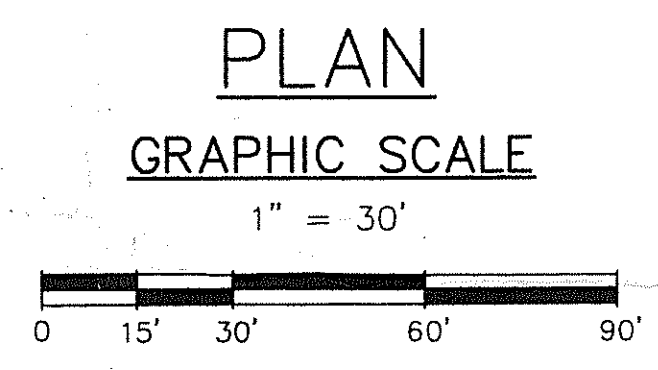
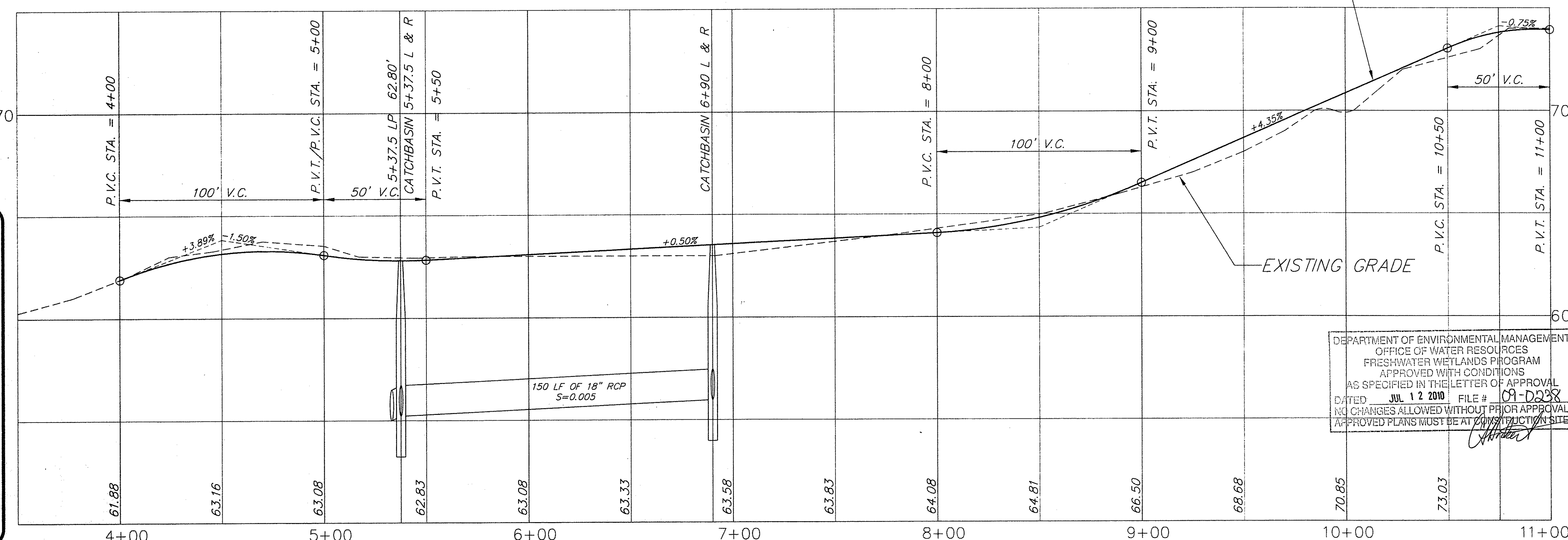
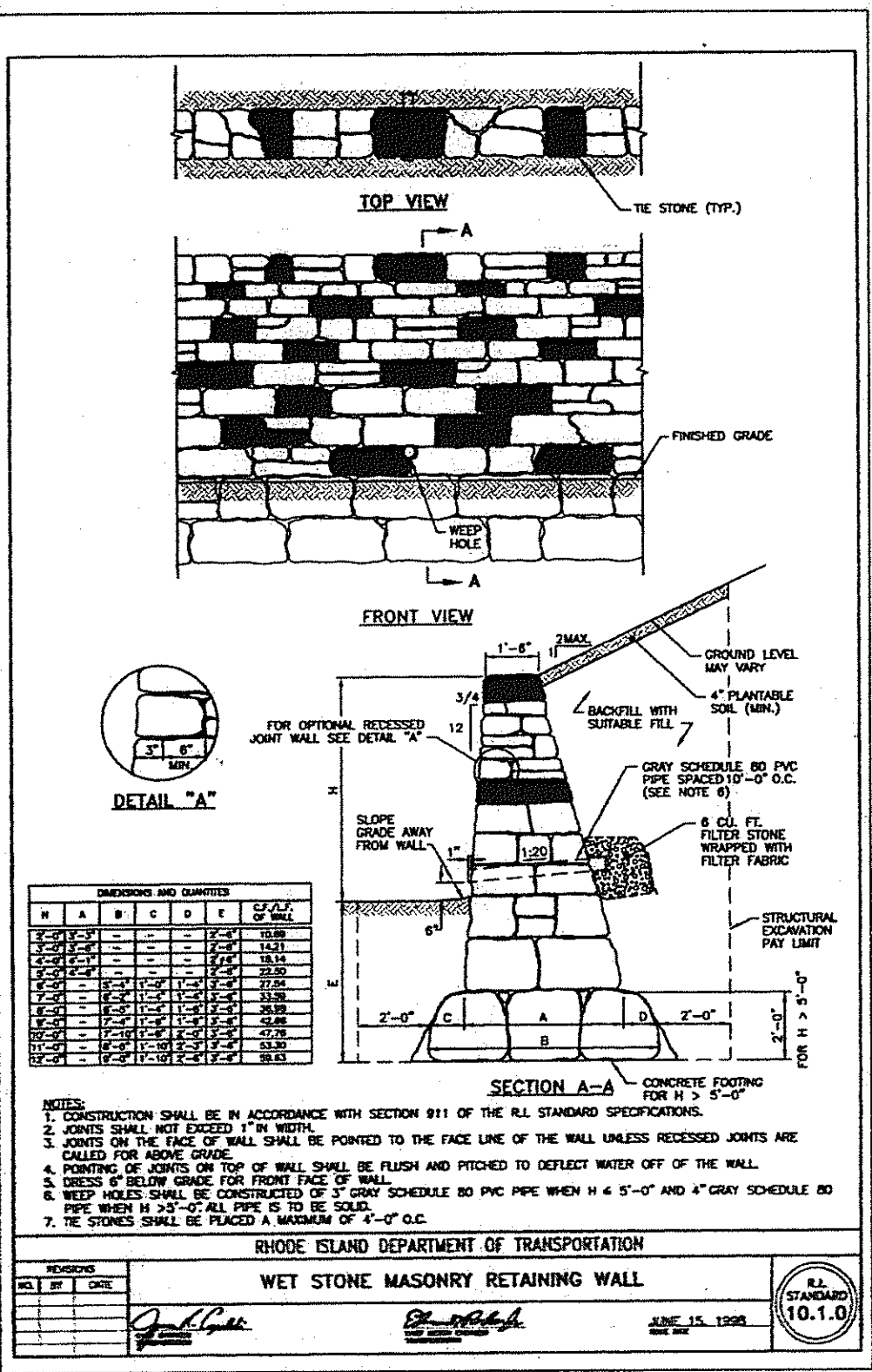


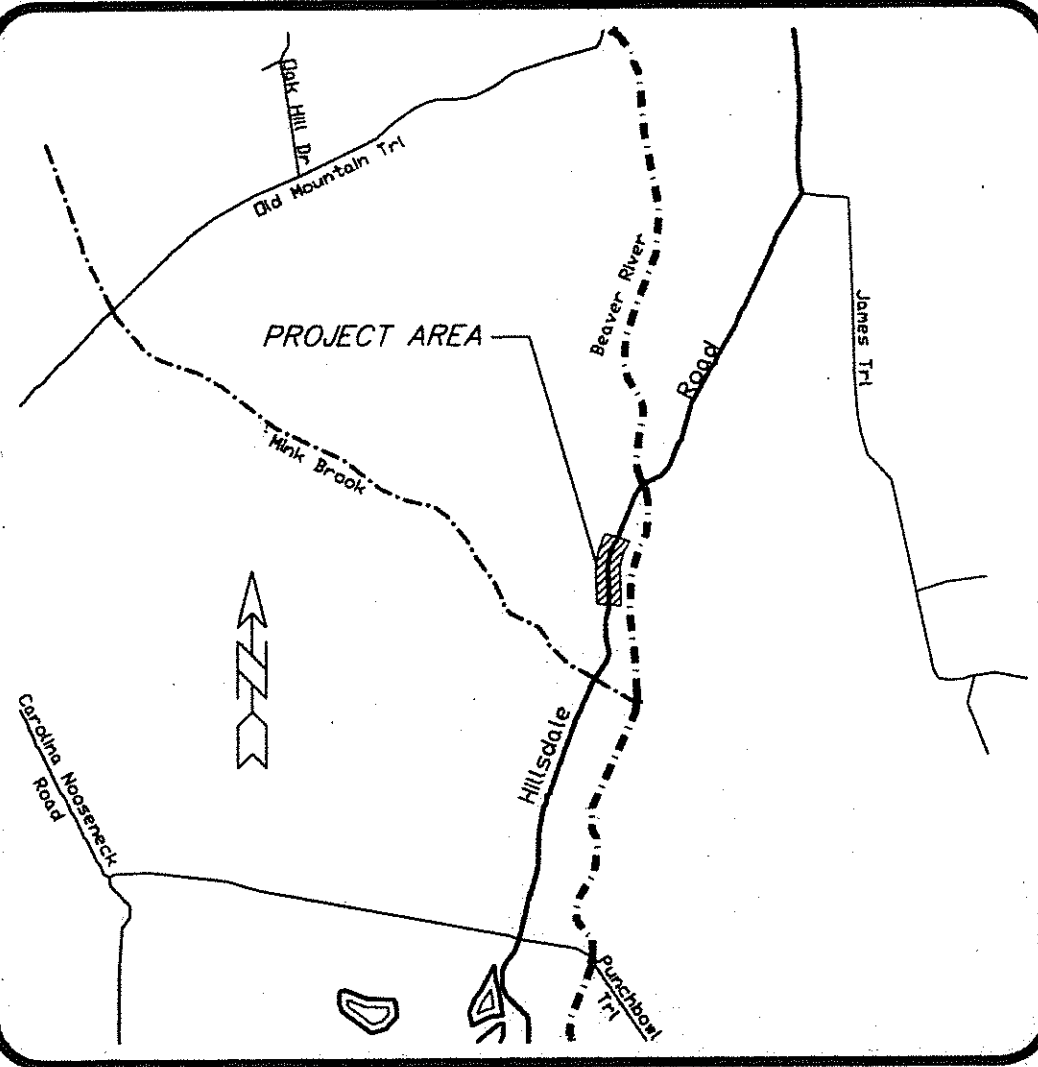
NOTE:
THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON IS APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THEIR EXACT LOCATION THROUGH DIG SAFE OR BY MEANS OF TEST PITS IF NECESSARY.



MAPPING NOTE:
THIS SURVEY AND PLAN CONFORM TO A CLASS III STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JUL 12 2010 FILE # 09-0238
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE



PROPOSED ROAD IMPROVEMENTS
HILLSDALE ROAD
STATION 3+50 TO STATION 11+00
SITUATED IN THE TOWN OF
RICHMOND, RHODE ISLAND
PREPARED FOR
TOWN OF RICHMOND

NO.	REVISION	DATE
1.	RIDEM COMMENTS	6/11/10

WILLIAM D. DOWDELL
4217
REGISTERED PROFESSIONAL ENGINEER

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ENGINEERING, INC.
CIVIL & ENVIRONMENTAL ENGINEERS
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P.O. BOX 1684 • 3949 OLD POST ROAD
CHARLESTOWN, RHODE ISLAND 02813
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JOB NO. 2644
DWG. NO. 2644-PP1A
SCALE: 1" = 30'
SHEET: 1

DRAWN BY: R.L.C.
CHECKED: W.D.D.
APPROVED: W.D.D.
DATE: MARCH 30, 2010

1 OF 2 SHEETS

EROSION CONTROL & SOIL STABILIZATION PROGRAM

1. DENUDE SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON.
2. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR EXPOSED PRIOR TO OCTOBER 15, SHALL BE SEEDED OR PROTECTED BY THAT DATE FOR ANY WORK COMPLETED DURING EACH CONSTRUCTION PERIOD.
3. THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM WITH R.I. STANDARD SPECIFICATION M. 20.
4. THE SEED MIX SHALL BE INOCULATED WITHIN 24 HOURS, BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULUM FOR EACH VARIETY.
5. THE DESIGN MIX SHALL BE COMPRISED OF THE FOLLOWING:
 PERMANENT SEEDING MIXTURES:
 A. --LAWNS:
 FOR SUN OR SHADED; MODERATE MANAGEMENT SUGGESTED (IMPROVED U.R.I. NUMBER 2 LAWN SEED MIXTURE).

	LBS/ACRE	LBS/1000SF
RED FESCUE	40	.90
KENTUCKY BLUEGRASS *	40	.90
PERENNIAL RYEGRASS **	20	.45

* 50% (20 LBS/ACRE) MUST BE NAMED OR IMPROVED VARIETY, SUCH AS AMERICAN KENTUCKY BLUEGRASS.
 ** MUST BE NAMED OR IMPROVED VARIETY, SUCH AS YORKTOWN II PERENNIAL RYEGRASS.

 B. --SOD WATERWAYS, DRAINAGE DITCHES, DETENTION BASINS, ETC.

	LBS/ACRE	LBS/1000SF
CREeping RED FESCUE	20	.45
TALL FESCUE OR REED CANARYGRASS *	20	.45

* USE REED CANARY GRASS WHERE MOWING IS NOT REQUIRED, SUCH AS AMERICAN KENTUCKY BLUEGRASS.
 SOURCE: USDA, SOIL CONSERVATION SERVICE.

 C. --SAND DUNES, BLOWING SAND

	NO./ACRE	NO./1000SF
'CAPE' AMERICAN BEACHGRASS CULMS	58,500	1,345

 D. --GENERAL PURPOSE LAWN

	LBS/ACRE	LBS/1000SF
RED FESCUE	75	1.75
KENTUCKY BLUEGRASS	15	.35
COLONIAL BENTGRASS	5	.11
PERENNIAL RYEGRASS	5	.11

SOURCE: U.R.I. AGRICULTURAL EXPERIMENT STATION BULLETIN 432 KINGSTON, R.I. (R.I. DEPT. OF TRANSPORTATION 'PARK' SEED MIXTURE).

 E. --GENERAL PURPOSE : MINIMUM MAINTENANCE: UNMOWED OR INFREQUENTLY MOWED

	LBS/ACRE	LBS/1000SF
RED FESCUE	75	1.75
COLONIAL BENTGRASS, 'EXETER'	5	.11
PERENNIAL RYEGRASS	5	.11
BIRDFOOT TREFOLI 'EMPIRE'	15	.35

*USE INOCULATED SEED; MAY INCLUDE 20% HARD SEED.
 SOURCE: U.R.I. AGRICULTURAL EXPERIMENT STATION BULLETIN 432 KINGSTON, R.I. (R.I. DEPT. OF TRANSPORTATION 'SLOPE' SEED MIXTURE).

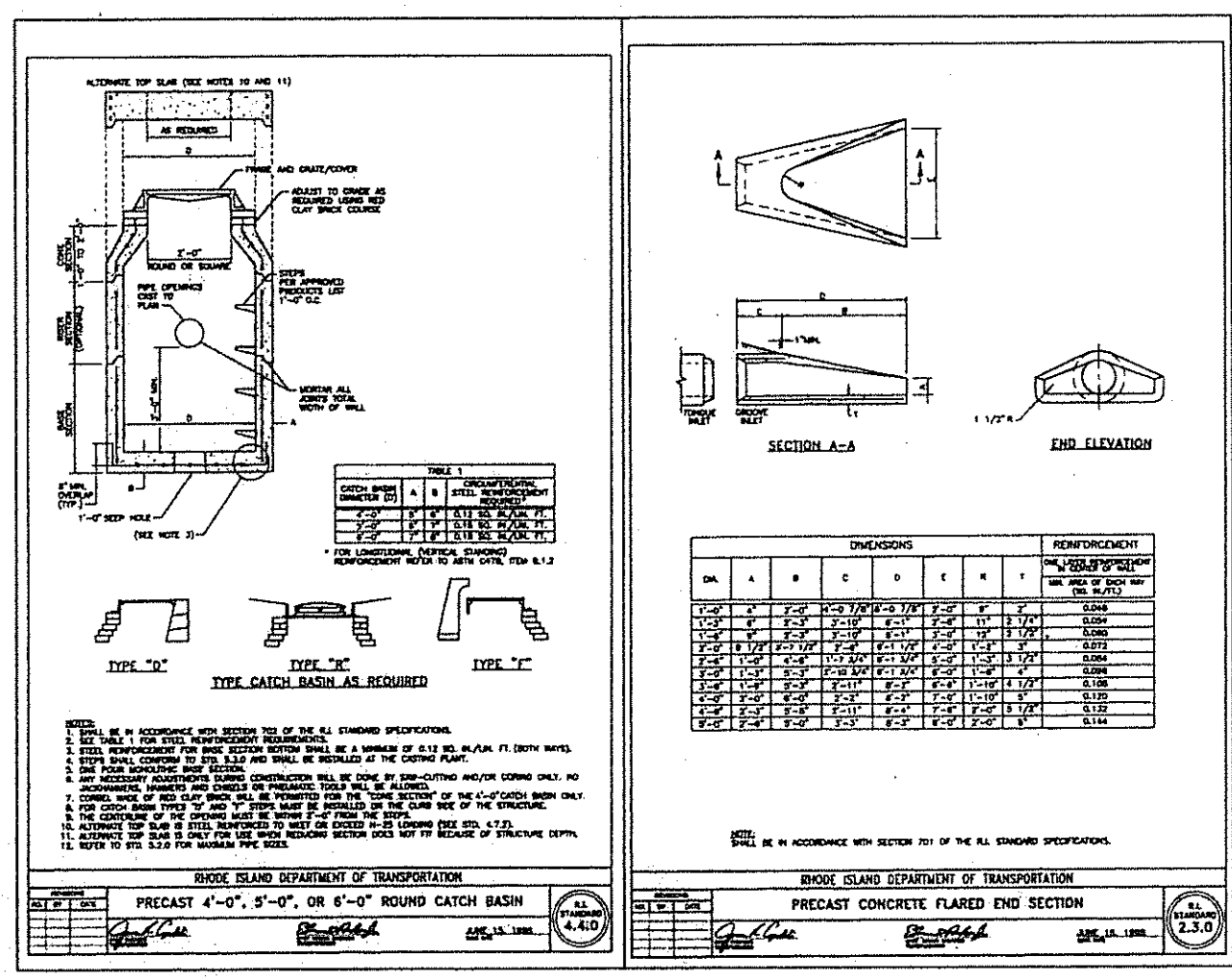
 F. --BUFFER ZONES ADJACENT TO WETLANDS OR SURFACE WATERS AND WETLAND AREAS

	LBS/ACRE	LBS/1000SF
REED CANARY GRASS LADINO CLOVER*	20	.45

*USE INOCULATED SEED.

SEEDING DATES:
 EARLY SPRING OR LATE SUMMER SEEDING IS RECOMMENDED; MID-SUMMER SEEDING IS NOT RECOMMENDED. SPRING SEEDINGS OF ALL SEED MIXES WITH LEGUMES IS RECOMMENDED, HOWEVER LATE SUMMER SEEDINGS PRIOR TO SEPTEMBER 1 CAN BE MADE. THE RECOMMENDED SEEDING DATES ARE: APRIL 1 THROUGH JUNE 15 AND AUGUST 15 THROUGH SEPTEMBER 30. THE FINAL SEEDING DATES MAY BE EXTENDED 15 DAYS IN NEWPORT COUNTY.
6. TEMPORARY TREATMENTS SHALL CONSIST OF A HAY, STRAW OR FIBER MULCH OR PROTECTIVE COVERS SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCLUSION BLANKETS). THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.
7. HAY OR STRAW APPLICATIONS SHOULD BE IN THE AMOUNT OF 3000-4000 LBS./AC.
8. ALL HAYBALES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP TO MINIMIZE EROSION. TEMPORARY SEEDING GUIDE MUST BE INCLUDED AS A REFERENCE. THE FOLLOWING SPECIES ARE RECOMMENDED:

SPECIES	LBS/ACRE	LBS/1,000 SQ. FT.	SEEDING DATES
ANNUAL RYEGRASS	60	1.5	MARCH 1 - JUNE 15 & AUGUST 1 - OCTOBER 1
PERENNIAL RYEGRASS	60	1.5	MARCH 1 - JUNE 15 & AUGUST 1 - OCTOBER 1
SUDAN GRASS	40	1.0	MAY 15 - AUGUST 15
MILLET	40	1.0	MAY 15 - AUGUST 15
WINTER RYE	100	2.5	AUGUST 15 - OCTOBER 1
9. THE CONTRACTOR MUST REPAIR AND OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE.
10. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE APRIL 1ST THRU OCTOBER 15TH.
11. ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS SECTION 202.
12. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 15 DAYS OF FINAL GRADING.
13. STOCKPILES OF TOPSOILS SHALL NOT BE LOCATED NEAR WATERWAYS OR WETLANDS THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES SHALL ALSO BE SEEDED AND/OR STABILIZED.
14. ON BOTH STEEP AND LONG SLOPES CONSIDERATION SHOULD BE GIVEN TO "CRIMPING" OR "TRACKING" TO TACK DOWN MULCH APPLICATIONS.
15. REFERENCE THE SEDIMENTATION CONTROL PROGRAM AND ORDER OF PROCEDURE FOR PROPER COORDINATION.
16. ANY DETENTION/RETENTION FACILITIES AND THE DRAINAGE SYSTEM SHALL RECEIVE ONE FINAL CLEANING PRIOR TO ACCEPTANCE OF THE OVERALL PROJECT BY THE OWNER. SEDIMENTS SHALL BE DISPOSED OF IN A PROPER MANNER.



SEDIMENTATION CONTROL PROGRAM

1. RIP-RAP SPLASH PADS SHALL BE INSTALLED AT THE OUTLETS FOR ALL CULVERTS DISCHARGING INTO A WATERWAY.
2. EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL FROM ENTERING THE WETLANDS.
3. ALL DISTURBED AREAS SUBJECT TO EROSION TENDENCIES WHETHER THEY ARE NEWLY FILLED OR EXCAVATED SHALL RECEIVE SUITABLE SLOPE PROTECTION.
4. DURING CONSTRUCTION, THE CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL.
5. CARE SHALL BE TAKEN SO AS TO PREVENT ANY UNSUITABLE MATERIAL FROM ENTERING EITHER EXISTING OR PROPOSED DRAINAGE OR SEWER STRUCTURES.
6. SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED PERIODICALLY AND AFTER PERIODS OF RAINFALL. SUCH DEVICES SHALL BE REPAIRED OR REPLACED AS NEEDED.
7. CARE SHALL BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (BOTH TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR THOSE AREAS SUBJECT TO STORM WATER FLOW.
8. ADDITIONAL HAYBALES OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT OR AS DIRECTED BY THE ENGINEER.
9. ALL SEDIMENTS SHALL BE REMOVED FROM THE DETENTION BASINS OR STRUCTURES WHEN DIRECTED BY THE ENGINEER OR THE LOCAL CONSERVATION COMMISSION.
10. REFERENCE THE "RHODE ISLAND EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY THE R.I.D.E.M. AND THE U.S. DEPT. OF AGRICULTURE, SOIL CONSERVATION SERVICE, 1989, AS A GUIDE.
11. THE PERSON IN RESPONSIBLE CHARGE IS THE RICHMOND DIRECTOR OF PUBLIC WORKS, SCOTT BARBER, TEL. 401-539-8474.

ORDER OF PROCEDURE

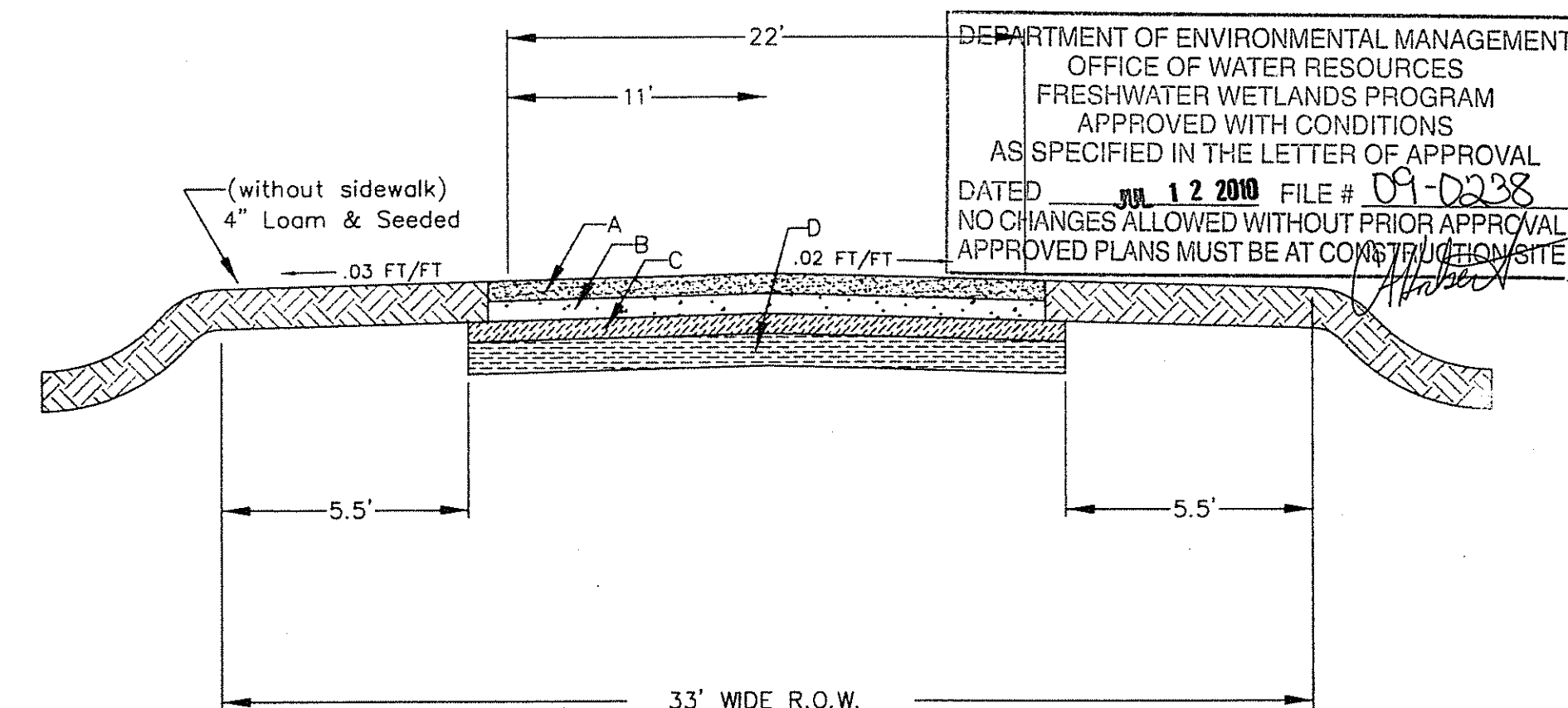
1. IMMEDIATELY UPON COMPLETION OF THE CLEARING AND GRUBBING OPERATION AND PRIOR TO ANY ROUGH GRADING, TEMPORARY HAYBALES OR SANDBAGS SHALL BE PLACED OUTSIDE THE LIMITS OF CONSTRUCTION AS PER THE PLANS (I.E. ALONG NEW ROADWAYS, STREAMBANKS, CRITICAL AREAS, ETC.)
2. ALL EROSION AND SEDIMENTATION STRUCTURES SHALL BE PERIODICALLY CLEANED AND MAINTAINED AS PER THE RESPECTIVE PROGRAMS DURING THE CONSTRUCTION.
3. IF WORK PROGRESS IS TO BE INTERRUPTED AT ANY TIME, REFERENCE EROSION AND SEDIMENTATION PROGRAMS FOR TEMPORARY CONTROL.
4. TEMPORARY HAYBALES AND SANDBAGS ALONG AND AT THE END OF ROADWAYS MAY BE REMOVED AFTER FINAL SOIL STABILIZATION HAS BEEN ACHIEVED AND APPROVED.
5. HAYBALES LOCATED AT DRAINAGE OUTLETS MUST REMAIN UNTIL SUCH TIME THAT A DESIRABLE STAND OF GRASS OR GROUND COVER HAS BEEN ESTABLISHED AND THE PROJECT RECEIVES A FAVORABLE APPROVAL FOR FINAL ACCEPTANCE FROM THE ENGINEER.
6. ONLY THOSE AREAS SHOWN ON THE ATTACHED SITE PLAN, THE LIMITS OF WHICH ARE DESIGNATED BY THE EXTENT OF THE PROPOSED CONTOURS, ARE SUBJECT TO THE EROSION CONTROL MEASURES SPECIFIED ABOVE.

RIP RAP INSTALLATION AND MAINTENANCE REQUIREMENTS

1. THE SUBGRADE FOR THE RIPRAP SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY APPROXIMATING THAT OF THE SURROUNDING UNDISTURBED MATERIAL, BRUSH, TREES, STUMPS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED.
2. PLACEMENT OF RIPRAP SHALL FOLLOW IMMEDIATELY AFTER ESTABLISHING THE SUBGRADE. THE RIPRAP SHALL BE PLACED SO THAT IT PRODUCES A WELL GRADED MASS OF STONE WITH A MINIMUM OF VOIDS. THE DESIRED DISTRIBUTION OF STONES THROUGHOUT THE MASS MAY BE OBTAINED BY SELECTIVE LOADING AT THE QUARRY, CONTROLLED DUMPING OF SUCCESSIVE LOADS DURING FINAL PLACING, OR BY A COMBINATION OF THESE METHODS. THE RIPRAP SHALL BE PLACED TO ITS FULL THICKNESS IN ONE OPERATION AND NOT IN LAYERS. THE RIPRAP SHALL NOT BE PLACED BY DUMPING INTO CHUTES OR SIMILAR METHODS WHICH ARE LIKELY TO CAUSE SEGREGATION OF THE VARIOUS STONE SIZES. CARE SHALL BE TAKEN NOT TO DISLODGE THE UNDERLYING MATERIAL WHEN PLACING THE STONES.
3. THE FINISH SLOPE SHALL BE FREE OF POCKETS OF SMALL STONE OR CLUSTERS OF LARGE STONES AND THE FINAL FACE OF THE RIPRAP SURFACE MUST BE SET AT THE SPECIFIED GRADE OF REPOSE. HAND PLACING MAY BE NECESSARY TO ACHIEVE THE REQUIRED GRADES AND A GOOD DISTRIBUTION OF STONE SIZES. THE FINAL THICKNESS OF THE RIPRAP BLANKET SHALL BE WITHIN PLUS OR MINUS 1/4 OF THE SPECIFIED THICKNESS.
4. ONCE THE RIPRAP INSTALLATION HAS BEEN COMPLETED THE FINAL PRODUCT SHALL BE INSPECTED MONTHLY FOR A PERIOD OF SIX (6) MONTHS FOLLOWING PLACEMENT. IF REPAIRS ARE NEEDED THEY SHALL BE ACCOMPLISHED IMMEDIATELY FOLLOWING SAID INSPECTION.

GENERAL NOTES

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ANY AND ALL PERMITS REQUIRED BY THE STATE OF RHODE ISLAND AND THE MUNICIPALITY PRIOR TO COMMENCING OF ANY WORK.
2. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITIES, STRUCTURES, AND ADJUTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE BY THE CONTRACTOR.
3. BEFORE STARTING ANY CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE INSTALLATION OF ANY HYDRANTS, BLOWOFF ASSEMBLIES, WATER MAINS, FITTINGS AND VALVES WITH THE LOCAL WATER DEPARTMENT AS TO TYPE AND MANUFACTURER.
4. ALL WATER MAINS SHALL BE CLASS 52 DUCTILE IRON, DOUBLE CEMENT MORTAR LINED, PUSH ON STYLE JOINTS.
5. FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT CLASS 350 CEMENT MORTAR LINED COMPACT STYLE AMERICAN MANUFACTURED ONLY.
6. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE MUNICIPAL ENGINEERING DEPARTMENT AND ALL UTILITY INSTALLATIONS AND INSPECTIONS WITH THE APPROPRIATE UTILITY CO. A 24 HOUR ADVANCE NOTICE IS REQUIRED BEFORE WORK COMMENCEMENT.
7. ALL WORK PERFORMED HEREIN SHALL BE GOVERNED BY THE "R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (REVISION OF 2004)" WITH ALL CORRECTIONS AND ADDENDA AND THE 1998 R.I. STANDARD DETAILS WITH ALL CORRECTIONS AND ADDENDA.
8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR QUANTITY TAKE OFF IN COMPUTING AND ESTIMATES.
9. EMBANKMENT SLOPES AND ALL DISTURBED AREAS ARE TO RECEIVE 4" OF TOPSOIL AND SEED. SEE EROSION CONTROL PROGRAM DETAILS.
10. UNLESS OTHERWISE SPECIFIED, ALL STORM DRAINS SHALL BE REINFORCED CONCRETE CLASS IV PIPE.
11. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION INDICATED ON THESE PLANS. THAT IS ANY CONSTRUCTION TO BRING UTILITIES TO THE SITE, ANY REPAIRS, ANY TRENCHING REQUIRED, HYDRANTS, FIRE ALARMS, ANY AND ALL CONSTRUCTION FOR ACCEPTANCE OF ROADS AND EASEMENTS.
12. ALL SEWER MAINS SHALL BE P.V.C. PIPE, SIZES AND SLOPES TO BE SHOWN ON PLANS AND PROFILES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY, SEDIMENTATION AND SOIL EROSION CONTROL MEASURES.
14. THE LOCATION OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE AND SHOULD BE VERIFIED BY THE CONTRACTOR WITH THE APPROPRIATE UTILITY COMPANIES.
15. IN ALL EXCAVATION AND PLACEMENT OF FILL THE CONTRACTOR SHALL PERFORM THE WORK IN FULL COMPLIANCE WITH THE R.I. STANDARD SPECIFICATION SECTION 202.
16. FLARED END SECTIONS ARE TO BE R.I. STANDARD 2.3.0 WITH A R.I. STANDARD 2.12 CLASS C RIP RAP END SECTION (UNLESS OTHERWISE NOTED).
17. CATCH BASINS ARE TO BE R.I. STANDARD 4.4.0 TYPE "D" GRATE, 6" DIAMETER WITH 3' SUMPS.
18. DRAIN MANHOLES ARE TO BE R.I. STANDARD 4.2.0 WITH A R.I. STANDARD 6.2.1 HEAVY DUTY FRAME AND COVER.
19. BRICK AND BLOCK MANHOLES AND CATCH BASINS MAY BE USED IN LIEU OF THE ABOVE MENTIONED STRUCTURES WITH PRIOR APPROVAL OF THE ENGINEER.
20. PIPE BEDDING SHALL CONFORM TO R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 701. CLASS B BEDDING WILL BE USED FOR ALL STORM DRAINS AND CLASS C BEDDING WILL BE USED FOR ALL SANITARY SEWERS UNLESS OTHERWISE SPECIFIED ON THE PLANS.
21. ALL WATER MAINS ARE TO BE INSTALLED WITH A MINIMUM RADIUS OF 300 FEET AT ANY LOCATION WHERE THIS IS NOT POSSIBLE, PROPER FITTINGS AND THRUST BLOCKS SHALL BE USED.
22. THE PROPOSED WATER DISTRIBUTION SYSTEM SHALL CONFORM TO THE LOCAL WATER AUTHORITY'S REQUIREMENTS FOR SERVICE AND MAIN INSTALLATION.



- Notes: A - 1-1/2" MEDIUM TEXTURE TYPE 1-1 RI SPEC. M.03.01 BITUMINOUS CONCRETE
 B - 2-1/2" MODIFIED BINDER RI SPEC M.03.01 BITUMINOUS CONCRETE
 C - 2" CRUSHED GRAVEL BASE COURSE SURFACE
 D - 14" GRAVEL BORROW BASE COURSE

EROSION CONTROL SHEET FOR HILLSDALE ROAD ROAD IMPROVEMENTS SITUATED IN THE TOWN OF RICHMOND, RHODE ISLAND PREPARED FOR TOWN OF RICHMOND

NO.	REVISION	DATE
1.	RIDEM COMMENTS	6/11/10

WILLIAM D. DOWDELL
 No. 4217
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JOB NO. 2644	DRAWN BY: R.L.C.
DWG. NO. 2644-DET.	CHECKED: W.D.D.
SCALE: NONE	APPROVED: W.D.D.
DATE: MARCH 30, 2010	
SHEET: 2	
2 OF 2 SHEETS	