SOIL EROSION & SEDIMENT CONTROL NARRATIVE

TO MINIMIZE SOIL EROSION AND SEDIMENTATION ATTRIBUTED TO DISTURBED SOILS AND INCREASED RUNOFF, THE CONTRACTOR WILL CONSTRUCT, IMPLEMENT AND MAINTAIN THE FOLLOWING SOIL EROSION AND SEDIMENT CONTROL MEASURES. THESE MEASURES WILL BE SUBMITTED IN THE FORM OF SOIL EROSION AND SEDIMENT CONTROL PLAN FOR CERTIFICATION BY THE HUDSON-ESSEX-PASSAIC SOIL CONSERVATION DISTRICT

PRIOR TO CONSTRUCTION, THE FOLLOWING GENERAL REQUIREMENTS SHALL BE MET:

1. ALL SOIL EROSION AND SEDIMENT CONTROL PROCEDURES SHALL BE IN ACCORDANCE WITH THE "STANDARD FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY", ADOPTED BY THE NEW JERSEY SOIL CONSERVATION COMMITTEE IN SEPTEMBER 1974
2. THE DISTRICT OFFICE SHALL BE NOTIFIED IN WRITING AT LEAST 48 HOURS IN ADVANCE OF ANY LAND DISTURBANCE
3. THE DISTRICT OFFICE SHALL BE NOTIFIED IN WRITING WITHIN 14 DAYS IMMEDIATELY FOLLOWING PROJECT COMPLETION.
4. THE NEWARK ENGINEERING DEPARTMENT SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF ANY LAND DISTURBANCE

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

STRUCTURAL MEASURES

1. STABILIZED CONSTRUCTION ENTRANCE: THE CONTRACTOR SHALL CONSTRUCT A TEMPORARY STONE APRON AT THE DESIGNATED ENTRANCEWAYS TO THE SITE TO LIMIT MUD TRACKING ONTO AREA ROADWAYS. IT SHALL CONSIST OF ASTM C-33, SIZE 2-1/2" CRUSHED STONE SURFACE 30' WIDE x 50' LONG x 6" DEEP
2. SILT FENCE: A SILT FENCE SHALL BE CONSTRUCTED AT LOCATIONS SHOWN ON THE ENGINEERING PLAN. INSTALLATION WILL BE AS FOLLOWS.
   A. INSTALL FENCE POSTS 8' O.C. ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE
   B. DIG A 6" TRENCH ALONG THE UPHILL SIDE OF THE FENCE LINE
   C. LAY OUT SILT FENCE FABRIC ALONG POST LINE.
   D. WRAP FABRIC AROUND THE FIRST POST AND BE SECURELY WITH CORD.
   E. TAKE FABRIC TO THE NEXT POST AND MAKE A 1-1/2" SLIT IN THE NEW DIRECTLY ABOVE THE CORD. PULL THE CORD OUT OF THE SLIT. PULL TAUT FROM THE PRECEDING POST AND WRAP TWICE AROUND THE POST.
   F. REPEAT ABOVE STEP UNTIL LAST POST IS REACHED, WRAP FABRIC AROUND THE POST AND SECURE WITH THE CORD.
   G. DRAPE THE LOWER 6" OF FABRIC IN THE TRENCH, CURLED UP-HILL.
   H. BACK FILL TRENCH.
3. LOW POINT INLET SEDIMENT FILTER: THE CONTRACTOR SHALL CONSTRUCT LOW POINT INLET SEDIMENT FILTERS AT THOSE LOCATIONS WHERE SPECIFIED ON DRAWINGS TO PREVENT THE TRANSPORT OF SEDIMENT INTO THE STORMWATER MANAGEMENT SYSTEM.

   THE INLET SEDIMENT FILTER SHALL CONSIST OF:

   A. HARDWARE CLOTH OF COMPARABLE WIRE MESH WITH 1/2" OPENINGS SHALL BE PLACED OVER THE CURB INLET OPENING SO THAT AT LEAST 12" OF WIRE EXTENDS ACROSS THE INLET COVER AND AT LEASE 12" OF WIRE EXTENDS ACROSS THE CONCRETE GUTTER FROM THE INLET OPENING
   B. STONE SHALL BE PILED AGAINST THE WIRE SO AS TO ANCHOR IT AGAINST THE GUTTER AND INLET COVER AND TO COVER THE INLET PENING COMPLETELY. TWO TO THREE INCHES OF COURSE AGGREGATE SHALL BE USED.
   C. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE INLET, CLEANED AND REPLACED

NON-STRUCTURAL MEASURES

1. SITE PREPARATION. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING MULCH APPLICATION AND MULCH ANCHORING.
2. STRUCTURAL AND CONSTRUCTION FILL: IN ALL AREAS WHERE STRUCTURAL OR CONSTRUCTION FILL IS TO BE PLACED, "GRUBBING" SHALL BE CARRIED OUT PRIOR TO PLACING ANY FILL. ALL TREES, BRUSH AND OTHER VEGETATION WITHIN THE CONSTUCTION FILL AREAS SHALL BE REMOVED.
3. PERMANENT STABILIZATION WITH SOD: SOD WILL BE USED TO STABILIZE SLOPES TO THE STORMWATER DRAINAGE SYSTEM.
   A. METHODS AND MATERIALS
      1. CULTIVATED SOD IS PREFERRED OVER NATIVE OF PASTURE SOD. SPECIFY "CERTIFIED SOD", OR OTHER HIGH QUALITY CULTIVATED SOD
      2. SOD SHOULD BE FREE OF WEEDS AND UNDESIRABLE COARSE WEEDY GRASSES.
      3. SOD SHOULD BE OF UNIFORM THICKNESS, APPROXIMATELY 5/8", PLUS OR MINUS 1/4" AT TIME OF CUTTING
      4. SOD SHOULD BE VIGOROUS AND DENSE AND BE ABLE TO RETAIN ITS OWN SHAPE AND WEIGHT WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP FROM THE UPPER 10% OF THE STRIP. BROKEN PADS OR TORN AND UNEVEN ENDS WILL NOT BE ACCEPTABLE.
      5. ONLY MOIST, FRESH UNHEATED SOD SHOULD BE USED. SOD SHOULD BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS
   B. SOIL PREPARATION
      1. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET USING 10-20-10 OR EQUIVALENT IN ADDITION, 300 POUNDS 38-0-0 PER ACRE OR EQUIVALENT OF SLOW RELEASE NITROGEN SHALL BE USED IN LIEU OF TOPDRESSING. APPLY LIMESTONE (EQUIVALENT OF 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDES) AS FOLLOWS

SOIL TEXTURE	T/AC.	LBS./1000 SF
CLAY, AND LAY LOAM AND HIGH ORGANIC SOIL	4	180
SANDY LOAM, LOAM, SILT LOAM	3	135
LOAMY SAND, SAND	2	90

      PULVERIZED DOLOMITIC LIMESTONE IS PREFERRED FOR MOST SOILS SOUTH OF THE NEW BRUNSWICK-TRENTON LINE.
      2. WORK LIME AND FERTILIZER INTO THE 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
      3. REMOVE FROM THE SURFACE ALL OBJECTS THAT WOULD PREVENT GOOD SOD TO SOIL CONTACT AND REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL
      4. INSPECT SITE JUST BEFORE SODDING IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED AS ABOVE.
   C. SOD PLACEMENT
      1. SOD STRIPS SHOULD BE LAID ON THE CONTOUR, NEVER UP AND DOWN THE SLOPE, STARTING AT THE BOTTOM OF THE SLOPE AND WORKING UP. ON STEEP SLOPES, THE USE OF LADDERS WILL FACILITATE THE WORK AND PREVENT DAMAGE TO THE SOD DURING PERIODS OF HIGH TEMPERATURE, LIGHTLY IRRIGATE THE SOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
      2. PLACE SOD STRIPS WITH SNUG EVEN JOINTS THAT ARE STAGGERED OPEN SPACES INVITE EROSION.
      3. ROLL OR TAMP SOD IMMEDIATELY FOLLOWING PLACEMENT TO INSURE SOLID CONTACT OF ROOT MAT AND SOIL SURFACE. DO NOT OVERLAP SOD. ALL JOINTS SHOULD BUTTED TIGHTLY IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS
      4. ON SLOPES GREATER THAN 3 TO 1, SECURE SOD TO SURFACE SOIL WITH WOOD PEGS, WIRE STAPLES, OR SPLIT SHINGLES (8 TO 10 INCHES LONG BY 3/4 INCH WIDE)
      5. SURFACE WATER CANNOT ALWAYS BE DIVERTED FROM FLOWING OVER THE FACE OF THE SLOPE, BUT A CAPPING STRIP OF HEAVY JUTE OR PLASTIC NETTING, PROPERLY SECURED, ALONG THE CROWN OF THE SLOPE AND EDGES WILL PROVIDE EXTRA PROTECTION AGAINST LIFTING AND UNDERCUTTING OF SOD. THE SAME TECHNIQUE CAN BE USED TO ANCHOR SOD IN WATER-CARRYING CHANNELS AND OTHER CRITICAL AREAS. WIRE STAPLES MUST BE USED TO ANCHOR NETTING IN CHANNEL WORK.
      5. IMMEDIATELY FOLLOWING INSTALLATION, SOD SHOULD BE WATERED UNTIL MOISTURE PENETRATES THE SOIL LAYER BENEATH SOD TO A DEPTH OF 4 INCHES. MAINTAIN OPTIMUM MOISTURE FOR AT LEAST TWO WEEKS.
   D. TOPDRESSING - IF SLOW RELEASE NITROGEN (300 POUNDS 38-0-0 PER ACRE OR EQUIVALENT) IS USED IN ADDITION TO SUGGESTED FERTILIZER, THEN A FOLLOW-UP OF TOPDRESSING IS NOT MANDATORY.
      1. SPRING INSTALLATION OF SOD WILL REQUIRE AN APPLICATION OF FERTILIZER SUCH AS 10-20-10 OR EQUIVALENT AT 400 POUNDS PER ACRE OR 10 POUNDS PER 1,000 SQUARE FEET BETWEEN SEPTEMBER 1 AND OCTOBER 15.
      2. FALL INSTALLATION OF SOD WILL REQUIRE THE ABOVE BETWEEN MARCH 15 AND MAY 1
4. TEMPORARY VEGETATION COVER: PRIOR TO HALTING CONSTRUCTION FOR PERIODS LONGER THAN 30 DAYS AND DURING OFF-SEASON, THE CONTRACTOR SHALL STABILIZE WITH TEMPORARY VEGETATIVE COVER ALL EXPOSED SOILS. TEMPORARY VEGETATIVE COVER SHALL BE ACCOMPLISHED BY THE FOLLOWING METHODS AND MATERIALS:
   A. SEEDBED PREPARATION - IMMEDIATELY FOLLOWING TOPSOILING, THE CONTRACTOR SHALL APPLY PULVERIZED DOLOMITIC LIMESTONE AT THE RATE OF 90 POUNDS PER 1,000 SQUARE FEET AND FERTILIZER SHALL THEN BE "WORKED" INTO THE SOIL TO A DEPTH OF 4" WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT.
   B. SEEDING - SEED SHALL CONSIST OF ANNUAL RYEGRASS APPLIED AT THE RATE OF 1 POUND PER 1,00 SQUARE FEET
   C. MULCHING - THE CONTRACTOR SHALL MULCH ALL NEWLY SEEDED AREAS WITH SALT HAY, AT THE RATE OF 70 POUNDS PER 1,000 SQUARE FEET. IT SHALL BE ANCHORED THROUGH THE USE OF THE PEG AND TWINE METHOD. THE PEG AND TWINE METHOD OF MULCH ANCHORING SHALL CONSIST OF DRIVING 8-10" WOODEN PEGS TO WITHIN 2-3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS-CROSS AND SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE TURNS
   D. SEEDING DATE - OPTIMUM SEEDING DATES FOR TEMPORARY VEGETATION COVER SHALL OCCUR BEFORE MAY 15 OR BETWEEN AUGUST 15 AND NOVEMBER 1. IF SEED IS NOT PLANTED WITHIN THESE DATES, THE CONTRACTOR SHALL STABILIZE WITH MULCH AS SPECIFIED ABOVE
5. DUST CONTROL. TO CONTROL DUST GENERATION ON-SITE, THE CONTRACTOR SHALL WET CONSTRUCTION TRAFFIC ROUTES AND STAGING AREAS

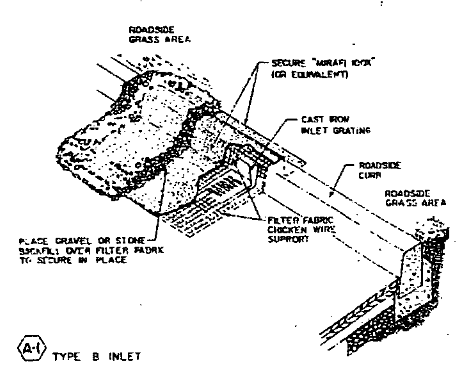
GENERAL

1. EXISTING VEGETATION COVER BEYOND THE LIMITS OF CONSTRUCTION SHALL BE RETAINED UNTIL FINAL STABILIZATION IS COMPLETE.
2. THE CONTRACTOR SHALL SCHEDULE AND CONDUCT HIS OPERATIONS TO MINIMIZE EROSION OF SOILS AND TO PREVENT SILTING AND MUDDYING OF STREAMS, RIVERS, IRRIGATION SYSTEMS AND IMPOUNDMENTS (LAKES, RESERVOIRS, ETC.) CONSTRUCTION OF DRAINAGE FACILITIES AND PERFORMANCE OF THEIR CONTRACT WORK WILL CONTRIBUTE TO THE CONTROL OF EROSION AND SEDIMENTATION SHALL BE CARRIED OUT IN CONJUCTION WITH EARTHWORK OPERATIONS OR AS SOON THEREAFTER AS PRACTICABLE. THE AREA OF BARE SOIL EXPOSED AT ANY ONE TIME BY CONSTRUCTION OPERATION SHALL BE KEPT TO A MINIMUM
3. PRIOR TO SUSPENSION OF CONSTRUCTION OPERATIONS FOR A PERIOD OF 30 DAYS OR MORE ANY AREA THAT HAS BEEN DISTURBED AND LEFT EXPOSED SHALL RECEIVE TEMPORARY STABILIZATION.
4. WHEN BORROW MATERIAL IS OBTAINED FROM OTHER THAN COMMERCIALLY OPERATED SOURCES, EROSION OF THE BORROW SITE SHALL BE SO CONTROLLED BOTH DURING AND AFTER COMPLETION OF THE WORK THAT THE EROSION SHALL BE MINIMIZED AND SEDIMENT SHALL NOT ENTER STREAMS OR OTHER BODIES OF WATER. WASTE OR DISPOSAL AREAS AND CONSTRUCTION ROADS SHALL BE LOCATED AND CONSTRUCTED IN A MANNER THAT SHALL KEEP SEDIMENT FROM ENTERING STREAMS
5. WATER FROM AGGREGATE WASHING OR OTHER OPERATIONS CONTAINING SEDIMENT SHALL BE TREATED BY FILTRATION, SETTLING BASIN OR OTHER MEANS SUFFICIENT TO REDUCE THE SEDIMENT CONTENT TO NOT MORE THAN THAT OF THE STREAM INTO WHICH IT IS DISCHARGED
6. POLLUTANTS SUCH AS FUELS, LUBRICANTS, BITUMENS, RAW SEWAGE AND OTHER HARMFUL MATERIALS SHALL NOT BE DISCHARGED INTO OR NEAR RIVERS, STREAMS AND IMPOUNDMENTS OR INTO NATURAL OR MANMADE CHANNELS LEADING THERETO.
7. ALL APPLICABLE REGULATIONS OF FISH AND WILDLIFE AGENCIES AND STATUES RELATING TO THE PREVENTION AND ABATEMENT OF POLLUTION SHALL BE COMPLIED WITH IN THE PERFORMANCE OF THE CONTRACT
8. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORMWATER RUN-OFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.
9. ALL SEDIMENTATION STRUCTURES WILL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS. SEDIMENTATION BASINS WILL BE CLEANED WHEN THE CAPACITY HAS BEEN REDUCED BY 50%.
10. MAXIMUM SIDE SLOPES OF ALL EXPOSED SURFACES SHALL NOT EXCEED 3:1 UNLESS OTHERWISE APPROVED BY THE DISTRICT
11. PAVED ROADWAYS MUST BE KEPT CLEANED AT ALL TIMES
12. ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA. THE SEDIMENT FILTER SHOULD BE COMPOSED OF A SUITABLE SEDIMENT FILTER FABRIC

MAINTENANCE

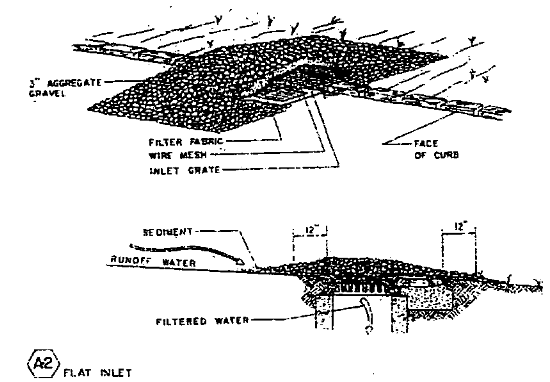
1. MAINTENANCE SHALL OCCUR ON REGULAR BASIS CONSISTENT WITH FAVORABLE PLANT GROWTH, SOIL AND CLIMATIC CONDITIONS
2. WHEN IT BECOMES NECESSARY, THE OWNER SHALL INFORM THE CONTRACTOR OF UNSATISFACTORY CONDITIONS OF EROSION AND SEDIMENT DEVICES. AT SUCH TIME THE CONTRACTOR SHALL IMPROVE THE CONDITIONS OF SAID DEVICES TO MEET WITH APPROVAL OF THE OWNER.
3. SHOULD UNFORSEEN EROSIVE CONDITIONS DEVELOP DURING CONSTRUCTION THE CONTRACTOR SHALL TAKE ACTION TO REMEDY SUCH CONDITIONS AND TO PREVENT DAMAGE TO ADJACENT PROPERTIES AS A RESULT OF INCREASED RUNOFF AND/OR SEDIMENT DISPLACEMENT
4. SEEDED AREAS THAT HAVE BEEN WASHED AWAY SHALL BE FILLED AND GRADED AS NECESSARY AND THEN RESEEDED. THIS PROCEDURE SHALL BE REPEATED AFTER EACH STORM OR UNTIL NO MORE SIGNS OF EROSION ARE EVIDENT.
5. CONTROL MEASURES SHALL APPLY TO SUBSEQUENT OWNERS IF TITLE IS CONVEYED.

NOTE
CONTRACTOR IS TO CLEAN INLET FILTER AFTER EVERY STORM.



(A-1) TYPE B INLET

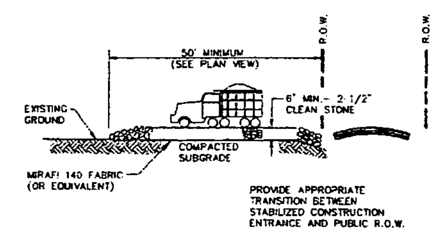
6" CURB FACE



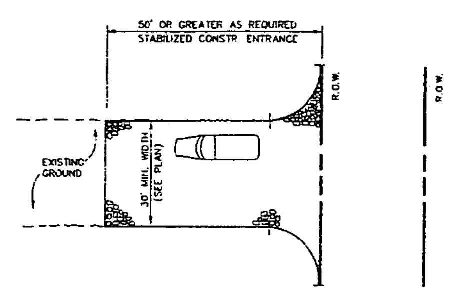
(A2) FLAT INLET

DEPRESSED CURB WEDGE PAVEMENT EDGE OR YARD INLET

GRAVEL INLET SEDIMENT FILTER
OR APPROVED PRE-FABRICATED INLET PROTECTION

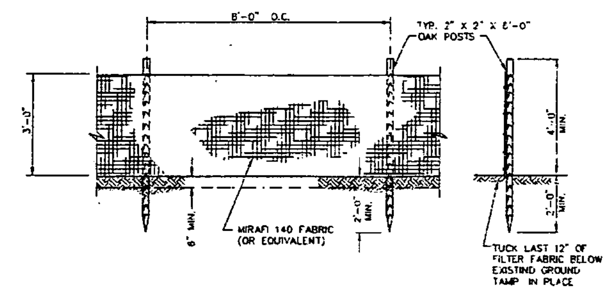


PROFILE



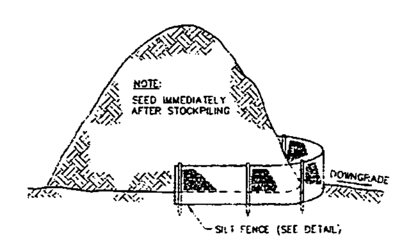
PLAN VIEW

(F) VEHICLE WHEEL-CLEANING BLANKET



(E) TEMPORARY SILTATION CONTROL FENCE

NOTE:
ALL SILT FENCE WILL BE INSPECTED AND REMEDIAL MAINTENANCE PERFORMED BY THE CONTRACTOR WITHIN 24 HOURS AFTER EACH RAIN.



(L) TYPICAL TOPSOIL STOCKPILE

SEQUENCE OF CONSTRUCTION

1. CONSTRUCT PHASE I VEHICLE WHEEL-CLEANING BLANKET
2. CONSTRUCT BERMING AND SILT FENCE AROUND PERIMETER
3. STOCKPILE AND SEED TOPSOIL FOR PHASE I.
4. BEGIN SITE CLEARING IN PHASE I.
5. BEGIN ROUGH GRADING OF PROPOSED ROADS AND BUILDING PADS.
6. STABILIZE AREAS NOT SUBJECT TO CONSTRUCTION TRAFFIC THAT WILL BE LEFT EXPOSED FOR MORE THAN 90 DAYS ON ALL PHASES.
7. BEGIN FOUNDATIONS, WATER, SANITARY AND STORM SEWER SYSTEMS, CURBING AND ROADWAY SUBBASE ON PHASE I.
8. CONSTRUCT REMAINING SEDIMENT CONTROL MEASURES AROUND INLETS, AS INLETS ARE CONSTRUCTED.
9. FINISH FINE GRADING, BUILDING CONSTRUCTION AND SODDING FOR PHASE I.
10. REMOVE SEDIMENT AROUND STONE FILTERS AND SILT FENCES IN PHASE I
11. CLEAN PHASE I OF ALL REMAINING SOIL EROSION CONTROL MEASURES AFTER STABILIZATION.
12. CONSTRUCT PHASE V VEHICLE WHEEL-CLEANING BLANKET
13. REPEAT STEPS 3 THROUGH 11 FOR REMAINING PHASES

LEGEND

- (A-1) TYPE "B" INLET
- (A-2) FLAT INLET
- (E) TEMPORARY SILTATION CONTROL FENCE
- (F) VEHICLE WHEEL-CLEANING BLANKET
- (L) TYPICAL TOPSOIL STOCKPILE

THE CONTRACTOR IS RESPONSIBLE TO IMPLEMENT AND MAINTAIN ALL SOIL EROSION PROCEDURES, PER DETAILS AND SPECIFICATIONS, FOR THE DURATION OF THE PROJECT.

THE CONTRACTOR IS TO INSTALL SEDIMENT FABRIC PRIOR TO ANY LAND DISTURBANCE.

THIS PLAN TO BE USED FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY.

KHOV045940

DESIGNED P.A.C.	REVISED	SOIL EROSION AND SEDIMENT CONTROL DETAILS
APPROVED R.A.M. / CHECKED P.A.C.	NO / DATE	SOCIETY HILL @ UNIVERSITY HEIGHTS III SITE "C" & "E" CITY OF NEWARK ESSEX COUNTY, NEW JERSEY
JOHN S. HUNT		Najarian Associates, L.P. Civil, Hydraulic, Environmental Engineers Planners & Surveyors One Industrial Way West Eatontown, N.J 07724
N.J. PROFESSIONAL ENGINEER NO.24822	DRAWN BY AutoCAD	SCALE NONE / DATE 6-12-92 / DRAWING NO. 3328-852 / SHEET NO. 9 of 16

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