[€] PIPE AND TRENCH → PAVED AREAS UNPAVED AREAS ----FINISH GRADE -LOAM AND SEED PAVEMENT BUILDUP —SIDE OF TRENCH MAY BE SLOPED AS REQUIRED BACK TO MEET SAFETY BACKFILL WITH REQUIREMENTS WHERE EXTRA EXCAVATED MAT'L WIDTH IS OR SELECT BACKFILL POSSIBLE AS DIRECTED BY THE ENGINEER - VARIABLE DEPTH IN ACCORDANCE SELECT BACKFILL TO PIPE DEPTH -MAINTAIN TRENCH PIPE SIZE AS NOTED ON PLANS WIDTH TO TOP OF SELECT BACKFILL 3/4" CRUSHED STONE PIPE BEDDING

TYPICAL TRENCH SECTION NOT TO SCALE

INTEGRATED DUCTILE IRON ----FRAME & GRATE TO MATCH BASIN O.D. -18" NYLOPLAST DRAINAGE BASIN 6" ORIFICE @ 71.50 (TYP OF 2) ∕-6" UNDERDRAIN 12" HDPE -INV. 67.23 INSTALL WATERTIGHT JOINT, ADAPTER PER MANUFACTURER THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS II MATERIAL AS DEFINED IN ASTM D2321, BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321 1. INSTALL BASIN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

TYP. NYLOPLAST FIELD INLET

UNDERDRAINED SOIL FILTER CONSTRUCTION OVERSIGHT NOTES:
THE APPLICANT WILL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF THE UNDERDRAIN. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE UNDERDRAIN'S CONSTRUCTION PLAN FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE DEPARTMENT IN WRITING WITHIN 30 DAYS TO STATE THAT THE POND HAS BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT, AND INCLUDE ANY TESTING DATA OR SIEVE ANALYSIS DATA OF EVERY MINERAL SOIL AND SOIL MEDIA SPECIFIED IN THE PLANS AND USED ON SITE.

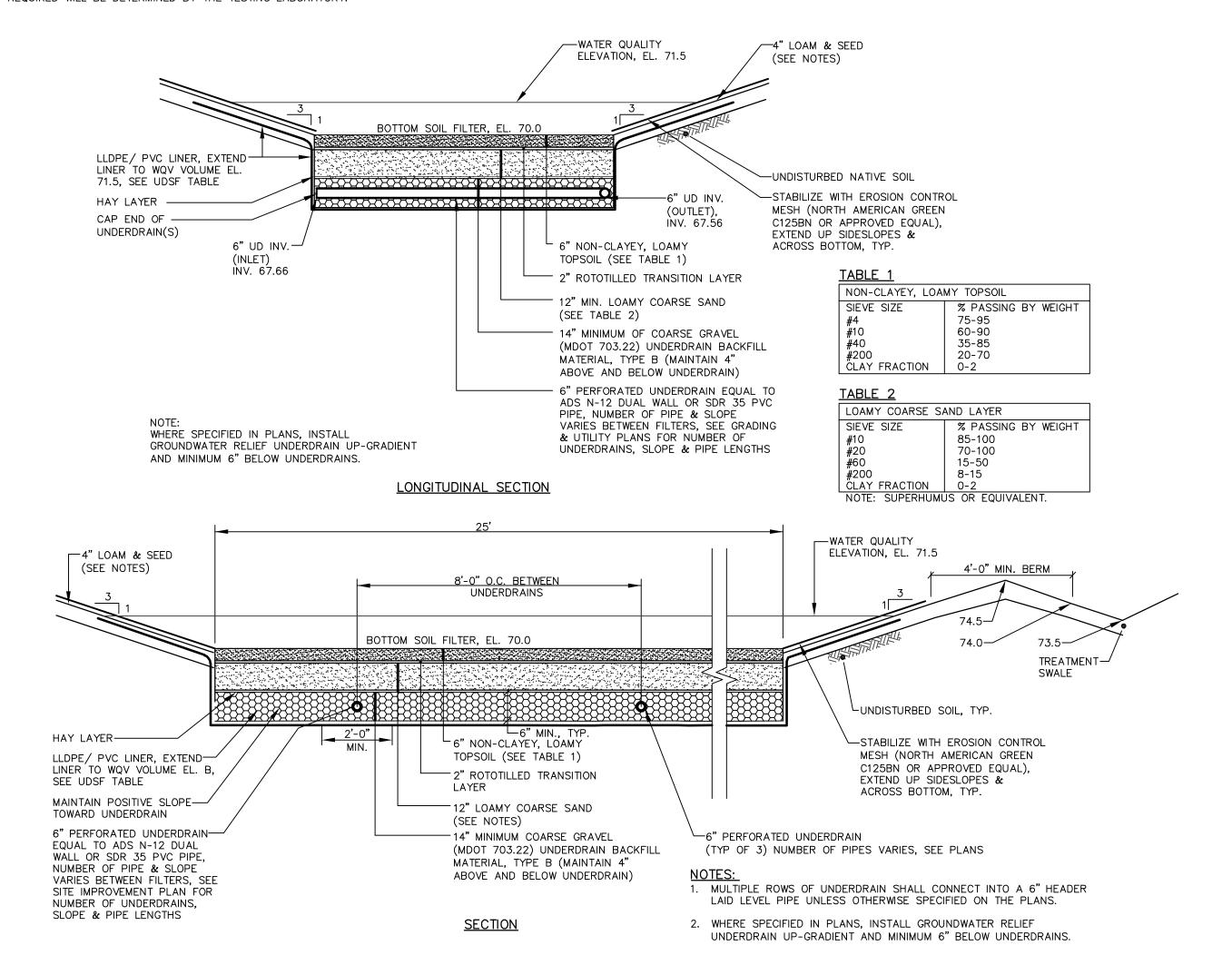
- CONSTRUCTION SEQUENCE: THE UNDERDRAIN AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE UNDERDRAIN HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 90% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION UNLESS THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA IS DIVERTED AROUND THE FILTER UNTIL STABILIZATION IS COMPLETED.
- 2. <u>COMPACTION OF UNDERDRAIN:</u> UNDERDRAIN BEDDING MATERIAL MUST BE COMPACTED TO BETWEEN 90% AND 92% STANDARD PROCTOR. THE BED SHOULD BE INSTALLED IN AT LEAST 2 LIFTS OF 9 INCHES TO PREVENT POCKETS OF LOOSE MEDIA.
- 3. <u>CONSTRUCTION OVERSIGHT:</u> INSPECTION BY A PROFESSIONAL ENGINEER WILL OCCUR AT A
- A. FOR FIRST UNDERDRAIN CONSTRUCTED, AFTER UNDERDRAIN PIPE IS INSTALLED AT GRADE AND BUT NOT BACKFILLED. AFTER THE UNDERDRAIN PIPE IS COMPLETELY BACKFILLED AND BEFORE PLACEMENT OF LOAMY COARSE SAND LAYER.
- B. AFTER THE LOAMY COARSE SAND LAYER AND SOD/ LOAM HAS BEEN INSTALLED.
- C. AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS.
- D. ALL MATERIAL USED FOR THE CONSTRUCTION OF THE UNDERDRAIN MUST BE CONFIRMED AS SUITABLE BY THE DESIGN ENGINEER. TESTING MUST BE DONE BY A CERTIFIED LABORATORY.

TESTING AND SUBMITTALS

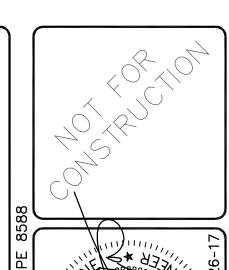
1. THE UNDERDRAIN SHALL CONSIST OF THE TOP THREE LAYERS IDENTIFIED AS LOAMY TOPSOIL, 2" TRANSITION AND 12" LOAMY COARSE SAND. THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE FOR EACH COMPONENT OF THE UNDERDRAIN AND SUBMIT GRADATIONS FOR THE UNDERDRAIN MATERIALS TO THE ENGINEER FOR APPROVAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.

- UNDERDRAINED SOIL FILTER MATERIAL NOTES:

 1. ONSITE LOAM SHALL BE SCREENED FOR STONES LARGER THAN 1 INCH AND BE TESTED TO VERIFY THERE IS LESS THAN 2% CLAY CONTENT AND 5-8% ORGANIC MATTER. IF ONSITE LOAM DOES NOT MEET REQUIREMENTS, THEN LOAM FROM OFFSITE SHALL BE A NON-CLAYEY, LOAMY TOPSOIL SUCH AS A USDA SANDY LOAM TOPSOIL WITH 5-8% HUMIFIED ORGANIC MATTER AND
- 2. 2" TRANSITION LAYER OF THE LOAM/SOD LAYER SHALL BE ROTOTILLED INTO THE LOAMY COARSE
- 3. THE LOAMY COARSE SAND LAYER SHALL BE TESTED IN ACCORDANCE WITH THE TESTING AND SUBMITTALS NOTES ABOVE.
- 4. A LAYER OF HAY SHALL BE PLACED BETWEEN 12" LOAMY COARSE LAYER AND UNDERDRAIN STONE BEDDING TO PREVENT SUBSIDENCE OR PLUGGING OF THE SAND/GRAVEL/STONE LAYER AND/OR PIPE.
- 5. UNDERDRAIN STONE BEDDING MATERIAL MUST CONFORM TO THE MDOT SPECIFICATION 703.22 UNDERDRAIN TYPE B FOR UNDERDRAIN BACKFILL MATERIAL. THE BEDDING MATERIAL MUST HAVE NO MORE THAN 5% PASSING THE 200 SIEVE.
- 6. MATERIAL LAYERS ABOVE THE UNDERDRAIN BACKFILL LAYER SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS, OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS CAN BE MIXED WITHIN THE FILTER. DURING CONSTRUCTION, CARE SHOULD BE TAKEN TO AVOID COMPACTION OF BOTH THE GRAVEL AND SOIL FILTER.
- 7. OVER COMPACTION OF UNDERDRAIN MATERIAL SHALL BE AVOIDED. IF OVER COMPACTION OCCURS, ROTOTILL AGAIN PRIOR TO SEEDING OR SODDING.



UNDERDRAINED SOIL FILTER DETAIL NOT TO SCALE



DESIGNED

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PROJECT NO. SCALE NTS 88125