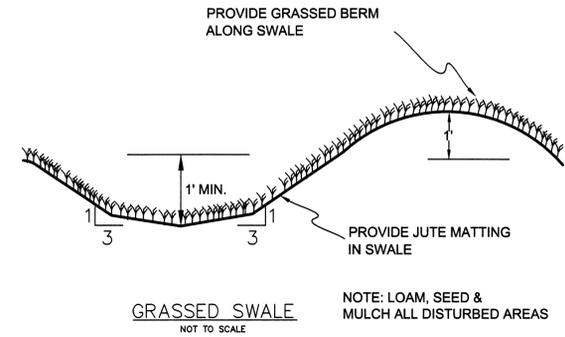


|               | BOTTOM ELEV. | OUTLET ELEV. | D     | W   | L   | S     | N |
|---------------|--------------|--------------|-------|-----|-----|-------|---|
| UNDERDRAIN #1 | 441.0        | 438.5        | 2.25' | 20' | 35' | 0.75' | 2 |
| UNDERDRAIN #2 | 440.0        | 437.5        | 2'    | 10' | 23' | 0.75' | 2 |
| UNDERDRAIN #3 | 439.5        | 437.0        | 2'    | 20' | 43' | 0.75' | 2 |
| UNDERDRAIN #4 | 439.5        | 437.0        | 2'    | 15' | 28' | 0.75' | 2 |

UNDERDRAIN SWALE DETAILS  
N.T.S.



**EROSION AND SEDIMENT CONTROL MEASURES:**

TO CONTROL EROSION ON THIS PROJECT DURING CONSTRUCTION AND AFTER COMPLETION, THE FOLLOWING MEASURES SHALL BE UTILIZED:

- ONLY THE AREA NECESSARY FOR CONSTRUCTION OF UNDERDRAIN SWALES, AND GRASSED SWALES, SHALL BE DISTURBED. NATURAL WOODED AREAS SHALL REMAIN WHEREVER POSSIBLE.
- PRIOR TO DISTURBING ANY SOIL COVER, SILT FENCE AND OR EROSION CONTROL MIX SHALL BE INSTALLED ON THE DOWN SLOPE SIDE OF DISTURBED AREA. THE SILT FENCE AND OR EROSION CONTROL MIX SHALL REMAIN IN PLACE UNTIL ADEQUATE VEGETATIVE GROWTH (80% COVER) HAS BEEN ACHIEVED THROUGHOUT THE SITE. SHOULD SILT BUILD UP BEHIND THE SILT FENCE OR EROSION CONTROL MIX GET MORE THAN 6 INCHES DEEP, THEN THE SILT SHALL BE REMOVED AND DISPOSED OF ON SITE.
- CONSTRUCTION ACTIVITIES SHALL BE TIMED TO CONTROL THE AMOUNT OF DISTURBED AREA EXPOSED. ALL DISTURBED AREAS SHALL RECEIVE AT LEAST TEMPORARY MEASURES WITHIN 7 DAYS OF DISTURBING THE GROUND COVER. DISTURBED AREAS WITHIN 25 FEET OF WETLANDS SHALL BE STABILIZED AT LEAST WITH HAY MULCH IMMEDIATELY.
- TEMPORARILY DISTURBED SOILS WILL BE PROTECTED. TOPSOIL FROM THE SITE WILL BE STOCKPILED AND REUSED ON THE PROPERTY. ALL STOCKPILES WILL BE HEAVILY MULCHED WITH HAY AS SOON AS THEY ARE FORMED. A SILT FENCE OR EROSION CONTROL MIX BARRIER SHALL BE PLACED DOWNSTREAM FROM EACH STOCKPILE. ALL STOCKPILES SHALL BE LOCATED A MINIMUM OF 100 FEET FROM ANY STREAMS, PONDS OR WETLANDS.
- FINAL GRADE ON ALL DISTURBED AREAS SHALL BE COMPLETED AS SOON AS POSSIBLE. LOAM SHALL BE SPREAD OVER ENTIRE UNVEGETATED SITE, EXCLUSIVE OF DRIVEWAYS TO A DEPTH OF 4-6 INCHES, IMMEDIATELY AFTER FINAL GRADE IS COMPLETED. THE SEEDING WILL TAKE PLACE AS NECESSARY DEPENDING ON THE TIME OF YEAR. PERMANENT SEEDING WILL BE COMPLETED WITHIN 7 DAYS OF DISTURBING THE SOIL. SEEDING SHALL BE DONE BETWEEN APRIL 15 AND SEPTEMBER 15 ONLY. THE FOLLOWING MIXTURES SHALL BE APPLIED FOR THE PARTICULAR USE:

**DITCHES AND EMBANKMENTS:**

|                    |             |
|--------------------|-------------|
| BIRDSFOOT TREFLOIL | 10 LBS/ACRE |
| TALL FESCUE        | 15 LBS/ACRE |
| PERENNIAL RYEGRASS | 5 LBS/ACRE  |

PRIOR TO SEEDING, THE SOIL SHALL BE TESTED TO DETERMINE THE OPTIMUM AMOUNT OF LIMESTONE AND FERTILIZER TO BE APPLIED. THE LIME AND FERTILIZER SHALL BE WORKED INTO THE GROUND PRIOR TO SEEDING. AFTER SEEDING, MULCH HAY SHALL BE SPREAD OVER THE AREA AT A RATE OF 3500 LBS/ACRE, OR AT A RATE SUCH THAT NO SOIL IS VISIBLE THROUGH THE MULCH. THE MULCH SHALL BE ANCHORED BY NETTING OR TACKIFIER, ON ANY SLOPES OF GREATER THAN 15%. A BIODEGRADABLE NETTING SHALL BE USED DURING SUMMER CONSTRUCTION, AND SLOPES GREATER THAN 8% DURING WINTER CONSTRUCTION.

ON NON-CRITICAL AREAS ONLY, WHICH IS GENERALLY ALL AREAS EXCEPT THE DRAINAGE DITCHES WHERE THE FINAL GRADING IS TO BE COMPLETED AFTER SEPTEMBER 15, A DORMANT SEEDING SHALL BE APPLIED. DORMANT SEEDING SHALL BE DONE USING THE ABOVE PROCEDURES WITH DOUBLE THE SEEDING AND MULCHING RATE. THE ACTUAL SPREADING OF THE SEED SHALL BE DONE ONLY BETWEEN NOVEMBER 1 AND NOVEMBER 15. NO SEEDING OR MULCHING SHALL BE DONE IF THERE IS SNOW COVER. THE SNOW SHALL BE REMOVED AND MULCH APPLIED. NETTING SHALL BE USED TO ANCHOR THE MULCH.

**INSTALLATION OF EROSION CONTROL MEASURES:**

THE ABOVE MEASURES SHALL BE INSTALLED AS A MINIMUM TO CONTROL THE EROSION AND SEDIMENT ON THIS SITE. SPECIAL CIRCUMSTANCES ENCOUNTERED DURING CONSTRUCTION MAY REQUIRE MODIFICATION OR USE OF ADDITIONAL MEASURES. REFER TO THE "MAINE EROSION AND SEDIMENT CONTROL BMP'S" PUBLISHED BY THE MAINE DEP IN 2003.

**SCHEDULING OF WORK:**

THE WORK SHALL BE PLANNED TO ENSURE THAT ALL AREAS RECEIVE THE PROPER STABILIZATION WITHIN THE TIME FRAMES SPECIFIED. ATTENTION SHALL BE PAID TO LOCAL WEATHER FORECASTS TO ENSURE AT LEAST TEMPORARY STABILIZATION OCCURS PRIOR TO A MAJOR STORM.

**INSPECTION AND MAINTENANCE: (CONSTRUCTION PERIOD)**

THE SITE WILL BE INSPECTED EVERY WEEK AND/OR AFTER EVERY MAJOR STORM EVENT.

THE REGULAR INSPECTIONS SHALL INCLUDE A REVIEW OF THE FOLLOWING:

- SILT FENCE AND OR EROSION CONTROL MIX INSTALLATIONS.
- AMOUNT OF DISTURBED AREA.
- DITCH CONSTRUCTION, CULVERT INSTALLATION.
- DITCH AND CHANNEL LININGS, AND VEGETATION UNTIL PROPERLY STABILIZED.

IF AT ANY TIME THE SEDIMENT BUILDS UP BEHIND THE SILT FENCE OR EROSION CONTROL MIX TO 6 INCHES OR MORE, THEN THE SEDIMENT SHALL BE REMOVED. THE SEDIMENT WHICH IS REMOVED SHALL BE DISPOSED OF ON SITE WELL AWAY FROM ANY DRAINAGES.

ONCE AN ADEQUATE VEGETATIVE COVER (90% GRASS COVER) HAS BEEN ESTABLISHED, THE TEMPORARY EROSION FACILITIES SHALL BE REMOVED. ANY AREAS WHERE ADEQUATE GROWTH DOES NOT OCCUR SHALL BE RESEEDED AND ALL DOWNSTREAM FACILITIES SHALL REMAIN IN PLACE.

THE RESULTS OF THE PERIODIC INSPECTIONS AND ANY REMEDIAL WORK PERFORMED SHALL BE RECORDED ON THE LOG SHEETS PROVIDED.

**HOUSEKEEPING:**

**SPILL PREVENTION:**

CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

**GROUNDWATER PROTECTION:**

DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

**FUGITIVE SEDIMENT AND DUST:**

ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEEP IMMEDIATELY AND NO LESS THAN A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS; THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

**DEBRIS AND OTHER MATERIALS:**

MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

**EXCAVATION DE-WATERING:**

EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.

6. AUTHORIZED NON-STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED, AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE.



|  |                   |                    |
|--|-------------------|--------------------|
| <b>GRADING PLAN &amp; EROSION DETAILS</b><br>1872 ROOSEVELT TRAIL<br>NAPLES, MAINE |                   |                    |
| MADE FOR:<br><b>MARK A. SWANTON</b><br>1872 ROOSEVELT TRAIL, NAPLES MAINE 04055    |                   |                    |
| SAWYER ENGINEERING & SURVEYING, INC.<br>2 ELM STREET<br>BRIDGTON, MAINE 04009      |                   |                    |
| SURVEY BY<br>J.WIESEMANN   | DATE<br>8-15-2018 | PLAN NO.<br>117-7E |