING*</u>
- A. SPRING SEEDINGS WILL REQUIRE AN APPLICATION OF FERTILIZER SUCH AS 10-10-10 OR EQUIVALENT AT 400 POUNDS PER ACRE OR 10 POUNDS PER 1,000 SQUARE FEET BETWEEN SEPTEMBER 1 AND OCTOBER 15.
- B. FALL SEEDINGS WILL REQUIRE THE ABOVE BETWEEN MARCH 15 AND MAY 1.
- C. MIXTURES DOMINATED BY WEEPING LOVEGRASS OR LEGUMES MAY NOT
- NEED TOPDRESSING.
- *IF SLOW RELEASE NITROGEN (300 POUNDS 38-0-0 PER ACRE OR EQUIVALENT) IS USED IN ADDITION TO SUGGESTED FERTILIZER, THIS FOLLOW-UP OF TOPDRESSING IS NOT MANDATORY).

SEQUENCE OF CONSTRUCTION

- 1. INSTALL ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON PLANS INCLUDING SILT FENCE AND EXISTING TREE PROTECTION MEASURES. SOIL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE USED AT THE POINT OF DESIGN AND AT THE TIME OF SOIL DISTURBANCE FOR A PARTICULAR POINT OF DESIGN (3 DAYS).
- 2. INSTALL STABILIZED CONSTRUCTION ENTRANCE AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLANS AND DETAILS (1 DAY).
- 3. DEMOLISH AND REMOVE EXISTING STRUCTURES (5 DAYS).
- 4. CLEAR AND GRUB ALL AREAS IN ACCORDANCE WITH THE LIMITS OF DISTURBANCE AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN. IMMEDIATELY REMOVE DEBRIS FROM SITE. (3 WEEKS)
- 5. CONSTRUCT INFILTRATION BASIN AS FOLLOWS (3 WEEKS):
- 5.2. INSTALL INFILTRATION BASIN OUTLET PIPE.
- 5.3. CONSTRUCT OUTLET STRUCTURE AND OTHER APPURTENANCES.
- 5.5. INSTALL 6" SAND LAYER. 5.6. STABILIZE ANY STOCKPILED MATERIAL.
- 5.7. CONSTRUCT CONDUIT OUTLET PROTECTION.
- 6. STRIP, STOCKPILE AND STABILIZE TOPSOIL AT LOCATIONS AS SHOWN ON PLANS (3 DAYS). 7. ROUGH GRADE SITE (4 DAYS)
- 8. CONSTRUCT ALL ONSITE UTILITIES INCLUDING STORM SEWER, CURBING AND BASE COURSE
- CONSTRUCTION IS COMPLETED. SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED AS CONSTRUCTION PROGRESSES (3 WEEKS).
- 9. CONSTRUCT STRUCTURE(S). SOIL EROSION SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED AS CONSTRUCTION PROGRESSES (7 MONTHS).
- 10. FINE GRADE AND STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THE MINIMUM STABILIZATION REQUIREMENTS. REMOVE SEDIMENT AND INSTALL SOIL PLANTING BED MIXTURE AT BOTTOM OF BASIN. (1 WEEK).
- 11. REMOVE TREE PROTECTION MEASURES (1 DAY).
- 12. STABILIZE ANY REMAINING DISTURBED AREAS (2 DAYS).
- 13. REMOVE ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES (2 DAYS).
- ESTIMATED DURATION OF PROJECT 10 MONTHS +/-



Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

APPENDIX G

Preparer Qualifications

Lot 14.02 in Block 286 Franklin Township, Somerset County, New Jersey

> Preparer: Michael K. Ford Qualifications: New Jersey Professional Engineer License Number: 34722



Michael K. Ford, NJ PE No. 34722