

EROSION CONTROL NOTES

EROSION CONTROL MEASURES AND SITE STABILIZATION

CONTROL PLAN IS AS FOLLOWS:

- RAPID VEGETATION OF EXPOSED AREAS TO MINIMIZE THE PERIOD OF SOIL EXPOSURE.
- RAPID STABILIZATION OF DRAINAGE PATHS TO AVOID CHANNEL EROSION.
- THE USE OF ON-SITE MEASURES TO CAPTURE SEDIMENT (HAY BALES, STONE CHECK DAMS, SILT FENCE, SILT SAC, PLUNGE POOL, ETC.)
- DEVELOPMENT OF A CAREFUL CONSTRUCTION SEQUENCE.

THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL DEVICES WILL BE IMPLEMENTED AS PART OF THE SITE DEVELOPMENT. THESE DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS OR AS DESCRIBED WITHIN THIS REPORT. FOR FURTHER REFERENCE, SEE THE MAINE EROSION AND SEDIMENT CONTROL BMPs, MARCH 2003.

TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING MEASURES ARE PLANNED AS TEMPORARY EROSION & SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION. THESE TEMPORARY EROSION CONTROL MEASURES SHOULD BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION HAS BEEN ESTABLISHED.

1. CRUSHED STONE-STABILIZED CONSTRUCTION ENTRANCES SHALL BE PLACED AT SITE ENTRANCES.
2. SILTATION FENCE OR WOOD WASTE COMPOST BERMS (EROSION CONTROL BERM) SHALL BE INSTALLED DOWNSTREAM OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL THE TRIBUTARY AREAS ARE VEGETATED. THE SILT FENCE AND/OR EROSION CONTROL BERMS SHALL BE INSTALLED PER THE DETAILS PROVIDED AND INSPECTED REGULARLY, INCLUDING BEFORE AND AFTER A STORM EVENT OF 0.5 INCHES OR GREATER. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE OR BERM LINE. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM.

3. STRAW, HAY MULCH AND HYDROSEEDING IS INTENDED TO PROVIDE COVER FOR BARE OR SEEDED AREAS UNTIL VEGETATION IS ESTABLISHED AND SHOULD BE APPLIED WITHIN 7 DAYS AT A RATE OF 90 POUNDS PER 1,000 SQUARE FEET. MULCH SHOULD BE APPLIED TO EROSION AND REPAIRS 30TH (ON SLOPES OF LESS THEN 15%) SHALL BE ANCHORED BY APPLYING WATER. MULCH PLACED ON SLOPES OF EQUAL TO OR STEEPER THAN 15% SHALL BE COVERED BY FABRIC NETTING WITH STAPLES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. SLOPES STEEPER THAN 3:1 SHALL RECEIVE EROSION CONTROL BLANKETS.

4. STOCKPILES SHALL BE STABILIZED WITHIN SEVEN DAYS BY EITHER TEMPORARILY SEEDING THE STOCKPILE BY A HYDROSEED METHOD OR COVERED WITH MULCH TACKLER OR BY COVERING THE STOCKPILE WITH MULCH, SUCH AS SHREDDED HAY, STRAW, OR EROSION CONTROL MIX. STOCKPILES SHALL BE SURROUNDED BY SEDIMENTATION BARRIER AT THE TIME OF FORMATION.

5. STATE AND LOCAL ROADS SHALL BE SWEEP TO CONTROL MUD AND DUST AS NECESSARY. ADDITIONAL STONE SHALL BE ADDED TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.

6. DURING GRUBBING OPERATIONS STONE CHECK DAMS SHALL BE INSTALLED AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS AND AS DIRECTED ON THE EROSION CONTROL PLANS.

7. SILT FENCE HAS A MINIMUM STAKE SPACING OF 6 FEET, UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT (MINIMUM 14 GAUGE AND WITH A MAXIMUM MESH SPACING OF 6 INCHES), IN WHICH CASE STAKES MAY BE SPACED A MAXIMUM OF 10 FEET APART. THE BOTTOM OF THE FENCE MUST BE ANCHORED. SEE DETAIL ON PLAN SET.

8. STORM DRAIN CATCH BASIN INLET PROTECTION SHALL BE PROVIDED THROUGH THE USE OF EROSION BARRIERS OR APPROVED SEDIMENT BAGS (SUCH AS SILT SACK). INSTALLATION DETAILS ARE PROVIDED IN THE PLAN SET. THE BARRIERS SHALL BE INSPECTED AFTER EACH RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHALL BE REMOVED AND THE BARRIER RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO HALF THE DESIGN DEPTH OF THE BARRIER. THE BARRIER SHALL BE REMOVED WHEN THE TRIBUTARY DRAINAGE AREA HAS BEEN STABILIZED.

9. WATER AND/OR CALCIUM CHLORIDE SHALL BE FURNISHED AND APPLIED IN ACCORDANCE WITH MDOT SPECIFICATIONS-SECTION 637-DUST CONTRL.

10. LOAM AND SEED IS INTENDED TO SERVE AS THE PRIMARY PERMANENT VEGETATIVE MEASURE FOR ALL BARE AREAS NOT PROVIDED WITH OTHER EROSION CONTROL MEASURES, SUCH AS RIPRAP.

11. WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAVING LINED WITH A HOOD TO TRAP FLOES) TO THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, Icing AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE.

PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES HAVE BEEN DESIGNED AS PART OF THE EROSION/SEDIMENTATION CONTROL PLAN:

12. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, ETC.) WILL BE LOAMED, LIMED, FERTILIZED, MULCHED AND SEEDED. FABRIC NETTING, ANCHORED WITH STAPLES, SHALL BE PLACED OVER THE MULCH IN AREAS AS NOTED. ALL AREAS WITHIN 75 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 24 HOUR WINDOW. NATIVE TOPSOIL SHALL BE STOCKPILED AND REUSED FOR FINAL RESTORATION WHEN IT IS OF SUFFICIENT QUALITY.

13. CATCH BASINS SHALL BE PROVIDED WITH SEDIMENT SUMPS AND INLET HOODS FOR ALL OUTLET PIPES THAT ARE 18" IN DIAMETER OR LESS.

IMPLEMENTATION SCHEDULE

THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE REQUIRED TO INSURE THE EFFECTIVENESS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE OPTIMIZED.

NOTE: FOR ALL GRADING ACTIVITIES, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO OVEREXPOSE THE SITE BY LIMITING THE DISTURBED AREA. THE CONSTRUCTION OF BMPs SHOULD EITHER BE PERFORMED AFTER THE TRIBUTARY AREA IS STABILIZED OR TEMPORARY EROSION CONTROL MEASURES NEED TO BE IMPLEMENTED TO PROTECT THE BMPs FROM BEING CLOGGED WITH CONSTRUCTION SEDIMENT.

14. INSTALL CRUSHED STONE TO STABILIZED CONSTRUCTION ENTRANCES.
15. INSTALL PERIMETER SILT FENCE.
16. CLEAR AND GRUB SITE WITHIN THE SPECIFIED CLEARING LIMITS.
17. COMMENCE INSTALLATION OF DRAINAGE INFRASTRUCTURE.
18. COMMENCE EARTHWORK AND GRADING TO SUBGRADE.
19. COMMENCE STORM WATER BMPs CONSTRUCTION.
20. COMMENCE INSTALLATION OF ELECTRICAL SERVICE.

IMPLEMENTATION SCHEDULE (CONTINUED)

21. COMMENCE INSTALLATION OF WATER AND SEWER INFRASTRUCTURE.
22. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
23. COMPLETE INSTALLATION OF UNDERGROUND UTILITIES TO WITHIN 5' OF THE BUILDINGS.
24. INSTALL LIGHT POLE FOUNDATIONS AND UTILITY POLES.
25. COMPLETE REMAINING EARTHWORK OPERATIONS.
26. COMPLETE INSTALLATION OF DRAINAGE INFRASTRUCTURE.
27. INSTALL SUBBASE AND BASE GRAVEL WITHIN PROPOSED ROADWAYS AND PARKING LOTS.
28. INSTALL CURBING AS NEEDED/REQUIRED.
29. INSTALL BASE COURSE PAVING FOR ACCESS DRIVE AND PARKING AREA AS WELL AS CONCRETE SURFACES.
30. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.
31. INSTALL SURFACE COURSE PAVING FOR ACCESS DRIVE AND PARKING AREAS.
32. ONCE THE SITE IS STABILIZED AND A 90% CATCH OF VEGETATION HAS BEEN OBTAINED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
33. TOUCH UP LOAM AND SEED.

NOTE: ALL BARE AREAS NOT SUBJECT TO FINAL PAVING, RIPRAP OR GRAVEL, SHALL BE VEGETATED.

PRIOR TO CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE FOR THE COMPLETION OF THE WORK, WHICH WILL SATISFY THE ABOVE CONSTRUCTION SEQUENCE IN THE SPECIFIED ORDER, HOWEVER, SEVERAL SEPARATE ITEMS MAY BE CONSTRUCTED SIMULTANEOUSLY. WORK MUST ALSO BE SCHEDULED OR PHASED TO REDUCE THE EXTENT OF THE EXPOSED AREAS AS SPECIFIED BELOW. THE INTENT OF THIS SEQUENCE IS TO PROVIDE FOR EROSION CONTROL AND TO HAVE STRUCTURAL MEASURES SUCH AS SILT FENCE AND CONSTRUCTION ESTABLISHED IN PLACE BEFORE LARGE AREAS OF LAND ARE STRIPPED.

EROSION, SEDIMENTATION AND STABILIZATION CONTROL PLAN

THE EROSION CONTROL PLAN IS INCLUDED IN THE PLAN SET.

WINTER STABILIZATION PLAN

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15TH, THEN THE SITE SHALL BE PROTECTED WITH OVER-WINTER STABILIZATION.

WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT ANY AREA LEFT EXPOSED CAN BE CONTROLLED BY THE CONTRACTOR. EXPOSED AREAS SHALL BE LIMITED TO THOSE AREAS IN WHICH WORK IS EXPECTED TO COMMENCE AND COMPLETE IN THE NEXT FIFTEEN (15) DAYS AND THAT CAN BE MULCHED WITHIN ONE DAY PRIOR TO ANY SNOW EVENT.

ALL AREAS SHALL BE CONSIDERED TO BE BARE UNTIL THE SUBBASE GRAVEL IS INSTALLED WITHIN PAVEMENT/BUILDING AREAS OR THE AREAS HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 POUNDS PER 1,000 SQUARE FEET (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED.

THE CONTRACTOR SHALL INSTALL ANY ADDED MEASURES, WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDING UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

34. SOIL STOCKPILES SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS./1,000 S.F. (3 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOODWASTE COMPOST MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE SHALL NOT BE PLACED (EVEN COVERED) WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

35. NATURAL RESOURCE PROTECTION ANY AREAS WITHIN 75 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 90% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1ST AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIERS (I.E. SILT FENCE BUCKED WITH HAY BALES OR EROSION CONTROL MIX) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 75 FEET ON EITHER SIDE FROM THE RESOURCE. (E.G. HAVING LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, Icing AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE.

36. SEDIMENT BARRIERS DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOODWASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

37. MULCHING AN AREA SHALL BE CONSIDERED BARE UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LBS. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75 LBS. PER 1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LBS. PER 1,000 S.F. (3 TONS/ACRE) AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH.

BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY PEG LINE, MULCH NETTING, TRACKING OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

38. MULCHING ON SLOPES AND DITCHES SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS./1,000 S.F. ON ALL SLOPES GREATER THAN 8%.

MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 8%. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

WINTER STABILIZATION PLAN (CONTINUED)

39. SEEDING BETWEEN THE DATES OF OCTOBER 15TH AND APRIL 1ST, LOAM OR SEED MIX MUST BE APPLIED TO ALL AREAS OF ABOVE FREEZING TEMPERATURES, FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT/MAINTENANCE RECOMMENDED FOR THE AREA AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDDED AT A RATE OF THREE TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING AND/OR PLASTIC NETTING IF DORMANT SEEDING IS USED FOR THE SITE. ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS./1,000 S.F.

ALL AREAS SEEDD DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 90% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

40. DEWATERING AND TEMPORARY STREAM DIVERSION WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, Icing AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE.

41. INSPECTION AND MONITORING MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION PERIOD. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND MAKE CORRECTIVE AS NECESSARY TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/OR UNSATISFACTORY SPOTS. THE CONTRACTOR SHALL MAINTAIN MEANS A MINIMUM OF 85% TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES. THE APPLICANT SHALL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15TH. THE APPLICANT SHALL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 1ST. THE DEPARTMENT SHALL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% TO BE A SLOPE. IF THE APPLICANT FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 1ST, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS--BY OCTOBER 1ST, THE APPLICANT SHALL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 LBS./1,000 S.F. AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1ST, THEN THE APPLICANT SHALL COVER THE SLOPE WITH A LAYER OF WOODWASTE COMPOST OR WITH STONE RIPRAP.

STABILIZE THE SLOPE WITH SOD--THE APPLICANT SHALL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE APPLICANT SHALL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33%.

STABILIZE THE SLOPE WITH WOODWASTE COMPOST--THE APPLICANT SHALL PLACE A SIX-INCH LAYER OF WOODWASTE COMPOST ON THE SLOPE BY NOVEMBER 15TH. PRIOR TO PLACING THE WOODWASTE COMPOST, THE APPLICANT SHALL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT SHALL NOT USE WOODWASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

STABILIZE THE SLOPE WITH STONE RIPRAP--THE APPLICANT SHALL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 1ST. THE APPLICANT SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

2. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS BY SEPTEMBER 15TH THE APPLICANT SHALL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE APPLICANT FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

STABILIZE THE SOIL WITH TEMPORARY VEGETATION--BY OCTOBER 1ST THE APPLICANT SHALL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 LBS./1,000 S.F., LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 LBS./1,000 S.F., AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15TH, THEN THE APPLICANT SHALL COVER THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED ABOVE.

STABILIZE THE SLOPE WITH SOD--THE APPLICANT SHALL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE APPLICANT SHALL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33%.

STABILIZE THE SLOPE WITH WOODWASTE COMPOST--THE APPLICANT SHALL PLACE A SIX-INCH LAYER OF WOODWASTE COMPOST ON THE SLOPE BY NOVEMBER 15TH. PRIOR TO PLACING THE WOODWASTE COMPOST, THE APPLICANT SHALL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT SHALL NOT USE WOODWASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

STABILIZE THE SLOPE WITH STONE RIPRAP--THE APPLICANT SHALL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 1ST. THE APPLICANT SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

MAINTENANCE OF FACILITIES

THE STORM WATER FACILITIES WILL BE MAINTAINED BY THE APPLICANT. THE CONTRACT DOCUMENTS WILL REQUIRE THE CONTRACTOR TO DESIGNATE A PERSON RESPONSIBLE FOR MAINTENANCE OF THE SEDIMENTATION CONTROL FEATURES DURING CONSTRUCTION AS REQUIRED BY THE EROSION CONTROL REPORT AND/OR CONSTRUCTION PLANS. LONG-TERM OPERATION/MAINTENANCE RECOMMENDED FOR THE STORM WATER FACILITIES IS PRESENTED BELOW AND SHOULD BE RECERTIFIED EVERY FIVE YEARS.

THE RESPONSIBLE PARTY MAY CONTRACT WITH SUCH PROFESSIONALS, AS MAY BE NECESSARY IN ORDER TO COMPLY WITH THIS PROVISION AND MAY RELY ON THE ADVICE OF SUCH PROFESSIONALS IN CARRYING OUT ITS DUTY HERE UNDER, PROVIDED THAT THE FOLLOWING OPERATION AND MAINTENANCE PROCEDURES ARE HEREBY ESTABLISHED AS A MINIMUM FOR COMPLIANCE WITH THIS SECTION.

INSPECTION AND MAINTENANCE FREQUENCY AND CORRECTIVE MEASURES: THE FOLLOWING AREAS, FACILITIES AND MEASURES WILL BE INSPECTED AND THE IDENTIFIED DEFICIENCIES WILL BE CORRECTED. CLEAN-OUT MUST INCLUDE THE REMOVAL AND LEGAL DISPOSAL OF ANY ACCUMULATED SEDIMENTS AND DEBRIS.

CATCH BASINS: INSPECT CATCH BASINS TWO TIMES PER YEAR (PREFERABLY IN SPRING AND FALL) TO ENSURE THAT THE CATCH BASINS ARE WORKING IN THEIR INTENDED FASHION AND THAT THEY ARE FREE OF DEBRIS. CLEAN STRUCTURES WHEN SEDIMENT DEPTHS REACH 12" FROM INVERT OF OUTLET. IF THE BASIN IS NOT DESIGNED WITH A HOOD TO TRAP FLOES, THE MATERIALS (I.E. SNOUT) CHECK TO ENSURE WATER TIGHT SEAL IS WORKING. AT A MINIMUM, REMOVE FLOATING DEBRIS AND HYDROCARBONS AT THE TIME OF THE INSPECTION.

VEGETATED AREAS: INSPECT SLOPES AND EMBANKMENT EARLY IN THE GROWING SEASON TO IDENTIFY ACTIVE OR POTENTIAL PROBLEMS. REPLANT BARE AREAS OR AREAS WITH SPARSE GROWTH, WHERE EROSION IS EVIDENT, ARMOR THE AREA WITH AN APPROPRIATE LINING OR DIVERT THE EROSION FLOWS TO ON-SITE AREAS ABLE TO WITHSTAND THE CONCENTRATED FLOWS. THE FACILITIES WILL BE INSPECTED AFTER MAJOR STORMS AND ANY IDENTIFIED DEFICIENCIES WILL BE CORRECTED.

DITCHES, SWALES AND OTHER OPEN STORM WATER CHANNELS: INSPECT TWO TIMES PER YEAR (PREFERABLY IN SPRING AND FALL) TO ENSURE THEY ARE WORKING IN THEIR INTENDED FASHION AND THAT THEY ARE FREE OF SEDIMENT AND DEBRIS. REMOVE ANY OBSTRUCTIONS TO FLOW, INCLUDING ACCUMULATED SEDIMENTS, DEBRIS AND VEGETATED GROWTH. REPAIR ANY EROSION OF THE DITCH LINING.

VEGETATED DITCHES WILL BE MOWED AT LEAST ANNUALLY OR OTHERWISE MAINTAINED TO CONTROL THE GROWTH OF WOODY VEGETATION AND MAINTAIN FLOW CAPACITY. ANY WOODY VEGETATION GROWING THROUGH RIPRAP LININGS MUST ALSO BE REMOVED. REPAIR ANY SLUMPING SIDE SLOPES AS SOON AS PRACTICABLE. IF THE DITCH HAS A RIPRAP LINING, REPLACE RIPRAP ON AREAS WHERE ANY UNDERLYING FILTER FABRIC OR UNDERDRAIN GRAVEL IS SHOWING THROUGH THE STONE OR WHERE STONES HAVE DISCLOSED CORRECT ANY OBSTRUCTIONS TO THE CHANNEL'S BOTTOM OR SIDESLOPES. THE FACILITIES SHOULD BE INSPECTED AFTER MAJOR STORMS AND ANY IDENTIFIED DEFICIENCIES WILL BE CORRECTED.

ROADWAYS AND PARKING SURFACES: CLEAR ACCUMULATIONS OF WINTER SAND IN PARKING LOTS AND ALONG ROADWAYS AT LEAST ONCE A YEAR, PREFERABLY IN THE SPRING. ACCUMULATIONS ON PAVEMENT MAY BE REMOVED BY PAVEMENT SWEEPING. ACCUMULATIONS OF SAND ALONG ROAD SHOULDERS MAY BE REMOVED BY GRADING EXCESS SAND TO THE PAVEMENT EDGE AND REMOVING IT MANUALLY OR BY A FRONT-END LOADER.

CONSTRUCTION NOTES

SUBGRADE PREPARATION

1. SUBGRADE PREPARATION IN SHOULD BE IN ACCORDANCE WITH GEOTECHNICAL ENGINEER RECOMMENDATIONS FOUND IN THE GEOTECHNICAL REPORT BY HALEY AND ALDRICH, INC. DATED MAY 16, 2007.
2. EXCAVATE THE FULL THICKNESS OF FILL MATERIALS BELOW THE BUILDING FOOTPRINT (AND FOUNDATION BEARING ZONES) AND REPLACE WITH COMPACTED GRANULAR FILL. SUITABLE FOUNDATION SUBGRADES INCLUDE UNDISTURBED NATIVE SOILS OR COMPACTED GRANULAR FILL PLACED ABOVE UNDISTURBED NATIVE SOILS. IN GENERAL, REMOVAL OF UNSUITABLE SOILS FROM THE PROPOSED BUILDING FOOTPRINT AND FOUNDATION BEARING ZONES SHOULD BE ANTICIPATED TO DEPTHS OF APPROXIMATELY 1 TO 3 FEET. GREATER DEPTHS OF OVER-EXCAVATION MAY BE REQUIRED IN LOCALIZED AREAS TO COMPLETELY REMOVE UNSUITABLE SOILS FROM THESE AREAS. REMOVAL OF UNSUITABLE SOILS SHOULD BE OBSERVED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO BACKFILLING WITH COMPACTED STRUCTURAL FILL.
3. ALL TOPSOIL, PAVEMENTS, DEBRIS, FROZEN SOILS, AND LOOSE OR DISTURBED SOILS SHOULD BE REMOVED FROM AREAS RECEIVING NEW CONSTRUCTION.
4. EXISTING FOUNDATIONS, SLABS, AND/OR UTILITIES ASSOCIATED WITH FORMER SITE BUILDINGS AND ANY PAST USES, IF ENCOUNTERED, SHOULD BE REMOVED FROM BELOW THE PROPOSED BUILDING FOOTPRINT. THESE MATERIALS SHOULD BE COMPLETELY REMOVED FROM FOUNDATION BEARING ZONES AND REPLACED WITH COMPACTED GRANULAR FILL.
5. UNDERGROUND STRUCTURES AND UNDERGROUND PIPING, LOCATED BENEATH THE PROPOSED PAVEMENTS OR LANDSCAPED AREAS SHOULD BE REMOVED TO AT LEAST 2 FEET BELOW PROPOSED FINISHED GRADE.
6. THE ENDS OF UNDERGROUND PIPES AND UTILITY CONDUITS TO BE ABANDONED IN-PLACE SHOULD BE CAPPED AND/OR FILLED WITH CONCRETE OR GROUTED.
7. ANY UNSTABLE AREAS IDENTIFIED SHOULD BE UNDERDUT AT LEAST 12 INCHES, OR TO COMPACTED SOIL, AND REPLACED WITH COMPACTED STRUCTURAL FILL, CRUSHED STONE, OR COMMON FILL. THE DEPTH OF UNDERCUTTING AND TYPE OF BACKFILL MATERIAL SHOULD BE SELECTED WITH CONSIDERATION OF PROPOSED USE (I.E., BUILDING OR PAVEMENT) AND SOIL AND WEATHER CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
8. FINAL FOUNDATION AND FLOOR SLAB SUBGRADE PREPARATION SHOULD INCLUDE RE-COMPACTON OF BEARING SURFACES. CARE SHOULD BE TAKEN TO LIMIT DISTURBANCE TO BEARING SURFACES PRIOR TO PLACEMENT OF CONCRETE. ANY LOOSE, SOFTENED, OR DISTURBED MATERIAL SHOULD BE REMOVED AND REPLACED WITH COMPACTED STRUCTURAL FILL PRIOR TO PLACEMENT OF CONCRETE. EXCAVATED SUBGRADES SHOULD NOT BE LEFT EXPOSED OVERNIGHT UNLESS THE FORECAST CALLS FOR ABOVE-FREEZING, CLEAR CONDITIONS.

DEWATERING

1. STATIC GROUNDWATER AT THE SITE IS ANTICIPATED TO RANGE BETWEEN 9 AND 12 FEET BGS ACROSS THE SITE (ELEVATION 4 TO 7 MSL). GROUNDWATER LEVELS AT THE SITE ARE ANTICIPATED TO CHANGE SEASONALLY AND AS A RESULT OF THE PROPOSED CONSTRUCTION. WE DO NOT ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED IN FOUNDATION AND UTILITY EXCAVATIONS.
2. IF A SILT DEWATERING BAG IS USED, HAY BALES SHALL BE PLACED DOWNSTREAM TO PREVENT EROSION. DUE TO THE NATURE OF THE SITE SOILS, TEMPORARY DETENTION PONDS, TRENCHES, DITCHES, AND DEWATERING SUMPS SHOULD NOT BE USED FOR DEWATERING DURING CONSTRUCTION.
3. EXCAVATION, FILLING, FOUNDATION AND FLOOR SLAB CONSTRUCTION, AND UTILITY INSTALLATION AND BACKFILLING SHOULD BE COMPLETED IN DRY CONDITIONS. SUBGRADE SOILS THAT BECOME UNSTABLE SHOULD BE UNDERCUT AND REPLACED WITH STRUCTURAL FILL OR CRUSHED STONE, AS NECESSARY. EXCAVATION SIDE SLOPES SHOULD BE MONITORED FOR POTENTIAL SEEPAGE AND MAINTAINED TO PROMOTE STABILITY, ACCORDINGLY.
4. SURFACE WATER RUNOFF SHOULD BE DIRECTED AWAY FROM EXCAVATIONS TO REDUCE DEWATERING EFFORTS AND TO PROTECT SUBGRADES FROM BECOMING SOFT AND UNSTABLE.

BACKFILL AND COMPACTION

1. COMPACTED GRANULAR FILL (CGF) SHOULD BE USED FOR ENGINEERED FILLS BELOW BUILDING FOOTPRINT AREAS AND IN FOUNDATION BEARING ZONES. CGF SHALL COMPLY WITH THE FOLLOWING GRADATION:

SIZE	% PASSING
6"	100
NO. 40	30 - 80
NO. 40	10 - 50
NO. 200	0 - 8

IN OPEN AREAS, CGF SHOULD BE PLACED IN LIFT THICKNESSES NOT EXCEEDING 12 INCHES LOOSE MEASURE (PRIOR TO COMPACTION) AND COMPACTED USING SELF PROPELLED VIBRATORY ROLLERS SUCH AS A BOMAG BW-60S. IN CONFINED AREAS, CGF SHOULD BE PLACED IN LIFT THICKNESS NOT EXCEEDING 9 INCHES AND COMPACTED USING A LARGE VIBRATORY PLATE COMPACTOR OR EQUIVALENT. A MINIMUM OF FOUR SYSTEMATIC PASSES OF THE COMPACTION EQUIPMENT SHOULD BE USED TO COMPACT EACH LIFT.

2. COMMON FILL SHOULD BE USED FOR ENGINEERED FILLS BELOW ROADWAY, PARKING, AND OTHER NON-STRUCTURAL AREAS. COMMON FILL SHALL COMPLY WITH THE FOLLOWING GRADATION:

SIZE	% PASSING
6"	100
NO. 40	0-80
NO. 200	0 - 30

3. COMMON FILL SHOULD BE PLACED IN MAXIMUM 12-INCH THICK LOOSE LIFTS USING COMPACTION EQUIPMENT AS DESCRIBED ABOVE FOR CGF.

3. AGGREGATE BASE FOR PAVEMENTS SHOULD BE USED AS THE BASE COURSE LAYER BELOW THE ASPHALT PAVEMENTS. AGGREGATE BASE SHALL COMPLY WITH THE FOLLOWING GRADATION:

SIZE	% PASSING
MDOT STANDARD SPECIFICATION 703.06, TYPE A	
2" (50 MM)	100
1/2" (12.5 MM)	45 - 70
1/4" (6.3 MM)	30 - 55
NO. 40 (425 MM)	0 - 20
NO. 200 (75 MM)	0 - 5

4. WHERE SUBGRADES BECOME SATURATED, UNSTABLE, AND/OR DIFFICULT TO COMPACT, CRUSHED STONE SHOULD BE PLACED AND COMPACTED IN LIEU OF CGF OR COMMON FILL. CRUSHED STONE, WHEN USED, SHOULD BE WRAPPED IN A GEOTEXTILE FILTER FABRIC, SUCH AS MIRA1 140N OR EQUAL. AT NO TIME SHOULD CGF OR COMMON FILL BE PLACED OVER CRUSHED STONE THAT HAS NOT BEEN WRAPPED IN A GEOTEXTILE FILTER FABRIC.

5. BEDDING PLACED BELOW UTILITIES SHOULD BE IN ACCORDANCE WITH THE UTILITY AND MANUFACTURER REQUIREMENTS. IN GENERAL, UTILITIES MAY BE SUPPORTED DIRECTLY ON A MINIMUM 6-INCH-THICK LAYER OF COMPACTED STRUCTURAL FILL, CRUSHED STONE, OR OTHER SUITABLE PIPE BEDDING MATERIALS. FILL PLACED AS BACKFILL FOR UTILITIES BELOW BUILDING FLOOR SLABS SHOULD CONSIST OF COMPACTED STRUCTURAL FILL OR CRUSHED STONE. ELSEWHERE, FILL PLACED AS BACKFILL FOR UTILITIES SHOULD CONSIST OF COMPACTED COMMON FILL.

6. RE-USE OF ON-SITE BORROW SOILS IS PERMITTED AS LONG AS THOSE SOILS MEET THE GRADATION REQUIREMENTS IDENTIFIED ABOVE. THE EXISTING FILL MATERIALS WILL LIKELY MEET THE GRADATION SPECIFICATION FOR COMMON FILL. THESE SOILS COULD BE USED AS COMMON FILL BELOW PAVEMENT SUBBASE AREAS AND BELOW BUILDING SLAB-ON-GRADE AREAS TO SLAB SUBGRADE ELEVATIONS, PROVIDED THAT THE MOISTURE IS CONTROLLED AND COMPACTION IS ACHIEVED.

7. THE ON-SITE SOILS COULD BE USED AS CGF ADJACENT TO PILE CAPS AND GRADE BEAMS, BENEATH SIDEWALKS OR ADJACENT TO ANY FOUNDATION WALLS AS LONG AS THOSE SOILS MEET THE GRADATION REQUIREMENTS IDENTIFIED ABOVE.
8. GLACIOMARINE SAND AND CLAY SOILS EXCAVATED DURING CONSTRUCTION ARE NOT CONSIDERED SUITABLE FOR REUSE AS CGF. THESE MATERIALS MAY BE USED AS COMMON FILL IN LANDSCAPED AREAS IF THEY CAN BE PLACED AND COMPACTED ADEQUATELY AS STATED HEREIN.

9. THE DURABLE COMPONENTS OF ANY EXISTING STRUCTURES REMOVED DURING DEMOLITION COULD BE CRUSHED AND BLENDED ON-SITE TO PRODUCE A SUITABLE STRUCTURAL OR COMMON FILL. THE CONCRETE (FROM FLOOR SLABS AND FOUNDATION ELEMENTS), AND CONCRETE BLOCK COULD POTENTIALLY BE INCORPORATED INTO STRUCTURAL OR COMMON FILLS.

10. RECLAIMED MATERIALS SHOULD BE FREE OF DELETERIOUS MATERIALS (STRUCTURAL STEEL, WOOD, GLASS, METALS). SAMPLES OF ALL SITE MATERIALS PROPOSED FOR ON-SITE RE-USE SHOULD BE TESTED FOR CONFORMANCE TO THE GRADATION SPECIFICATIONS, MOISTURE-DENSITY RELATIONSHIPS (MODIFIED PROCTOR TESTING), AND ABRASION RESISTANCE (ASTM C 131, THE L.A. ABRASION TEST).