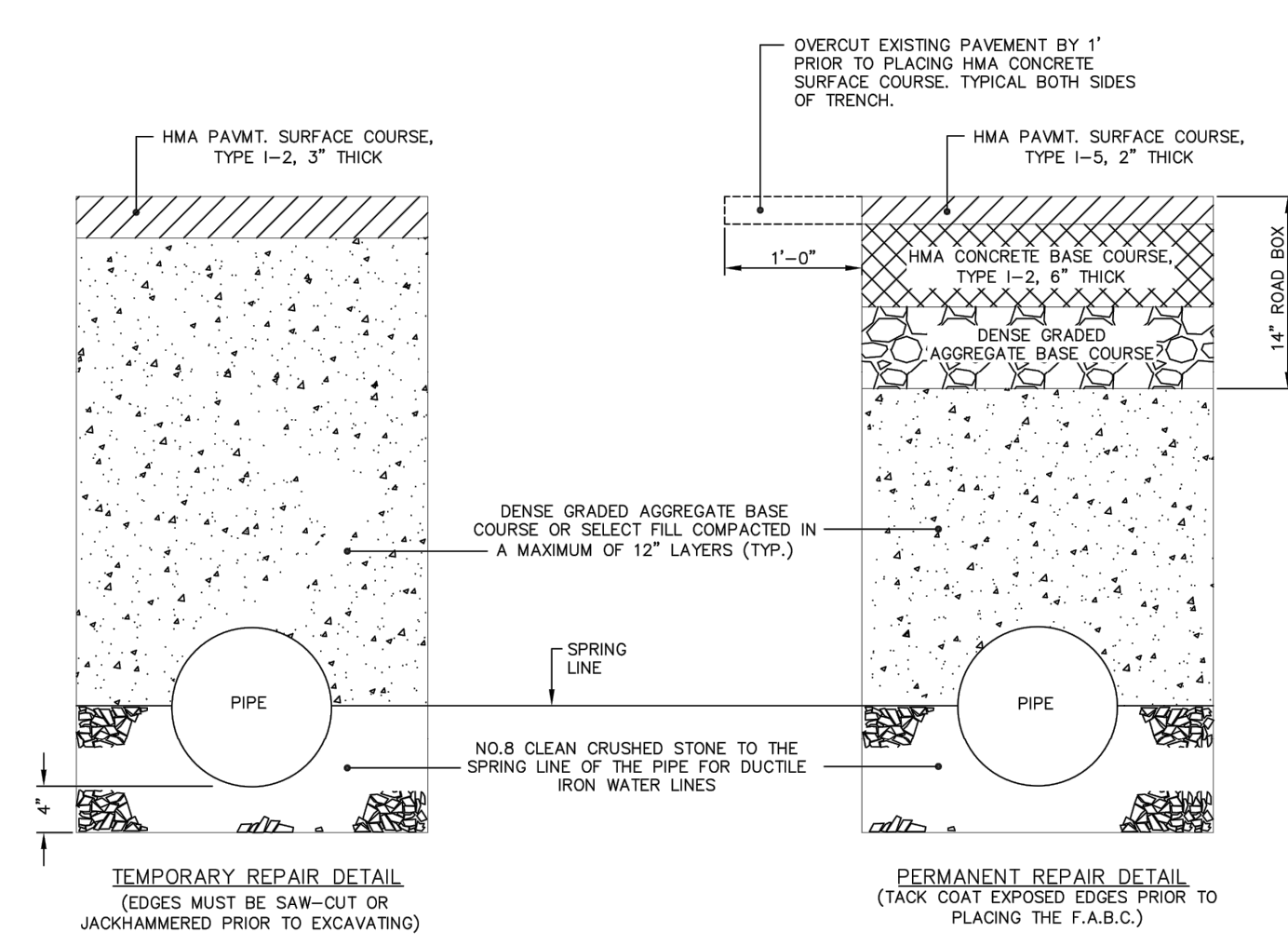
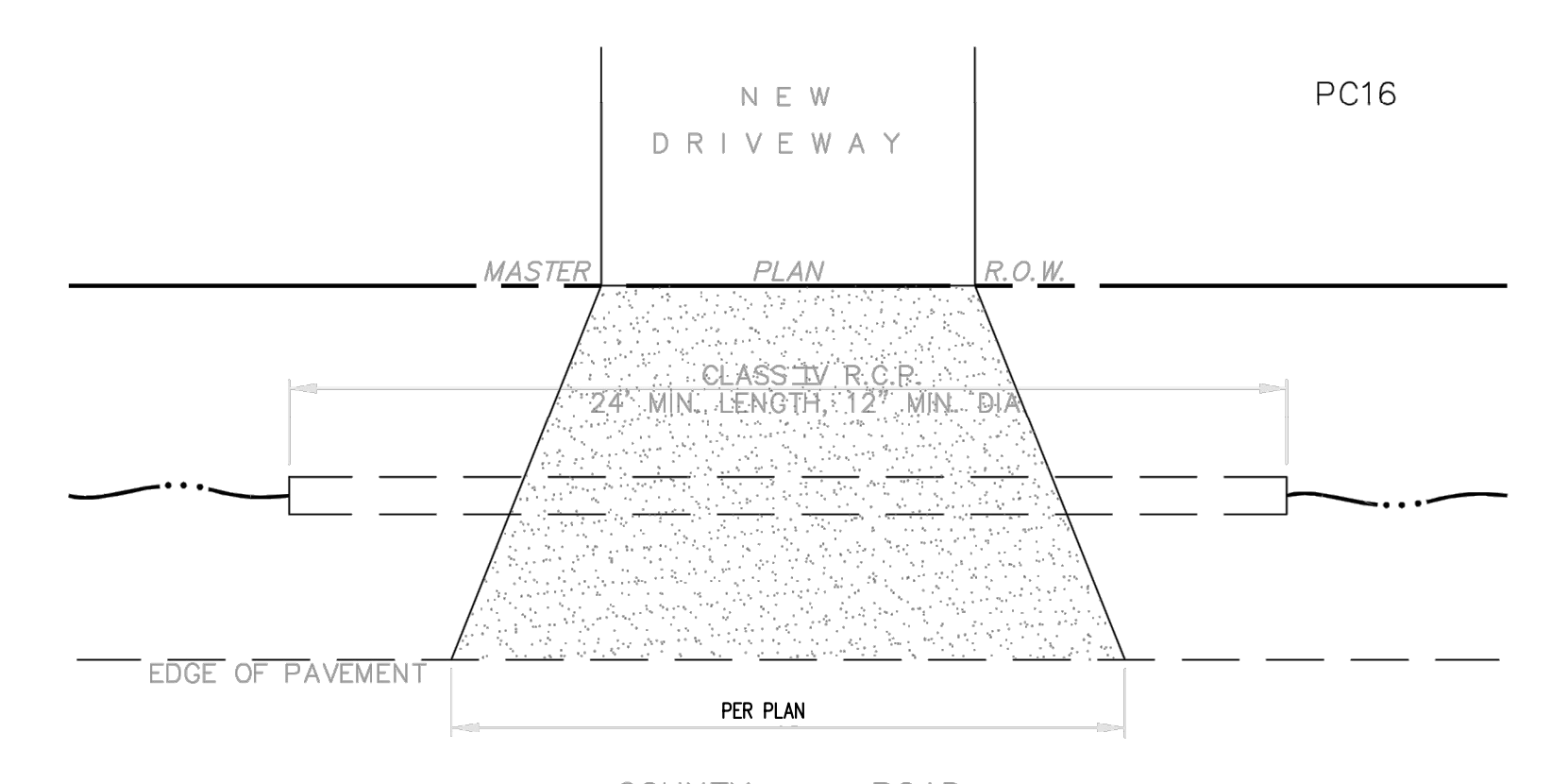


**SITE PAVEMENT DESIGN**  
N.T.S.



**TRENCH RESTORATION DETAIL**  
N.T.S.

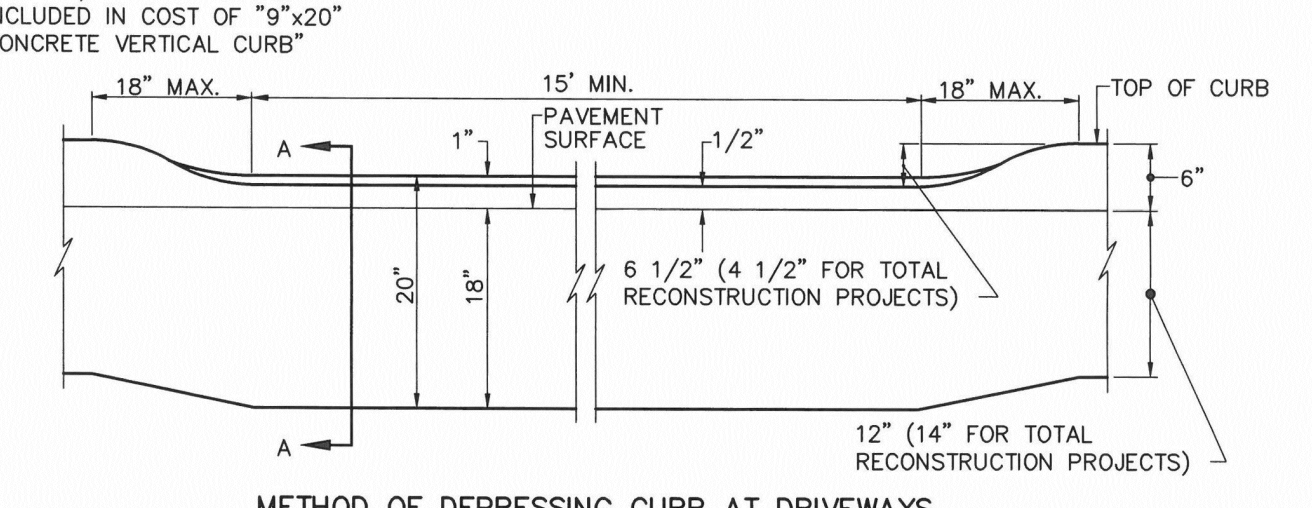
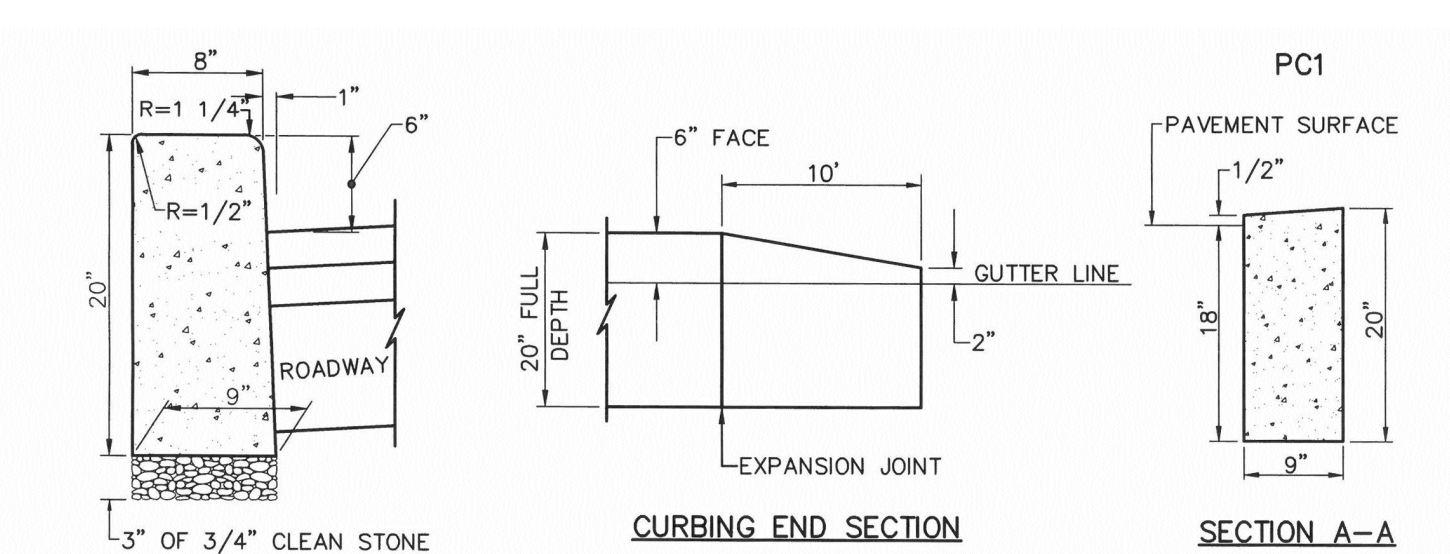


**DRIVEWAY APRON**  
N.T.S.

- NOTES**
1. THE PAVED DRIVEWAY APRON (SHADED AREA ABOVE) SHALL BE COMPOSED OF BITUMINOUS CONCRETE SURFACE COURSE, 1 1/2" THICK, AND BITUMINOUS STABILIZED BASE COURSE, 3" THICK. THE APRON SHALL BE A MINIMUM OF 10' FROM THE EDGE OF THE PAVEMENT, OR TO THE MASTER PLAN R.O.W. PROFILE SHALL NOT EXCEED 6% WITHIN COUNTY R.O.W.
  2. A ROAD-OPENING PERMIT IS REQUIRED BEFORE CONSTRUCTION COMMENCES IN THE COUNTY R.O.W.
  3. THE COMPLETED DRIVEWAY MUST NOT IMPEDE THE FLOW OF STORMWATER ALONG THE COUNTY ROAD. IF NECESSARY, A PIPE IS TO BE INSTALLED AS ILLUSTRATED ABOVE. IF A PIPE IS NOT NECESSARY, THE APRON SHALL BE CONSTRUCTED TO CONVEY FLOWS OVER IT.

- STANDARD CONSTRUCTION NOTES FOR ROAD IMPROVEMENTS**
1. Prior to the initiation of any excavation or construction within any street, road, or right of way under the jurisdiction of the Somerset County Board of Chosen Freeholders, a Somerset County Road Opening Permit shall be obtained from the Office of the County Engineer.
  2. The Office of the County Engineer is to be notified seventy-two (72) hours in advance of commencement of construction of any improvements under the jurisdiction of the County of Somerset. Grade construction sheets will be submitted at this time. These grade construction sheets are to be signed and sealed by a professional land surveyor.
  3. As indicated in the "Manual on Uniform Traffic Control Devices," proper and sufficient construction warning signs are to be provided and maintained by contractors performing construction work along County roads. Said signs are to be maintained until construction is completed and approved by the appropriate County inspection personnel.
  4. All improvements under the jurisdiction of the County of Somerset are to be constructed in accordance with Somerset County Specifications.
  5. All mailboxes, located within the construction improvements in the County R.O.W. will be reset in accordance with the owner of the mailbox and the postmaster.
  6. Information monuments, markers, disks, rivets of the National Geodetic Control Survey may be obtained from the New Jersey Department of Transportation, Geodetic Division, 1035 Parkway Avenue, Trenton, NJ, telephone #(609) 530-5641; or the Somerset County Engineering Division, telephone #(908) 231-7024, ext. 7512.
  7. The New Jersey Geodetic Control Survey, at the above address, is to be notified two (2) weeks in advance of commencement of construction of any improvements in order to preserve the resetting of existing monuments, or installation of new monuments if required by the County.

Prepared by: Somerset County Department of Public Works



- NOTES**
1. EXPANSION JOINTS ALTERNATE EVERY 10 FEET WITH CONSTRUCTION JOINTS. EXPANSION JOINTS SHALL BE FILLED WITH PREFORMED, BITUMINOUS-IMPREGNATED FIBER JOINT FILLER RECESSED 1/4" FROM THE FACE AND TOP OF THE CURB. SUCH JOINTS SHALL BE INSTALLED BETWEEN CURB AND INLET HEADS.
  2. ALL JOINTS SHALL EXTEND THE FULL 20" DEPTH OF THE CURB.
  3. THE CURB SHALL BE COMPOSED OF CLASS "B" CONCRETE.

**9" x 20" CONCRETE CURB**  
N.T.S.

DATE:	DECEMBER 5, 2019
SCALE:	1" = 30'
DESIGNED BY:	M.K.F.
DRAWN BY:	A.B.
CHECKED BY:	M.K.F.
PER COUNTY:	MKF 5-14-20
REVISIONS:	AUTH. DATE JOB No. 1720FS

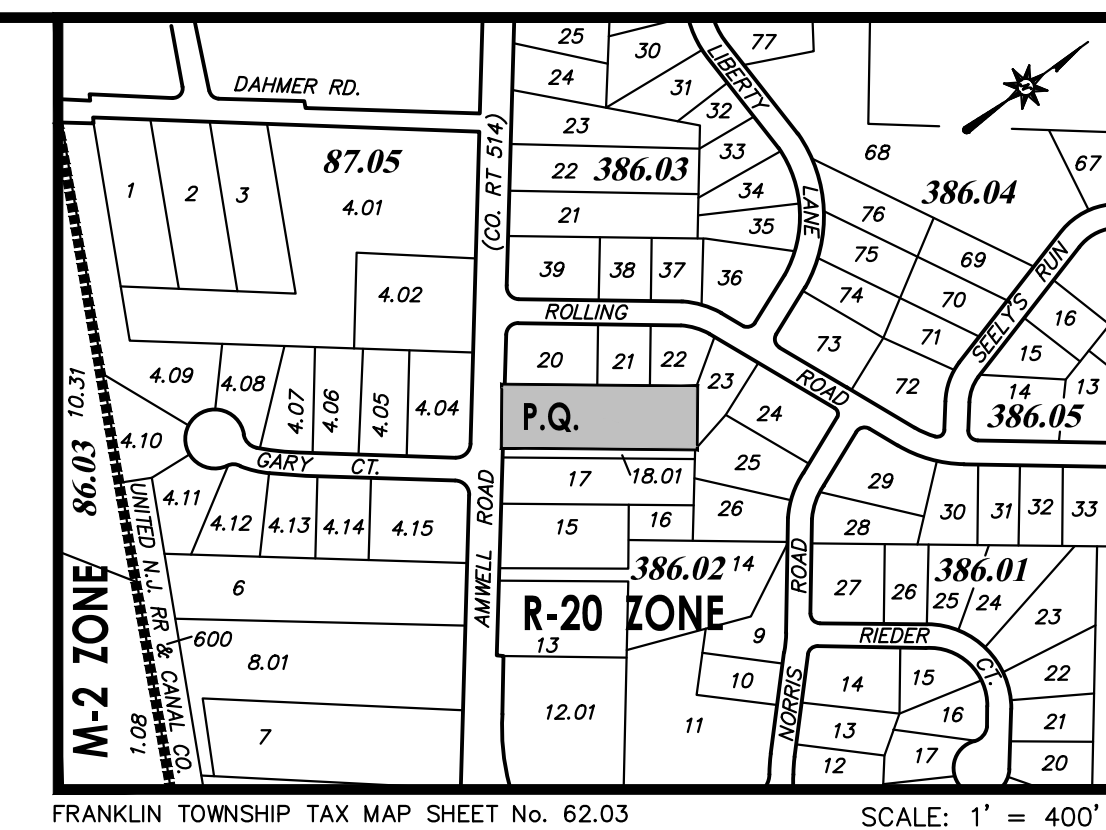
**Van Cleef ENGINEERING ASSOCIATES, LLC**

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*Michael K. Ford*  
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**ACCESS DRIVEWAY TO AMWELL ROAD - COUNTY ROUTE 514 PLAN AND DETAILS FOR BLOCK 386.02, LOT 19 FRANKLIN TOWNSHIP, SOMERSET COUNTY, NEW JERSEY**



**TREE REPLACEMENT CALCULATIONS**

TOTAL SITE AREA = 1.148 AC  
 TOTAL EXISTING TREES = 132 TREES  
 EX. TREES TO BE REMOVED = 85 TREES

PER TWP. CODE SECTION 222-5.1  
 % OF TREES TO BE REMOVED FROM THE ENTIRE DEVELOPMENT = 64% (85 / 132)  
 % OF TREES TO BE REPLACED W/ TREES OF MINIMUM SIZE = 60% FOR TREES LESS THAN 16"

**INVENTORY OF TREES GREATER THAN 4" CALIPER TO BE REMOVED @ LOT 19.01**

CALIPER	# OF TREES TO BE REMOVED	NUMBER OF REPLACEMENT TREES	TOTAL TREES
4"-16"	35 TREES	X 1	= 35 TREES
LESS THAN 18"	0 TREES	X 3	= 0 TREES
LESS THAN 21"	5 TREES	X 4	= 20 TREES
LESS THAN 24"	0 TREES	X 5	= 0 TREES
LESS THAN 27"	0 TREE	X 6	= 0 TREES
LESS THAN 29"	0 TREES	X 7	= 0 TREES
LESS THAN 31"	0 TREE	X 8	= 0 TREES
LESS THAN 33"	0 TREE	X 9	= 0 TREES
LESS THAN 35"	0 TREE	X 10	= 0 TREES
> THAN 35"	0 TREES		= 0 TREES
<b>TOTAL:</b>	<b>40 TREES</b>		<b>= 41 TREES</b>

**INVENTORY OF TREES GREATER THAN 4" CALIPER TO BE REMOVED @ LOT 19.02**

CALIPER	# OF TREES TO BE REMOVED	NUMBER OF REPLACEMENT TREES	TOTAL TREES
4"-16"	37 TREES	X 1	= 37 TREES
LESS THAN 18"	0 TREES	X 3	= 0 TREES
LESS THAN 21"	7 TREES	X 4	= 28 TREES
LESS THAN 24"	0 TREES	X 5	= 0 TREES
LESS THAN 27"	1 TREE	X 6	= 6 TREES
LESS THAN 29"	0 TREES	X 7	= 0 TREES
LESS THAN 31"	0 TREE	X 8	= 0 TREES
LESS THAN 33"	0 TREE	X 9	= 0 TREES
LESS THAN 35"	0 TREE	X 10	= 0 TREES
> THAN 35"	0 TREES		= 0 TREES
<b>TOTAL:</b>	<b>45 TREES</b>		<b>= 56 TREES</b>

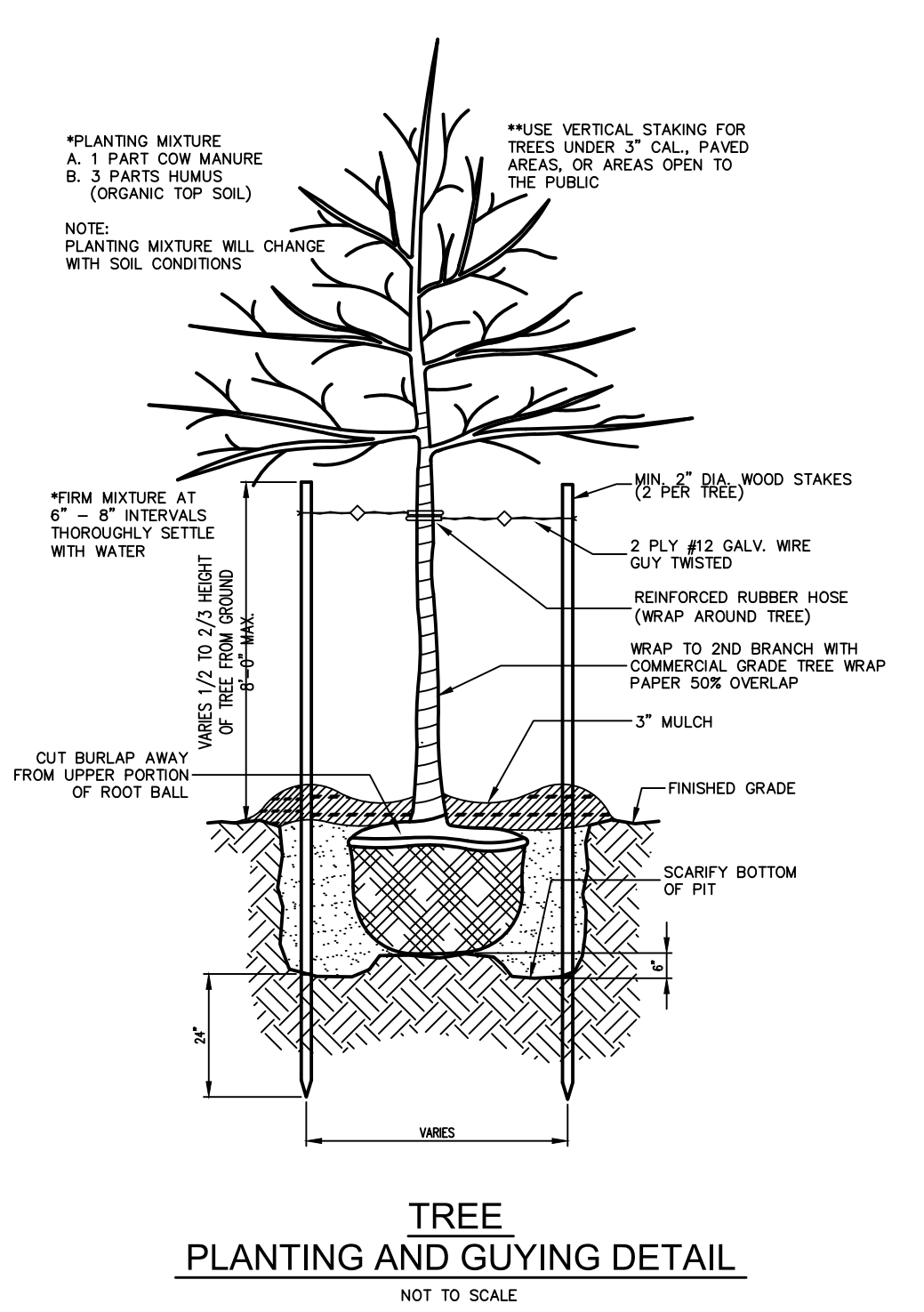
TOTAL REPLACEMENT TREES REQUIRED = 41 + 56 = 97

OVERALL TOTAL REQUIRED REPLACEMENT TREES : 97

OVERALL TOTAL PROVIDED REPLACEMENT TREES : 53\*

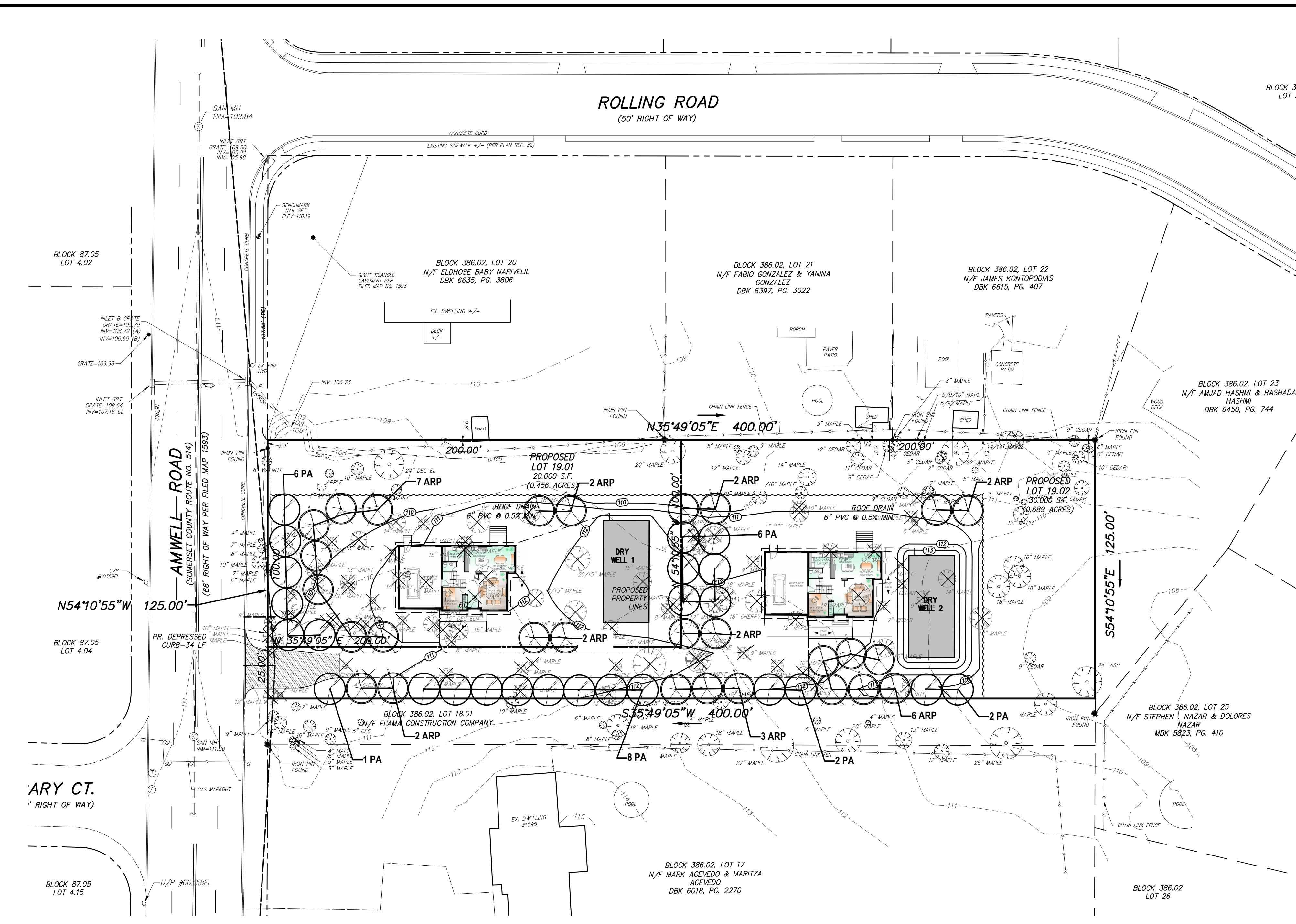
NOTE: TREE CALIPER MEASURED AT DIAMETER AT BREAST HEIGHT (DBH).  
 \* CONTRIBUTION TO TOWNSHIP TREE FUND TO BE PROVIDED FOR REMAINING REQUIRED REPLACEMENT TREES

- PLAN NOTES:**
- EXISTING INDIVIDUAL TREE LOCATIONS, SIZE AND SPECIES SHOWN HEREON WHERE FIELD SURVEYED BY VAN CLEEF ENGINEERING ASSOCIATES ON DECEMBER 29, 2014. NOTE: THE AREA OF FIELD SURVEY WAS LIMITED TO AREA OF CONCERN, NAMELY PROPOSED LOTS 6.03 AND 6.04 INCLUDING THE PROPOSED LIMIT OF DISTURBANCE AS SHOWN HEREON.
  - THERE ARE NO STREAMS OR WATER COURSES ON THE SITE.
  - THERE ARE NO AREAS WITH EXISTING SLOPES GREATER THAN 10% WITHIN THE PROPOSED AREA OF DISTURBANCE.
  - PROPOSED DWELLING, DRIVEWAY AND GRADING SHOWN HEREON FOR ILLUSTRATIVE PURPOSES. FINAL DWELLING, DRIVEWAY AND GRADING TO BE DETERMINED AT TIME OF BUILDING PERMIT APPLICATION SUBMITTAL. FINAL TREE REPLACEMENT REQUIREMENTS TO BE DETERMINED AT TIME OF BUILDING PERMIT APPLICATION SUBMITTAL.
  - AS PER TOWNSHIP CODE 112-72D(7) A VISUAL BUFFER BEGINNING AT THE FRONT YARD SETBACK LINE FROM THE PUBLIC RIGHT-OF-WAY EXTENDING TO THE BUILDABLE PORTION OF THE FLAG LOT SHALL BE PLANTED ON THE SIDE OF THE ACCESS DRIVE NEAREST THE PROPERTY LINE OF THE ADJACENT LOT WHICH WAS NOT THE SUBJECT OF THE FLAG LOT DEVELOPMENT. THE PLANTING SHALL CONSIST OF EVERGREEN MATERIAL CAPABLE OF SUSTAINING A VISUAL BARRIER. PLANTS SHALL BE A MINIMUM OF FOUR TO FIVE FEET IN HEIGHT AT THE TIME OF INSTALLATION, PLANTED THREE FEET ON CENTER.



**TREE PLANTING AND GUYING DETAIL**  
 NOT TO SCALE

NOTE: THE LANDSCAPE CONTRACTOR IS TO REMOVE ALL STAKES AND WIRES FROM TREES AFTER THE FIRST GROWING SEASON.



**LANDSCAPE SCHEDULE:**

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	MIN. SIZE	NOTES
<b>TREES</b>					
ARP	28	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2"-3" CAL.	B&B
PA	25	PICA ABIES	NORWEGIAN SPRUCE	2 1/2"-3" CAL.	B&B
<b>TOTAL:</b>	<b>53</b>				

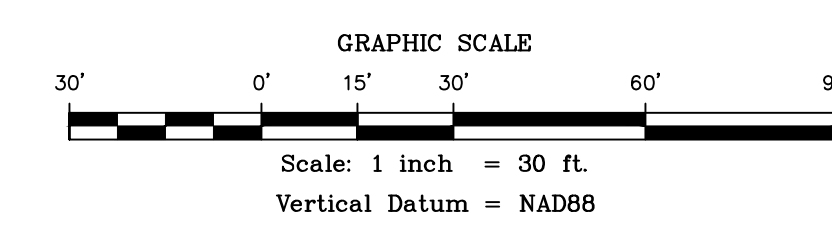
- GENERAL LANDSCAPING NOTES**
- ALL PLANT MATERIAL IS TO BE FIRST QUALITY NURSERY GROWN STOCK, FREE FROM DISEASE OR OBJECTIONABLE DISFIGUREMENTS, AND PLANTED IN CONFORMANCE WITH SOUND NURSERY PRACTICE AND APPLICABLE TOWNSHIP STANDARDS.
  - ALL PLANTINGS ARE TO BE MULCHED WITH 3" MINIMUM DEPTH OF SHREDDED HARDWOOD BARK.
  - ALL PLANT MATERIALS ARE TO BE GUARANTEED TO BE IN HEALTHY AND VIGOROUS CONDITION FOR TWO YEARS.
  - IF A DISCREPANCY EXISTS BETWEEN THE QUANTITY OF PLANTS SHOWN ON THE PLAN AND THE QUANTITY OF PLANTS INDICATED IN THE SCHEDULE, THE PLAN SHALL TAKE PRECEDENCE OVER THE SCHEDULE.
  - ALL AREAS NOT LANDSCAPED WITH RIVER WASHED STONE OR MULCHED PLANTING BEDS SHALL BE STABILIZED WITH EITHER SOIL OR SEEDED FOR GRASS LAWNS. SUCH AREAS SHALL BE TOPSOILED, LIMED, FERTILIZED, AND FINE GRADED PRIOR TO LAWN INSTALLATION (SEE SOIL EROSION AND SEDIMENT CONTROL DETAILS AND NOTES).
  - A TEMPORARY FENCE, SUCH AS A SNOW FENCE, SHALL BE ERRECTED AT THE PERIMETER OF THE DRP LINE OF ALL EXISTING VEGETATION INDICATED TO REMAIN PRIOR TO ANY EXCAVATION, CONSTRUCTION, OR OTHER SITE WORK. THIS FENCE MAY BE REMOVED ONLY AT THE TIME OF COMPLETION OF ALL CONSTRUCTION AND FINAL GRADING.
  - ALL PLANT RELOCATIONS OR SUBSTITUTIONS SHALL BE SUBMITTED TO THE TOWNSHIP FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

**PLAN REFERENCES:**

- "BOUNDARY AND TOPOGRAPHIC SURVEY OF BLOCK 386.02, LOT 19, FRANKLIN TOWNSHIP, SOMERSET COUNTY, NEW JERSEY" BY VAN CLEEF ENGINEERING ASSOCIATES, CHRISTOPHER A. MELICK, N.J.P.L.S. LIC. NO. 246503586000, DATED JULY 17, 2019.

**LEGEND**

WATER VALVE	LIGHT POLE	FENCE
WATER BOX	TRAFFIC LIGHT	STM - STORM LINE
WATER METER	UTILITY POLE	SAN - SANITARY SEWER LINE
FIRE HYDRANT	GUY WIRE	E - UNDERGROUND ELECTRIC LINE
GAS VALVE	ELECTRIC BOX	T - UNDERGROUND TELEPHONE LINE
GAS METER	ELECTRIC MANHOLE	G - GAS LINE MARKOUT
CLEANOUT	TELEPHONE MANHOLE	W - WATER LINE MARKOUT
SANITARY MANHOLE	MAIL BOX	DS - DOWNSPOUT
STORM MANHOLE	SIGN	PM - PARKING METER
STORM INLET	TREE	EM - ELECTRIC MARKOUT
		G - GAS MARKOUT
		WM - WATER MARKOUT



DATE:	DECEMBER 5, 2019
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 Highway Design  
 Construction Inspection  
 Geotechnical Engineering  
 Water / Wastewater  
 Municipal Engineering  
 Land Surveying  
 Professional Planning  
 Landscape Architecture  
 NJ LLC CERT. No. 24GA28132200

**TREE CONSERVATION AND REPLACEMENT PLAN**  
 FOR  
**BLOCK 386.02, LOT 19**  
 SITUATED IN  
 FRANKLIN TOWNSHIP,  
 SOMERSET COUNTY, NEW JERSEY

**GENERAL NOTES FOR SOIL EROSION AND SEDIMENT CONTROL PLANS**

1. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
2. 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.
3. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL REQUIRE TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO NJ STATE STANDARDS.
4. PERMANENT VEGETATION SHALL BE SEEDING OR SOILED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
6. 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.
7. 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.
8. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E. SLOPES GREATER THAN 3:1).
9. TRAFFIC CONTROL STANDARDS REQUIRE THE INSTALLATION OF A 30"x30"x6" PAD OF 1 1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INITIAL SITE DISTURBANCE.
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 SUBDIVISIONS WILL HAVE TO BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE OR 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 CHANGING 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 MANUAL 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 1000 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.
19. UNFILTERED DEMAINTENING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEMAINTENING OPERATIONS TO MINIMIZE SOIL TRANSFER. ANY DEMAINTENING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEMAINTENING.

**BASIN COMPACTION NOTES**

1. 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.
3. 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.).
4. 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 PAVED 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 GRAVING 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 EQUIVALENT GRADING EQUIPMENT.
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 CLOTTED SURFACE LAYERS FOLLOWED BY REGRADING 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 FERTILIZER RECOMMENDATIONS ARE AS FOLLOWS OR ACCORDING TO RESULTS OF SOIL TESTS:

- FERTILIZER TO BE APPLIED AT THE RATE OF 500 LBS. PER ACRE, 10-20-10.
- 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 % WALLEY (GERMAN OR HUNGARIAN)
      - 20 % WEEPING LOVEGRASS
      - RATE = 100 LBS/ACRE
- 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

NOTE: TOPSOIL IS TO BE APPLIED AT A DEPTH OF 5 INCHES FOR ALL PERMANENT STABILIZATION.

**MINIMUM STABILIZATION REQUIREMENTS**

**I. SITE PREPARATION**

- GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDING PREPARATION, SEEDING, MULCH APPLICATION AND ANCHORING AND MAINTENANCE. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING.
- INSTALL NEEDED EROSION CONTROL PRACTICES AND FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS AND WATERWAYS.

**II. SEEDING PREPARATION**

- 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 TESTING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 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	TONS/ACRE	LBS./1,000 SQ. FT.
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.

- 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 SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
- 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.
- INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILED 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 A REASONABLE UNIFORM, FINE SEEDBED IS PREPARED. THE ADDED SOIL SHALL BE LIMED AS ABOVE.

**III. SEEDING**

- SEE AGRONOMIC RECOMMENDATIONS OR USE MIXTURE RECOMMENDED BY THE COOPERATIVE EXTENSION SERVICE OR SOIL CONSERVATION SERVICE WHICH IS APPROVED BY THE SOIL CONSERVATION DISTRICT.
- APPLY SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL, OULTPACKER SEEDER OR HYDROSEEDER. THE LATTER MAY BE ADJUSTABLE FOR LARGE, STEEP AREAS WHERE CONVENTIONAL VEHICLES CANNOT TRAVEL. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH THE SEED, EXCEPT FOR DRILLED, HYDROSEEDER OR OULTPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL TO A DEPTH OF 1/4 TO 1/2 INCH, BY HARROW OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/2 INCH DEEPER ON COARSE TEXTURED SOIL.
- 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.

**IV. MULCHING**

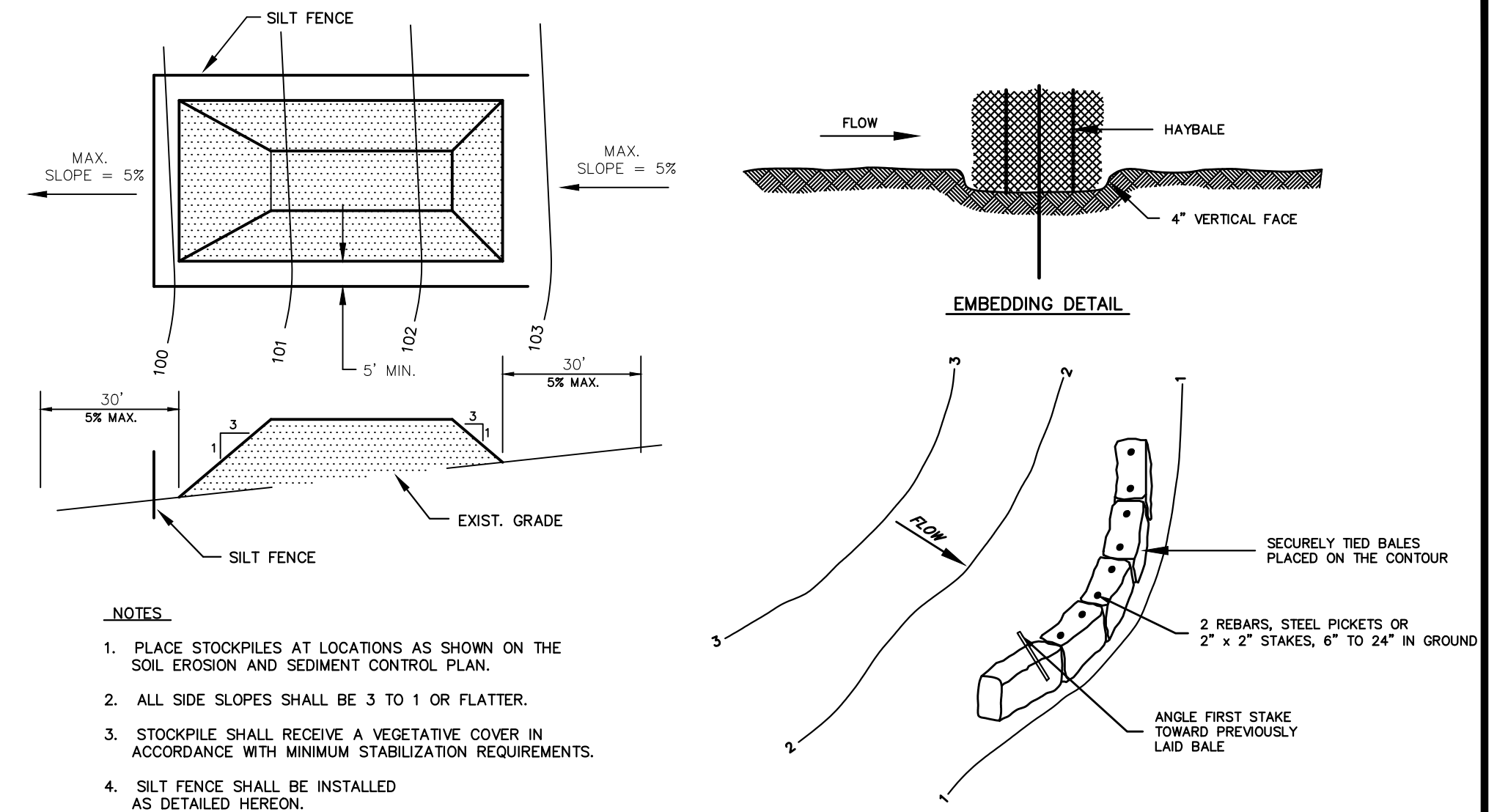
- MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND EARLIER ESTABLISHMENT. (THE EXISTENCE OF SATISFACTORY PERMANENT VEGETATION AT THE TIME OF PROJECT OR UNIT COMPLETION SHALL BE DEEMED AS COMPLIANCE WITH THIS MULCHING REQUIREMENT).
- 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 (10 TO 40 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRUMPER 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.
- 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, DRIVE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.
- 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.
  2. MULCH NETTINGS - STAPLE PAPER, JUTE, COTTON OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEBRASSABLE NETTING IN AREAS TO BE MOWED.
  3. CRUMPER (MULCH ANCHORING TOOL) - A TRACTOR-DRAWN IMPLEMENT, 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 TRAVELABLE 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.

NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS. (\* INCLUDE AT LEAST TWO DIFFERENT VARIETIES IN MIX) RATE = 200 LBS/ACRE

**SEQUENCE OF CONSTRUCTION**

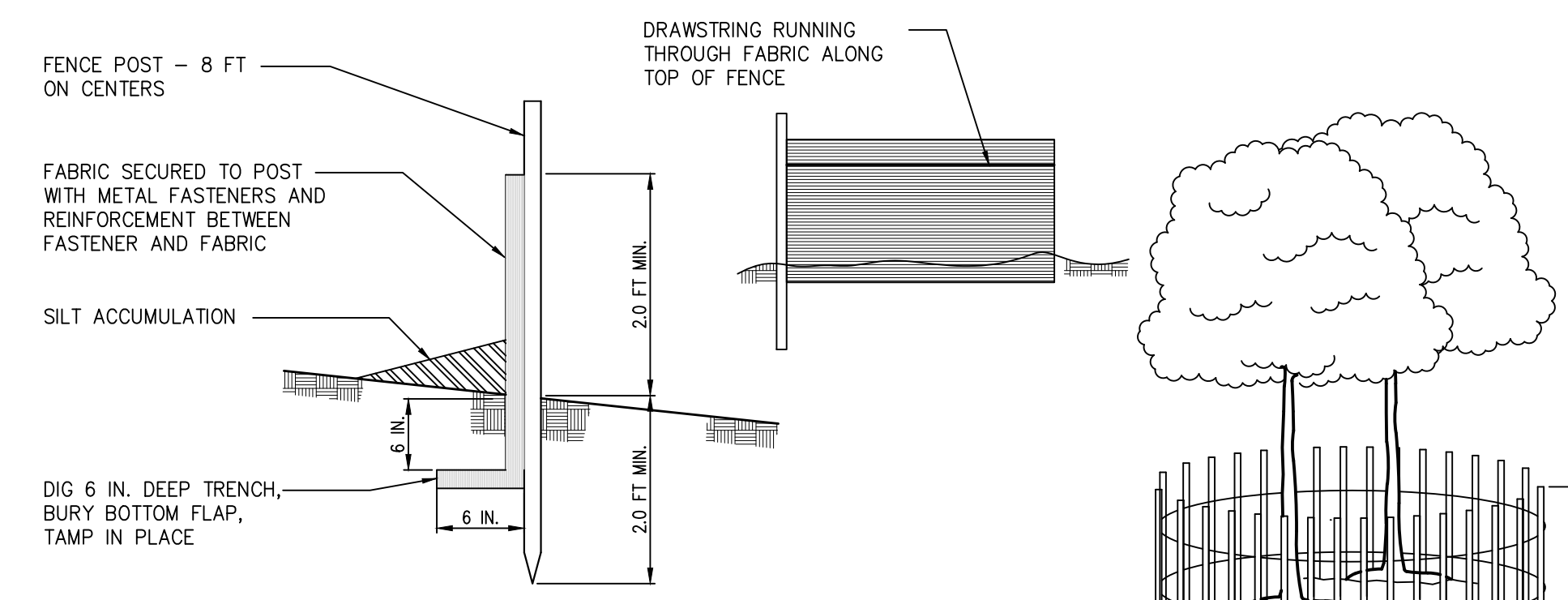
1. INSTALL ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON PLANS.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE AS SHOWN ON THE SOIL EROSION SEDIMENT CONTROL PLANS AND DETAILS.
3. STRIP, STOCKPILE AND STABILIZE TOPSOIL AT LOCATIONS AS SHOWN ON PLANS.
4. ROUGH GRADE SITE.
5. CONSTRUCT ALL ONSITE UTILITIES, SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS CONSTRUCTION PROGRESSES.
6. CONSTRUCT STRUCTURE(S), SOIL EROSION SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS CONSTRUCTION PROGRESSES.
7. PERFORM SUBSOIL COMPACTION REMEDIATION (SCARIFICATION/TILLAGE - 6" MINIMUM DEPTH)
8. FINE GRADE AND STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THE MINIMUM STABILIZATION REQUIREMENTS.
9. CLEAN AND REGRADE.
10. STABILIZE ANY REMAINING DISTURBED AREAS.
11. REMOVE ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES.
12. INSTALL F.A.B.C. TOP COURSE PAVING AND/OR STONE SURFACE COURSE FOR DRIVEWAY.

ESTIMATED DURATION OF PROJECT - 12 MONTHS



**PLACEMENT AND ANCHORING DETAIL**  
BALE SEDIMENT BARRIERS  
NOT TO SCALE

**TOPSOIL STOCKPILE**  
NOT TO SCALE



**SILT FENCE CONSTRUCTION AND INSTALLATION DETAIL**  
NOT TO SCALE

- NOTES**
1. PLACE SILT FENCE AT LOCATIONS AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
  2. THE SLOPE OF THE LAND FOR AT LEAST 30 FEET ADJACENT TO ANY SILT FENCE SHALL NOT EXCEED 5%.
  3. SILT FENCE SHALL BE INSTALLED SO WATER CANNOT BYPASS THE FENCE AROUND ITS ENDS.
  4. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE AS PROMPTLY AS POSSIBLE.

**SNOW FENCE TREE PRESERVATION DETAIL**  
NOT TO SCALE

- NOTES**
1. PLACE SNOW FENCE AT LOCATIONS AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
  2. THE SLOPE OF THE LAND FOR AT LEAST 30 FEET ADJACENT TO ANY SNOW FENCE SHALL NOT EXCEED 5%.
  3. SNOW FENCE SHALL BE INSTALLED SO WATER CANNOT BYPASS THE FENCE AROUND ITS ENDS.
  4. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE AS PROMPTLY AS POSSIBLE.

**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**

- 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.
- Use of the following:
  1. Probing Wire Test (see detail)
  2. Hand-held Penetrometer Test (see detail)
  3. Tube Bulk Density Test (licensed professional engineer required)
  4. 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.

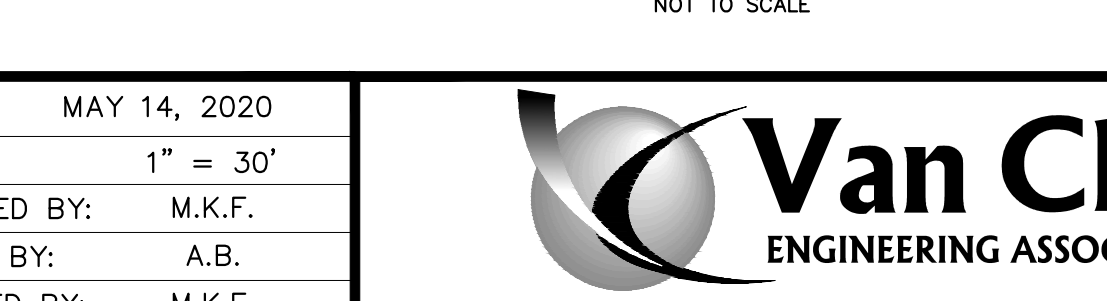
Soil compaction testing is not required if when subsoil compaction remediation (scarification/tillage (6" minimum depth) or similar) is proposed as part of the sequence of construction.

**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 may be substituted subject to District Approval.

**STABILIZED CONSTRUCTION ENTRANCE**  
NOT TO SCALE



DATE:	MAY 14, 2020
SCALE:	1" = 30'
DESIGNED BY:	M.K.F.
DRAWN BY:	A.B.
CHECKED BY:	M.K.F.
REVISIONS	AUTH. DATE JOB No. 1720FS

Michael K. Ford  
Professional Engineering, New Jersey Lic. No. 34722

**Van Cleef**  
ENGINEERING ASSOCIATES, LLC

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Water / Wastewater  
Municipal Engineering  
Land Surveying  
Professional Planning  
Landscape Architecture  
NJ LLC CERT. No. 24G2813200

**SOIL EROSION AND SEDIMENT CONTROL DETAILS**  
FOR  
**BLOCK 386.02, LOT 19**  
SITUATED IN  
**FRANKLIN TOWNSHIP,  
SOMERSET COUNTY, NEW JERSEY**