

Crook Point Resort  
Pistol River  
Oregon

June 3, 2010

## EROSION PREVENTION AND SEDIMENT CONTROL PLAN

(Section 3300)

### 1. General:

This is a preliminary plan outlining the work and activities involved in preventing any erosion and sediment entering into the creek, wetlands or on to beaches.

A comprehensive list of available Best Management Practices (BMP) options based on DEQ's 1200C Permit Application and ESCP Guidance Document has been reviewed to complete this Erosion and Sediment Control Plan. Some of the above-listed BMP's were not chosen because they were determined to not effectively manage erosion prevention and sediment control for this project based on specific site conditions, including soil conditions, topographic constraints, accessibility to the site, and other related conditions.

A full detailed NPDES C1200 plan and a Stormwater Control Plan will be prepared and submitted to DEQ prior to the commencement of any land disturbing activities.

An Erosion Prevention and Sediment Control Plan will be prepared and submitted to Curry County prior to commencement of any land disturbing activities (grading).

### 3. Site:

The site is vegetated with heavy timber grasses and brush. On the West side is the Ocean, to the East is TH 101 and Hillsides. The site has several small creeks meandering through it to the Ocean. These creeks have steep sides. The Golf Course is situated on a plateau about 180' above the Ocean with steep slopes to the Ocean. The land to be used for the course slopes 3-5% to West to the top of the bluff, above the Ocean. Three small par 3-holes will be located below the bluff about 100' above the Ocean.

All the Fairways slope to the West (downhill side).

At this time there is not a grading or drainage plan developed, only "routing" and preliminary layout of Fairways and Greens. No elevation on any of the Fairways or any other features have been established at this time.

### 3. Area Disturbed and Soil Erosion Potential:

Approximately 75 acres of land will be disturbed by clearing, excavation, and/o grading activities. Principal areas of disturbance due to earth removal and re-shaping activities are the 18-hole golf course, main roads, parking lots, lodges, cabins, club-house and maintenance shop.

Fill material used during construction will consist primarily of on-site soil which is very sandy, typically a thin layer of surface over burden, and imported gravel which will be used for road base and building site construction.

Soils are generally sand with thin layers of humus material. In addition, there are numerous incidence of impermeable materials which restrict percolation of surface run-off into the ground water table. A variety of plant material is found on-site ranging from beach grass and other herbaceous plants, native ground covers and shrubs such as Kinnickinnick, Huckleberry, Salal and Rhododendrons, to stands of Spruce, natural Shore Pine and Port Orford Cedar.

Generally permeability is high with only a few instances of localized impoundment except for major wetland features. Run-off is slow and the hazard of water erosion is slight except where moderate to steep slope conditions are disturbed. Then erosion can become a concern. However, in response to these site conditions, building sites were selected which are flat or which have gentle slopes.

### 4. Climate Conditions which may affect Erosion Potential:

On-site climate conditions are temperate-marine with mild wet winters and cool dry summers. The average temperature is 51 degrees F with the highest month's average 58 degrees F in July and August and the lowest month's average of 45 degrees F in January. Winds are moderately strong and predominately out of the Northwest during the summer months and the Southwest during the winter months. Winds of 10 to 15 miles per hour are common with stronger winds from out of the Southwest during the winter season.

## 5. EROSION & SEDIMENT CONTROL

### General Vegetative Practices:

Where soils will be disturbed due to grading or other construction requirements, bare ground will be re-vegetated as quickly as possible with native grasses and/or ground covers. Where time is limited to establish native plant material, a cover crop of perennial rye may be sown, perhaps with a mixture of native wildflower and other native plant seed. This will produce an immediate cover crop for erosion stabilization. On-going germination would then produce a natural succession of scrubby native plant material over several growing seasons. Geo-tex, mesh and other erosion retarding materials will be used, where required, to protect fragile areas during and after construction.

## 6. General Methods to Control Potential Wind and Water Erosion:

Wind erosion can be minimized by keeping soil surfaces wet to prevent wind blown sand at construction sites. If there is no practical way to irrigate the disturbed areas, mulching with straw blankets or covering surfaces with jute mesh which will protect exposed sand surfaces.

Under natural conditions there is minimal erosion on-site due to water. Soil testing on the site showed infiltration rates of the soils are greater than rainfall rates. When soils are disturbed, soil compaction and contamination of the surface with organic material can greatly reduce infiltration rates and prevent sheet run-off. In disturbed areas, drainage channels should be kept short, less than 25 feet, and directed to areas with natural vegetation. At the point of surface run-off discharge, low walls of hay or straw bales can be used to trap sediment and prevent gully erosion.

Areas of compaction should be ripped and covered with mulch where necessary prior to construction to establish a native vegetation. Road ditches should be kept as short as possible before they enter a culvert. This will prevent a build-up of water volume and reduce erosion potential. Outfalls of culverts should be on gentle sloped natural terrain. Placement of large rocks at the culvert outfall and along ditches where grade lines are steep may be necessary to dissipate the energy of the water.

Silt fences and hay bale walls may be needed at the base of large compacted fill slopes to prevent sediments from entering nearby water courses. Where ever possible, the soils should be tilled to improve infiltration rates. This will be one of the most important factors in controlling erosion at the Crook Point Resort site.

7. Sediment Transport Containment:

The site superintendent will be responsible for inspecting all trucks used to transport cut from the site to off-site disposal areas. Only one off-site disposal area will be used during construction.

8. Maintenance Procedures / Repair & Restoration:

Maintenance procedures and protocols for repair and restoration of slope failures during or after construction, failure of re-vegetation and landscaping treatments, sediment control failures such as blocked inlets to traps or inlets to outfalls to sediment basins, dams, and other improvements constructed as part of the development plan will be dealt with initially by on-site maintenance staff associated with the resort golf course facility.

9. Golf Course:

The 18-hole golf course is being built using customary erosion control practices including the application of water to control sand movement during grading operations, installation of straw blankets to control sheet erosion and loss of sand due to wind, and hydro-seeding of all fairways, greens and tee boxes to re-stabilize disturbed areas.

The golf course will be built on natural ground sloping 3-5% to the West (Ocean). The finished fairways will have a 3-5% slope to the West. All excess run-off will move westward. Therefore, silt fences will be placed mainly along the side.

Small settlement ponds will be located as needed along the West side. Straw bales will be used as barrier to slow down water movement along run-off areas. Erosion blankets will be used on slopes of new fills and disturbed unstable slopes.

10. Building Sites, Parking Lots, and Roads:

Most buildings and larger buildings will be located on fairly flat ground, except cabins.

These sites will have silt fences on downhill areas, straw bales and blankets in disturbed areas.

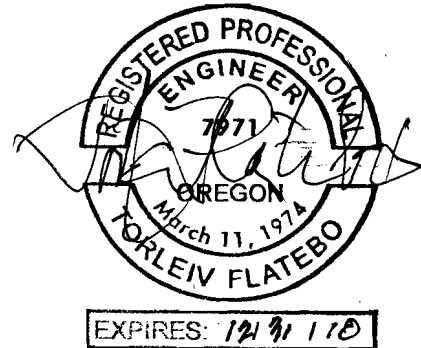
Seeding and landscaping will take place as soon as possible. Small settlement ponds might be constructed and become permanent.

11. Run-Off Permanent Treatment:

Run-off from golf course, building and improvement sites will be drained through a series of Bio-Swale before being discharged into the creeks or ocean.

12. Appendixes:

- Erosion Control Guidelines
- Details



**APPENDIX**  
**EROSION CONTROL GUIDELINES**  
**AND CONSTRUCTION DETAILS**

1. All work under this permit will require site erosion control in compliance with all provisions
2. All drawings shall serve as a guideline only; the contractor(s) shall provide erosion control methods as circumstances require to protect the site.
3. Implementation, construction, maintenance, replacement and upgrading of all erosion control measures is the responsibility of the contractor until all construction is completed and approved, and all vegetation landscaping is established.
4. Install sediment fences or hay bale walls as indicated on the drawings. Install biofilter bags across swales at approximately 25-foot centers if a determination by the site superintendent indicates they are needed.
5. The erosion control facilities indicated on the drawings shall be constructed in conjunction with all clearing and grading operations to ensure sediment-laden water does not enter the drainage system or violate applicable DEQ water quality standards.
6. Birdie Road is the designated roadway for use by construction vehicles. No other road(s) shall be used to enter or exit the site, except for construction activities associated with construction of the new interchange and access road off Highway 101. As soon as the new roadway and interchange are paved, use by construction vehicles is prohibited.
7. During the active construction period, the contractor shall upgrade and maintain all erosion control facilities as needed for unexpected storm events and to ensure that sediment-laden water does not leave the site or enter the drainage system. All erosion control facilities shall be inspected daily by the contractor.
8. During inactive periods on the site, the contractor shall inspect and maintain erosion control facilities once a month or within 24-hours following a storm event.
9. At no time shall more than one foot of sediment be allowed to accumulate within a trapped catch basin or area drain. All catch basins, area drains and

drainage lines shall be cleaned prior to paving. The cleaning operation shall not flush sediment-laden water into the natural drainage system.

10. Mulch and seed all disturbed ground not receiving hard surface at the earliest possible time.

11. Clear plastic sheeting shall be installed on areas seeded between November 1 and March 31 and will remain in place until vegetation is firmly established.

12. Sediment Fence Standards:

a) The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid use of joints. When joints are necessary, filter cloth shall be spliced together only at a support post, with a minimum 6-inch overlap, and both ends securely fastened to the post, or overlap 2" x 2" posts and attach per the drawings and details.

b) The filter fabric fence shall be installed to follow the contours where feasible. The fence posts shall be spaced a maximum of 6 feet apart and driven securely into the ground a minimum of 18 inches.

c) The filter fabric shall have a minimum vertical burial of 6 inches. All excavated material from filter fabric fence installation shall be back filled and compacted along the entire disturbed area.

d) Standard or heavy duty filter fabric fence shall have manufactured stitched loops for 2" x 2" post installation. Stitched loops shall be installed on the up hill side of the sloped area.

e) Filter fabric fences shall be removed when they have served their useful purpose, but not before the up slope area has been permanently protected and stabilized.

f) Filter fabric fences shall be inspected by the applicant/contractor immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.

13. Hay Bay Wall Standards:

a) Hay bay walls shall be constructed using new bales.

b) Bales shall be placed side-by-side with no gaps. If gaps occur due to heavy water flows, the wall shall be repaired immediately.

c) Bales which become water-logged and damaged shall be replaced with new bales immediately.

d) As soon as an area is stabilized, the walls shall be removed to a location off-site.

e) If the bales become an obstacle to landscaping operations, the wall shall be relocate to a new location or removed.

### Bioswale Design Standards

Each development shall be responsible for providing stormwater quality best management practices. Stormwater runoff from all impervious surfaces shall be directed through a treatment device. Bioswales designed to the following standards are an approved treatment device.

The design flow rate shall be calculated using:  $Q = C * I * A$

Where:

- The design rainfall rate "I" is 0.20 inches per hour.
- The runoff coefficient "C" is 0.95 for impervious surfaces and 0.30 for pervious surfaces.
- The area is in acres and is measured from the site plan.

The peak flow rate is conveyed in a bioswale with the following characteristics:

- The maximum depth for the design treatment flow rate is 4-inches deep.
- Use a Manning's Coefficient of 0.250
- Side slopes are 3:1 H: V.
- The minimum slope is 0.5 percent.

Calculate the flow velocity based on the above criteria.

The bioswale length is the flow velocity in feet per second \* 540 seconds (9 minutes).

Check the bioswale for water level during a 100-year storm event.

Two Options:

1. Provide flow capacity in bioswale.
2. Provide storm drain system that collects flows in excess of Water Quality Storm runoff rate.

For Option 1:

The 100-year flow rate shall be calculated using:  $Q = C * I * A$

Where:

- The runoff coefficient "C" is 0.95 for impervious surfaces and 0.40 for pervious surfaces.
- The area is in acres and is measured from the site plan.

The bioswale shall convey the 100-year flow event.

The Manning's Coefficient for the 100-year flow is from the attached Table:

The maximum flow velocity is 5 feet per second. If a higher velocity is calculated, split the swale into smaller segments and reduce the inflow area accordingly.

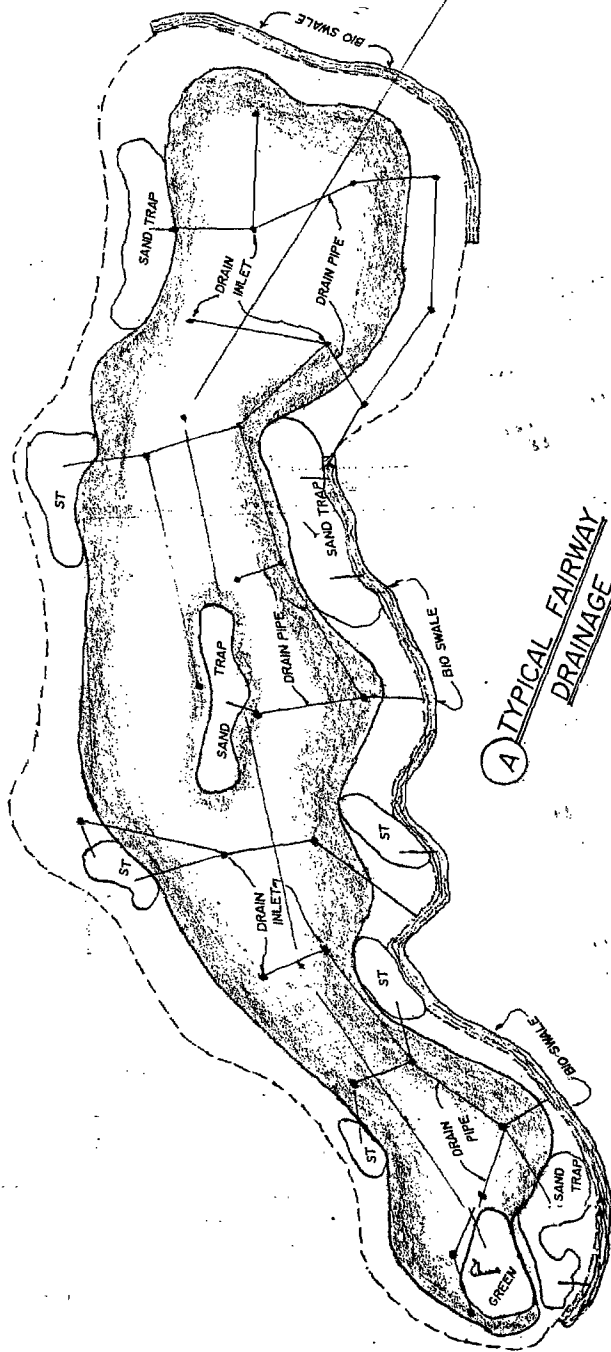
The required freeboard is  $\text{Depth of Flow} * 0.25$ .

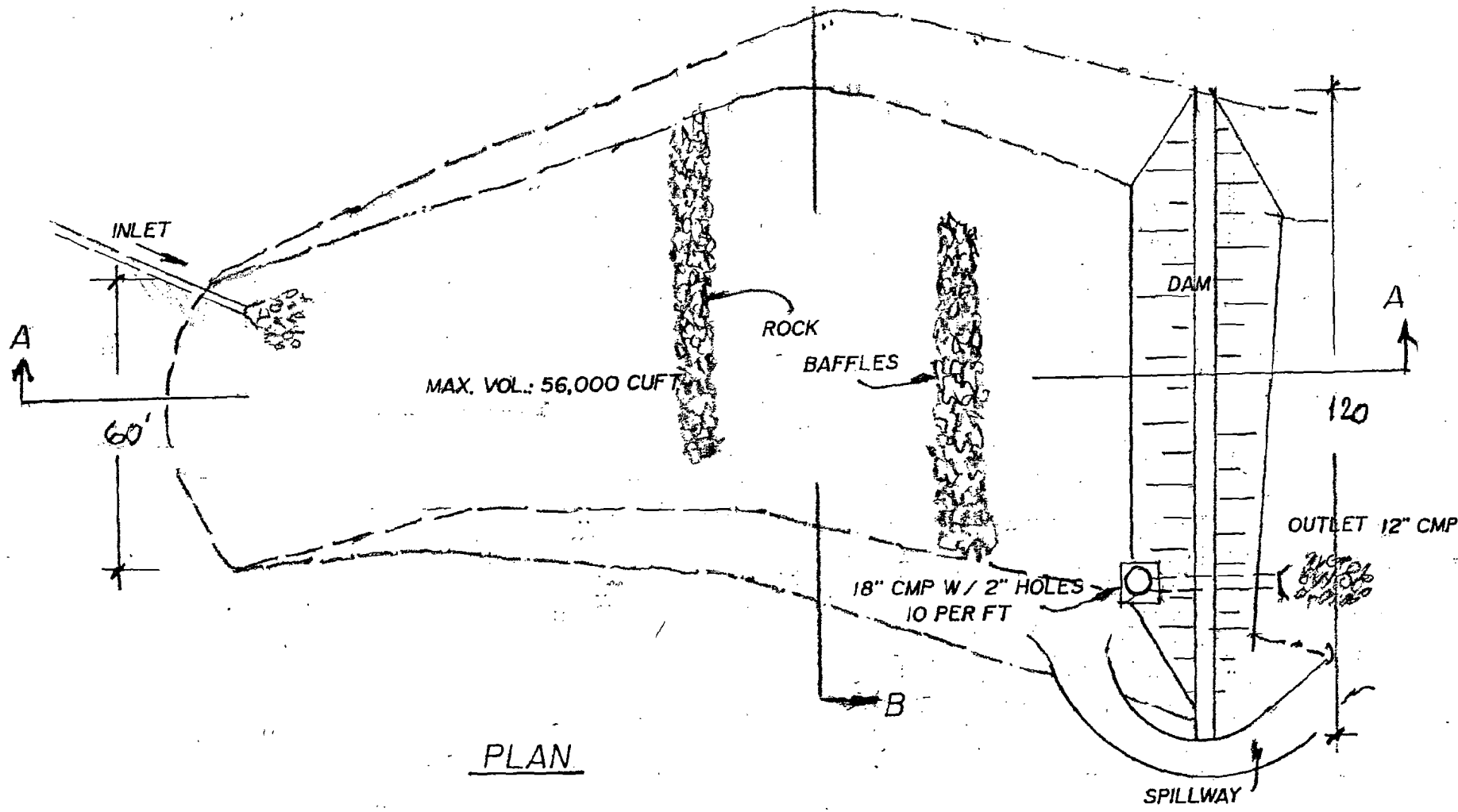
At bends, provide additional freeboard allowance is based on the superelevation equation:

$$\text{Additional freeboard (feet)} = \frac{100\text{-year Velocity (fps)}^2 * 100\text{-yr Top Width (feet)}}{\text{Gravity (32.2 ft/sec}^2) * \text{Centerline radius of curvature (feet)}}$$

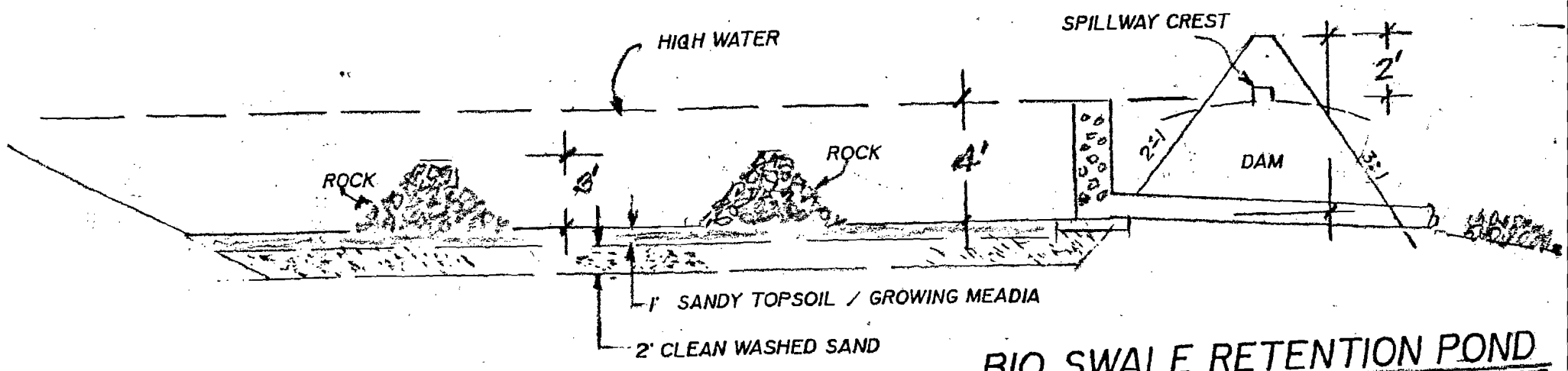
Asphalt adjacent to a bioswale shall be protected. The Geotechnical Report shall advise on an appropriate protection. Typically, a concrete cutoff wall or 5 mil impervious geofabric that extends to the bottom of the pavement section can be used.

Planting within the bioswale shall meet current Regional Water Control Board and San Mateo County standards. A seed mix shall be provided on the Improvement Plans. The seed mix shall be placed as a part of a three-step procedure that includes tackifier, straw and fertilizer.



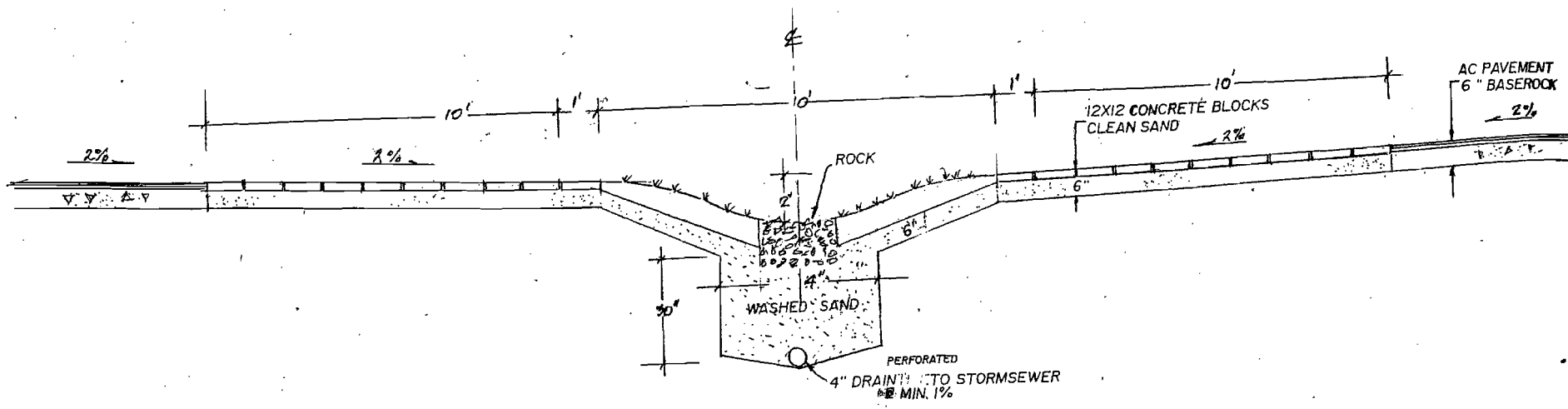


PLAN

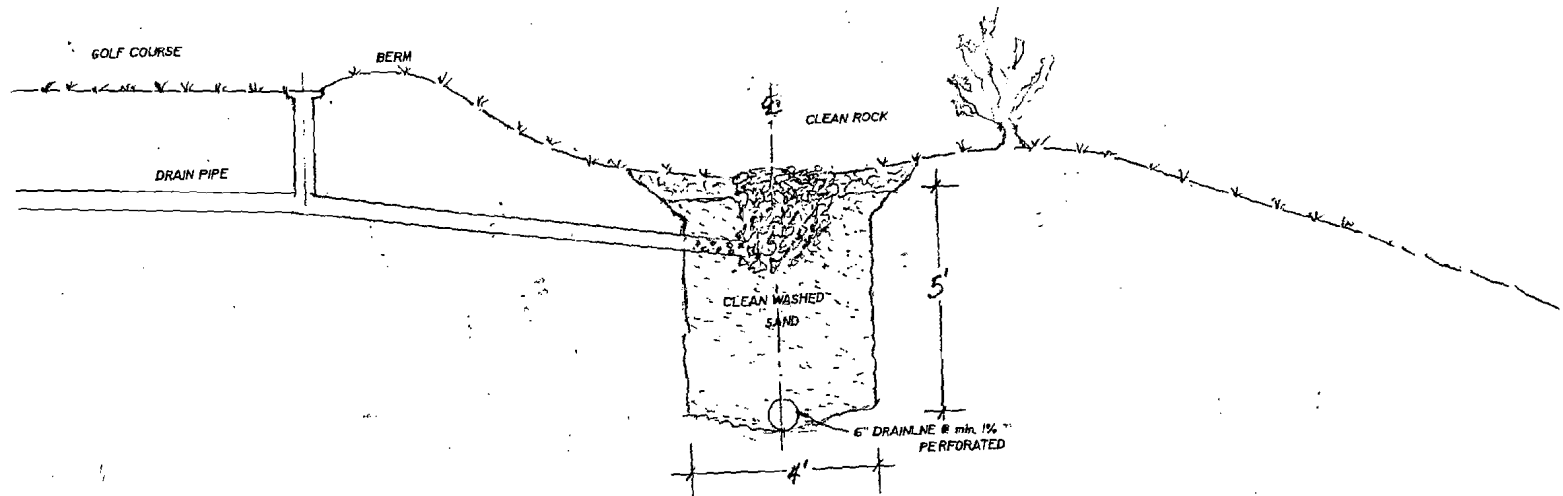


SECTION A-A

BIO SWALE RETENTION POND



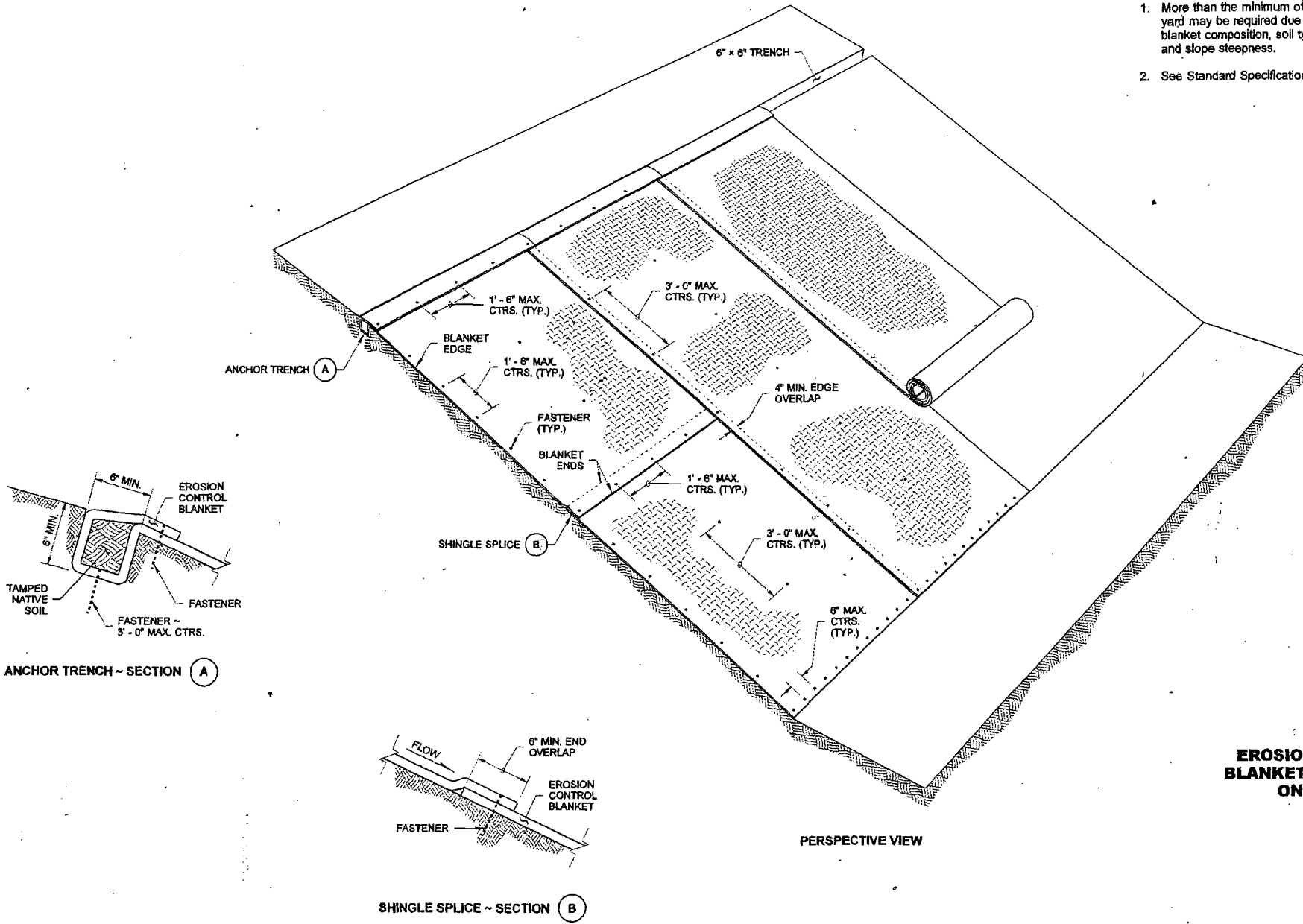
(B) MEADIAN PARKING LOT - BIO SWALE

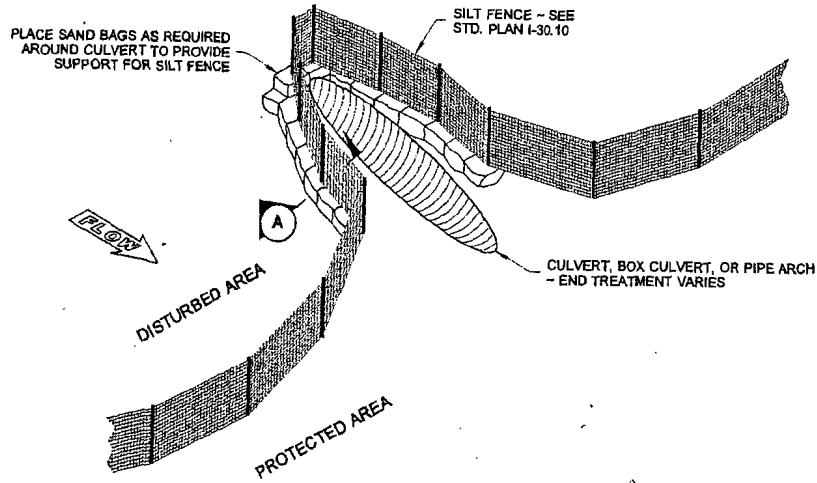


© BIO SWALE ALONG EDGE OF GOLF COURSE

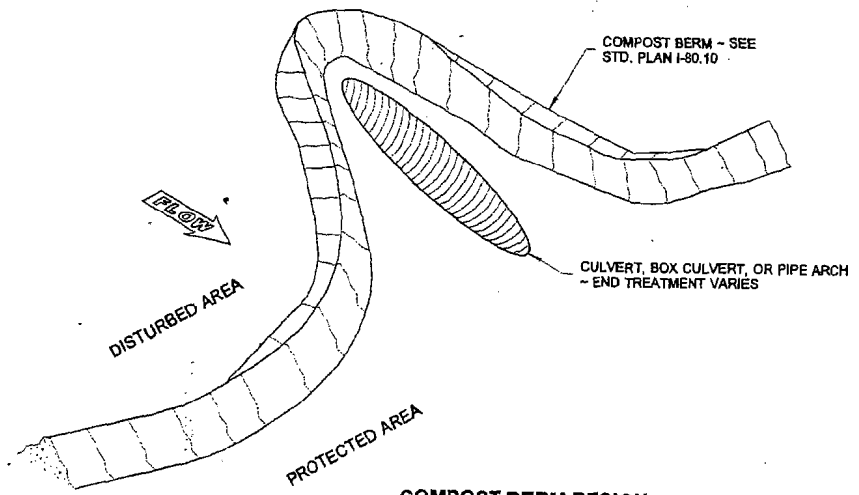
NOTES

1. More than the minimum of one fastener per square yard may be required due to conditions such as blanket composition, soil type, surface uniformity, and slope steepness.
2. See Standard Specification 8-01.3(3).

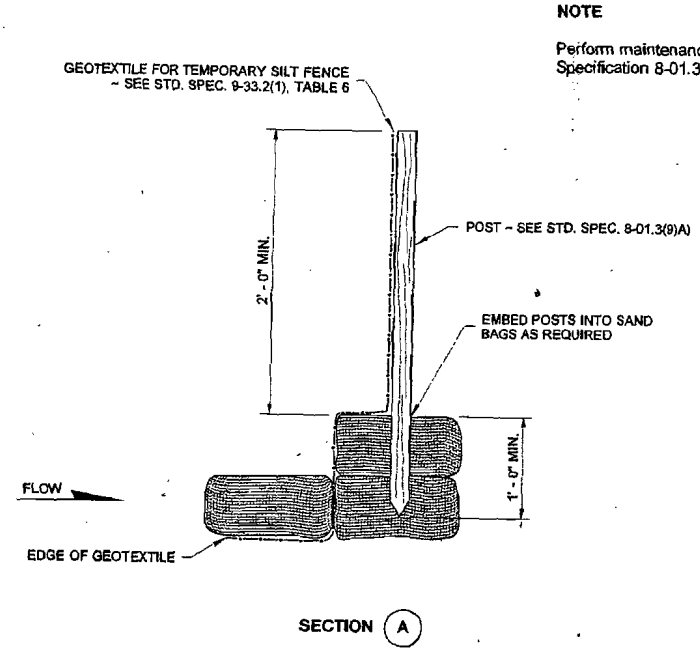




**SILT FENCE DESIGN**

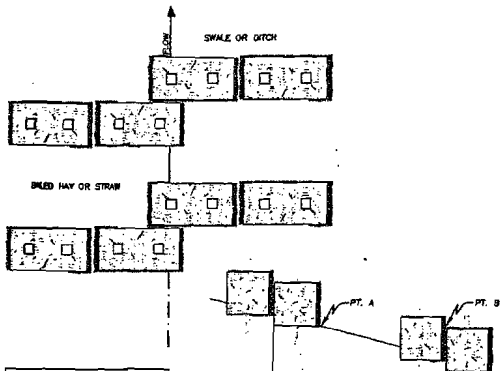


**COMPOST BERM DESIGN**



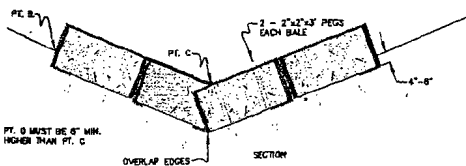
**NOTE**  
 Perform maintenance in accordance with Standard Specification 8-01.3(9)A and 8-01.3(15).

**EROSION CONTROL AT CULVERT ENDS**

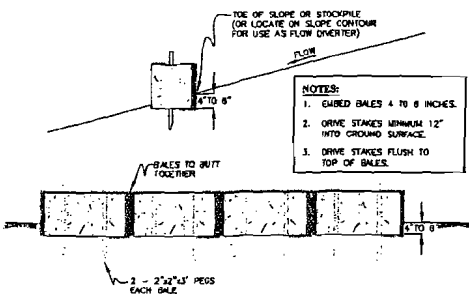


- NOTES:**
1. DIBBED BALES 4 TO 8 INCHES.
  2. DRIVE STAKES MINIMUM 1/2" INTO GROUND SURFACE.

**SPACING BETWEEN BARRIERS**

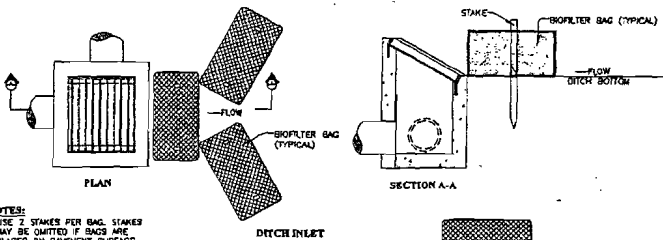


**STRAW BALE SEDIMENT BARRIERS IN DITCHES OR SWALES**



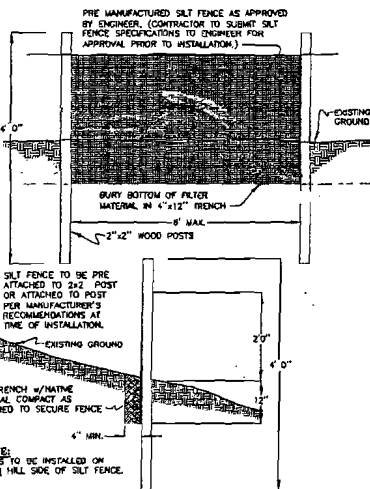
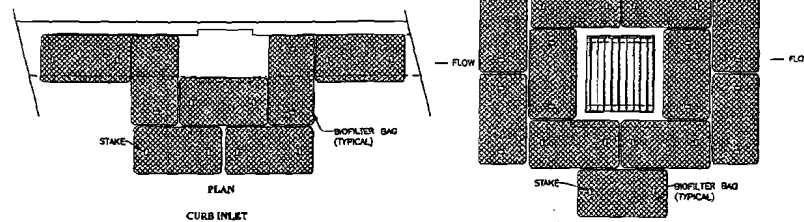
- NOTES:**
1. DIBBED BALES 4 TO 8 INCHES.
  2. DRIVE STAKES MINIMUM 1/2" INTO GROUND SURFACE.
  3. DRIVE STAKES FLUSH TO TOP OF BALES.

**STRAW BALE SEDIMENT BARRIER**

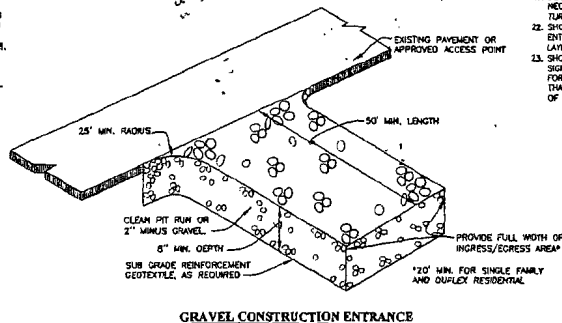


- NOTES:**
1. USE 2 STAKES PER BAG. STAKES MAY BE OMITTED IF BAGS ARE PLACED ON PAVEMENT SURFACE.
  2. OVERLAP ALL BAG JOINTS 6".

**INLET PROTECTION (TYPE 4) BIOFILTER BAGS**



**SILT FENCE INSTALLATION DETAIL**



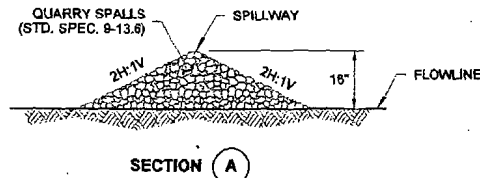
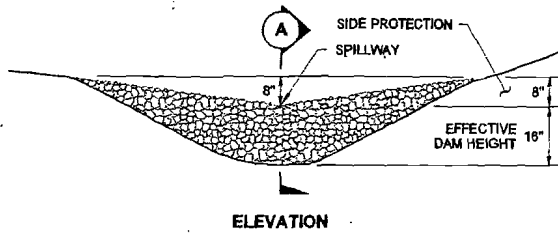
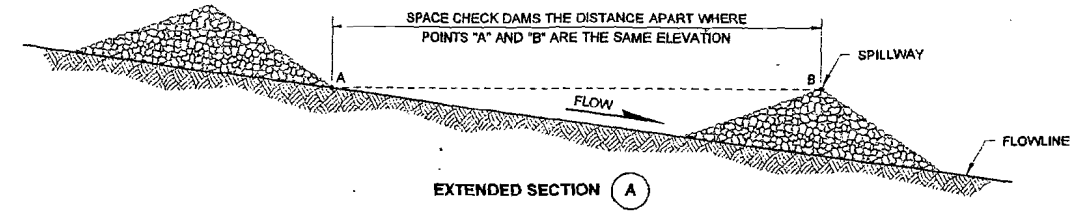
**GRAVEL CONSTRUCTION ENTRANCE**

THE PERMITTEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200C PERMIT. THIS ESCP AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200C PERMIT REQUIREMENTS IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200C PERMIT REQUIREMENTS SUPERSEDE REQUIREMENTS OF THIS PLAN.

**STANDARD EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES:**

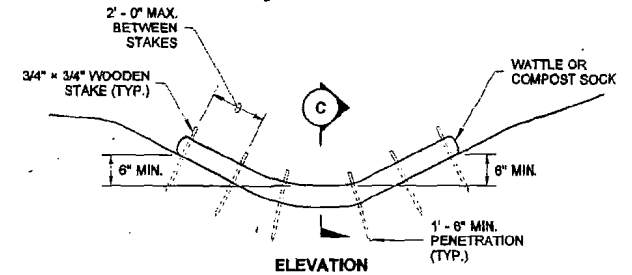
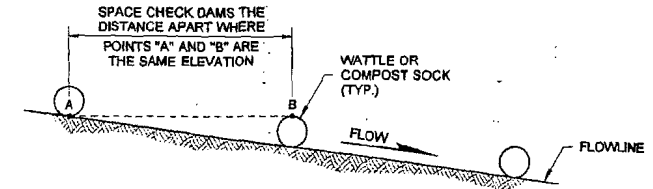
1. APPLY TEMPORARY AND PERMANENT SOIL STABILIZATION MEASURES ON ALL DISTURBED AREAS AS GRADING PROGRESSES. (SCH A.7.2.1)
2. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND FROM OCTOBER 1 THROUGH MAY 31 EACH YEAR. (SCH A.7.2.1)
3. DURING WET WEATHER PERIODS TEMPORARY STABILIZATION OF THE SITE MUST OCCUR AT THE END OF EACH WORK DAY IF RAINFALL IS FORECAST IN THE NEXT 24 HOURS. (SCH A.7.2.1)
4. ALL EROSION AND SEDIMENT CONTROLS NOT IN THE DIRECT PATH OF WORK MUST BE INSTALLED PRIOR TO ANY LAND DISTURBANCE. (SCH A.7.2.2)
5. PRESERVE EXISTING VEGETATION AND RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. (SCH A.7.2.2)
6. ALL TEMPORARY SEDIMENT CONTROLS MUST REMAIN IN PLACE UNTIL PERMANENT VEGETATION OR OTHER PERMANENT COVERING OF EXPOSED SOIL IS ESTABLISHED. (SCH A.7.2.2)
7. SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ON ALL DOWN GRADIENT SIDES OF THE CONSTRUCTION SITE AT ALL TIMES DURING CONSTRUCTION. (SCH A.7.2.2)
8. ALL ACTIVE CATCH BASINS MUST HAVE SEDIMENT CONTROLS INSTALLED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION. (SCH A.7.2.2)
9. WATER-TIGHT TRUCKS MUST BE USED TO TRANSPORT SATURATED SOILS FROM THE CONSTRUCTION SITE AN APPROVED EQUIVALENT IS TO DRAIN THE SOIL ON-SITE AT A DESIGNATED LOCATION USING APPROPRIATE BMP'S. SOIL MUST BE GRADDED SUFFICIENTLY FOR MINIMAL SPLASH. (SCH A.7.2.2)
10. TEMPORARY STABILIZATION OR COVERING OF SOIL STOCKPILES MUST OCCUR AT THE END OF EACH WORK DAY OR OTHER BMP'S MUST BE IMPLEMENTED TO PREVENT TURBID DISCHARGES TO SURFACE WATERS. (SCH A.7.2.2)
11. DEVELOP AND MAINTAIN ON-SITE A WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURE. (SCH A.7.2.2)
12. ANY USE OF TOXIC OR OTHER HAZARDOUS MATERIALS MUST INCLUDE PROPER STORAGE, APPLICATION, AND DISPOSAL. (SCH A.7.2.2)
13. THE PERMITTEE MUST PROPERLY PREVENT AND MANAGE HAZARDOUS WASTE, USED OILS, CONTAMINATED SOILS, CONCRETE WASTE, SANITARY WASTE, LIQUID WASTE, OR OTHER TOXIC SUBSTANCES DISCOVERED OR GENERATED DURING CONSTRUCTION. (SCH A.7.2.1 AND SCH A.7.2.2)
14. SIGNIFICANT AMOUNTS OF SEDIMENT WHICH LEAVE THE SITE MUST BE CLEANED UP WITHIN 24 HOURS AND PLACED BACK ON THE SITE AND STABILIZED OR PROPERLY DISPOSED. THE CAUSE OF THE SEDIMENT RELEASE MUST BE FOUND AND PREVENTED FROM CAUSING A REOCCURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE DRECON DIVISION OF STATE LANDS REQUIRED TIME FRAME. (SCH A.7.2.1)
15. SEDIMENT MUST NOT BE INTENTIONALLY WASHED WITH STORM SEWERS, DRAINAGEWAYS, OR WATERBODIES. DRY SWEEPING MUST BE USED TO CLEAN UP RELEASED SEDIMENTS. (SCH A.7.2.2)
16. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW THE MANUFACTURER'S RECOMMENDATIONS. NUTRIENT RELEASES FROM FERTILIZERS TO SURFACE WATERS MUST BE MINIMIZED. TIME RELEASE FERTILIZERS SHOULD BE USED AND CARE SHOULD BE TAKEN IN THE APPLICATION OF FERTILIZERS WHEN ANY WATER WAY RIPARIAN ZONE. (SCH A.7.1.3)
17. SEDIMENT MUST BE REMOVED FROM BEHIND SEDIMENT FENCE WHEN IT HAS REACHED A HEIGHT OF 1/2 THE HEIGHT OF THE FENCE ABOVE THE GROUND, AND BEFORE FENCE REMOVAL. (SCH A.7.1.3)
18. SEDIMENT MUST BE REMOVED FROM BEHIND BAGS AND OTHER BARRIERS WHEN IT HAS REACHED A HEIGHT OF TWO (2) INCHES AND BEFORE BMP REMOVAL. (SCH A.7.1.2)
19. CLEANING OF TRAPPED CATCH BASINS MUST OCCUR WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY (50) PERCENT, AND AT COMPLETION OF PROJECT. (SCH A.7.1.3)
20. REMOVAL OF TRAPPED SEDIMENT IN A SEDIMENT BASIN OR SEDIMENT TRAP MUST OCCUR WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY (50) PERCENT, AND AT COMPLETION OF PROJECT. (SCH A.7.1.3)
21. DEG MUST APPROVE OF ANY TREATMENT SYSTEM AND OPERATIONAL PLAN THAT MAY BE NECESSARY TO TREAT CONTAMINATED CONSTRUCTION DEWATERING OR SEDIMENT AND TURBIDITY IN STORMWATER RUNOFF. (SCH A.7.1.2)
22. SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR THIRTY (30) DAYS OR MORE, THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD. (SCH A.8.1)
23. SHOULD CONSTRUCTION ACTIVITIES CEASE FOR FIFTEEN (15) DAYS OR MORE ON ANY SIGNIFICANT PORTION OF A CONSTRUCTION SITE, TEMPORARY STABILIZATION IS REQUIRED FOR THAT PORTION OF THE SITE WITH STRAW, COMPOST, OR OTHER FACTORED COVERING THAT WILL PREVENT SOIL OR WIND EROSION UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCH A.8.1)

DRAWN BY: MARK SUJKA

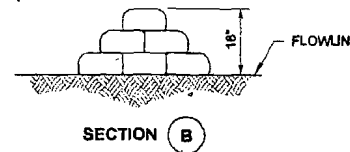
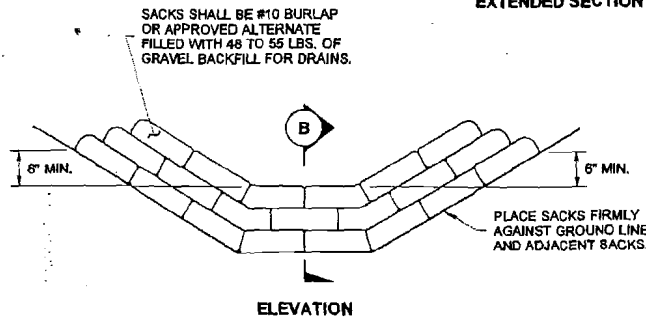
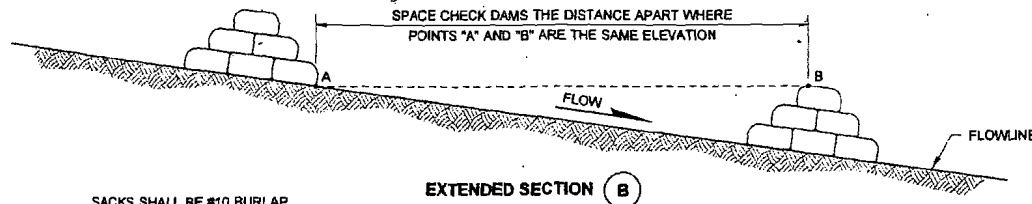


NOTE  
ROCK CHECK DAMS SHALL BE PLACED OUTSIDE OF THE CLEAR ZONE, OR BEHIND TRAFFIC BARRIER.

ROCK CHECK DAM



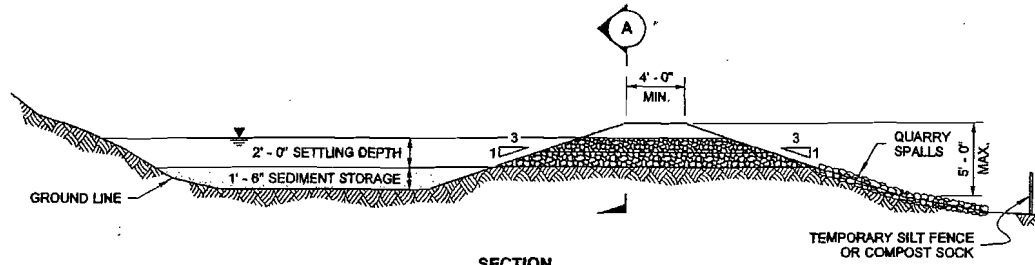
WATTLE OR COMPOST SOCK CHECK DAM



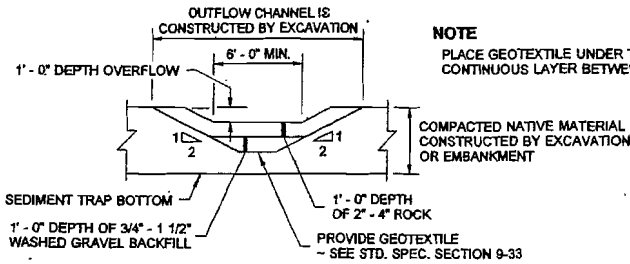
SANDBAG CHECK DAM

**CHECK DAMS**  
**STANDARD PLAN I-50.20-00**

DRAWN BY: BILL BERENS



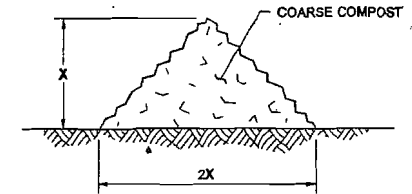
SECTION



**NOTE**  
PLACE GEOTEXTILE UNDER THE SPILLWAY AND SIDE SLOPES. PROVIDE A CONTINUOUS LAYER BETWEEN THE GRAVEL/ROCK AND THE NATIVE EARTHEN MATERIAL

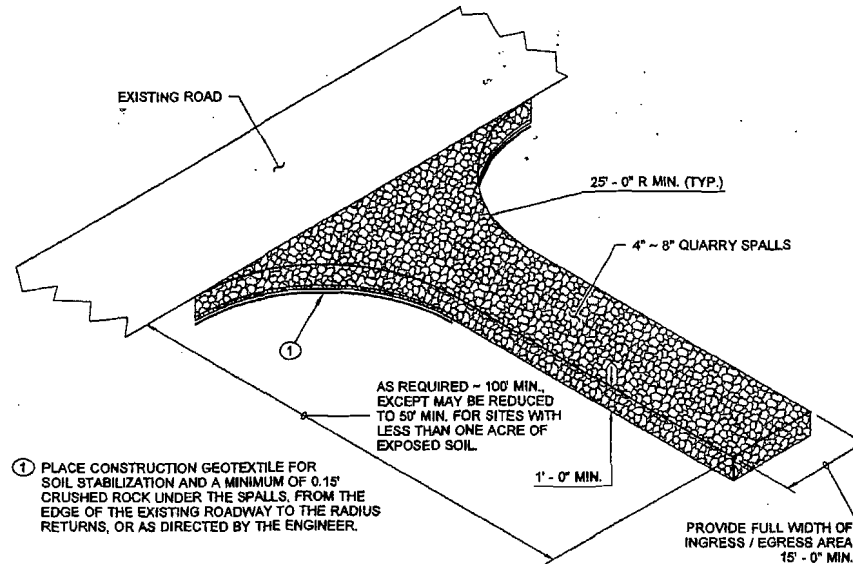
SECTION A

TEMPORARY SEDIMENT TRAP



X = 1'-0" FOR SLOPES 4H:1V OR FLATTER  
X = 1'-6" FOR SLOPES STEEPER THAN 4H:1V

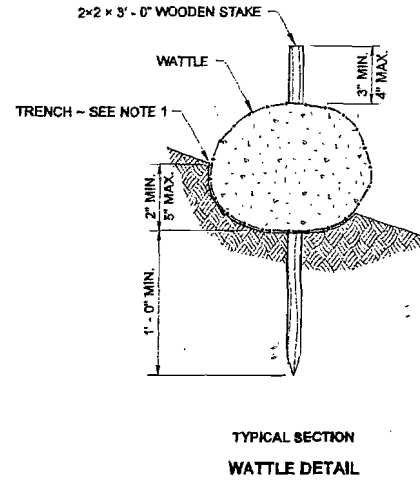
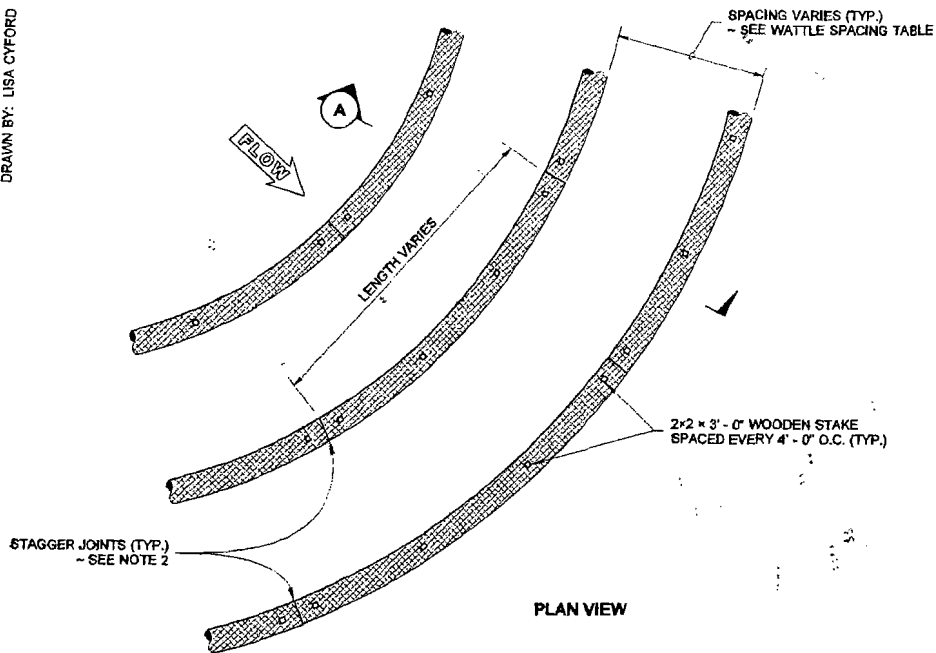
TYPICAL SECTION  
COMPOST BERM DETAIL



① PLACE CONSTRUCTION GEOTEXTILE FOR SOIL STABILIZATION AND A MINIMUM OF 0.15' CRUSHED ROCK UNDER THE SPALLS, FROM THE EDGE OF THE EXISTING ROADWAY TO THE RADIUS RETURNS, OR AS DIRECTED BY THE ENGINEER.

ISOMETRIC VIEW  
STABILIZED CONSTRUCTION ENTRANCE

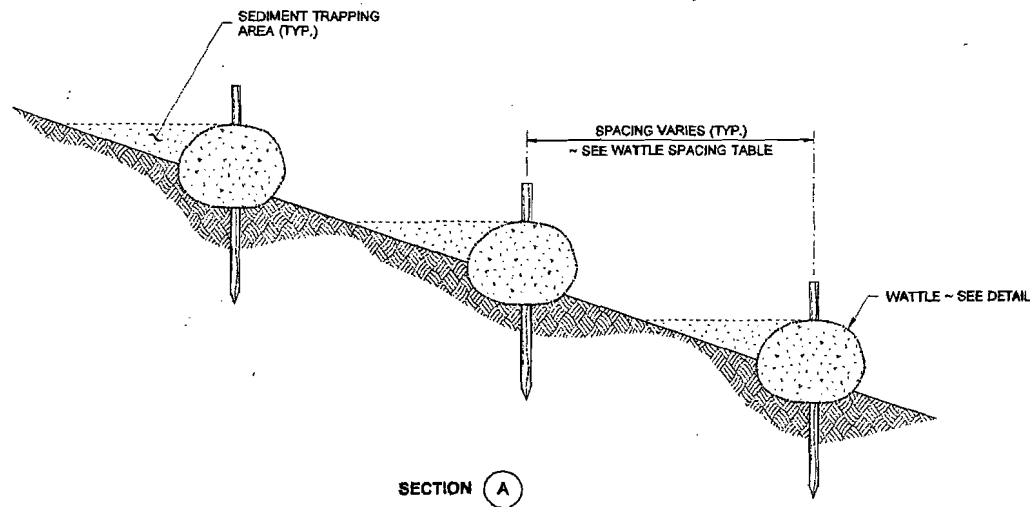
MISCELLANEOUS  
EROSION CONTROL DETAILS  
STANDARD PLAN I-80.10-01



**NOTES**

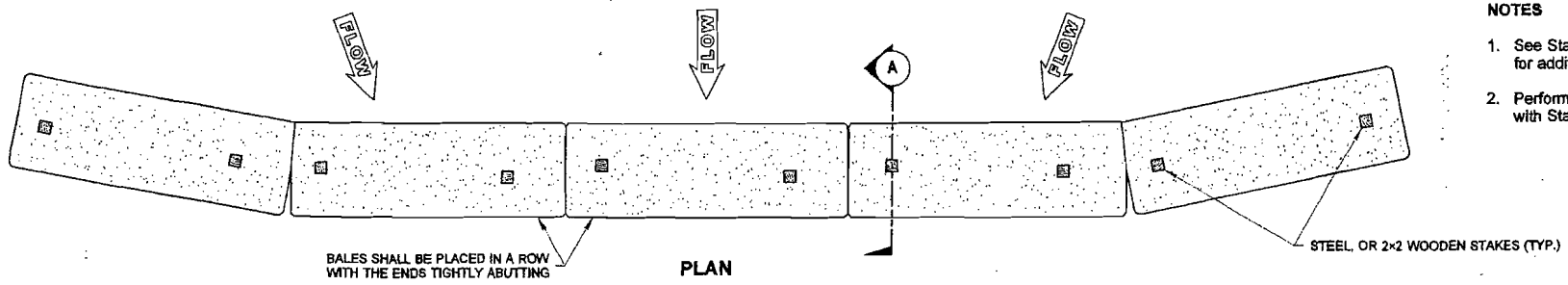
1. Wattles shall be in accordance with Standard Specification 9-14.5(5). Install Wattles along contours. Installation shall be in accordance with Standard Specification 8-01.3(10).
2. Securely knot each end of Wattle. Abut adjacent Wattles tightly, end to end, without overlapping the ends.
3. Pilot holes may be driven through the Wattles and into the soil when soil conditions require.
4. Live stakes may be used for permanent installation and shall be in accordance with Standard Specification 9-14.5(6).
5. Wattles shall be inspected regularly, and immediately after a rainfall produces runoff, to ensure they remain thoroughly entrenched and in contact with the soil.
6. Perform maintenance in accordance with Standard Specification 8-01.3(15).

| WATTLE SPACING TABLE |                 |
|----------------------|-----------------|
| SLOPE                | MAXIMUM SPACING |
| 1:1                  | 10' - 0"        |
| 2:1                  | 20' - 0"        |
| 3:1                  | 30' - 0"        |
| 4:1                  | 40' - 0"        |

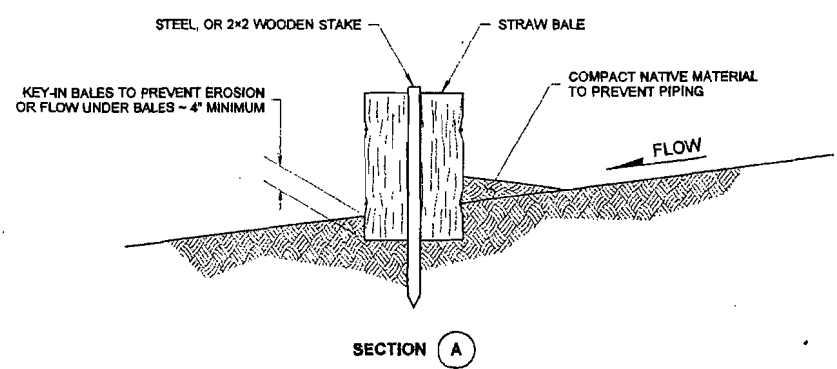
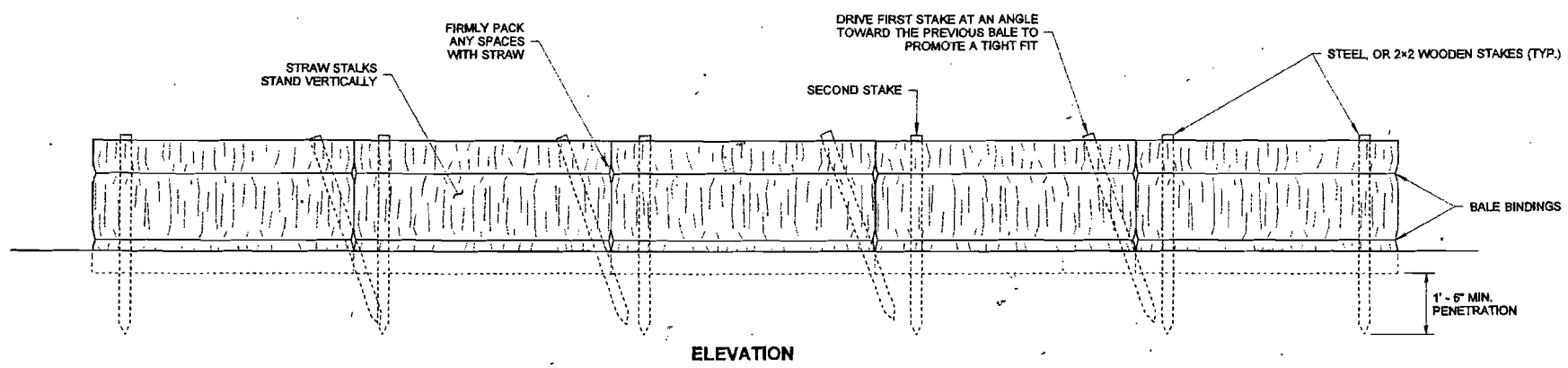


**WATTLE INSTALLATION  
ON SLOPE  
STANDARD PLAN I-30.30-00**

DRAWN BY: MARK SUJKA

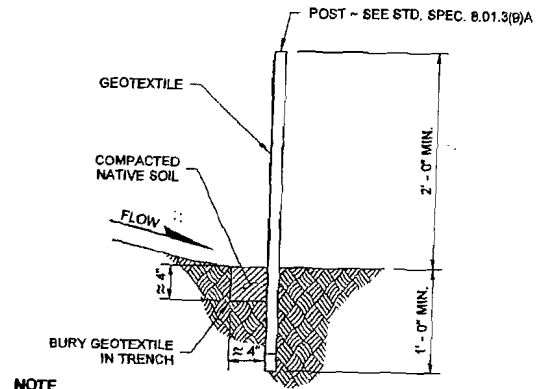


- NOTES**
1. See Standard Specification 8-01.3(9)C, for additional information.
  2. Perform maintenance in accordance with Standard Specification 8-01.3(15).



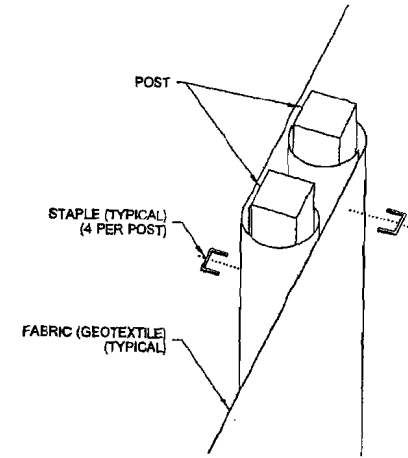
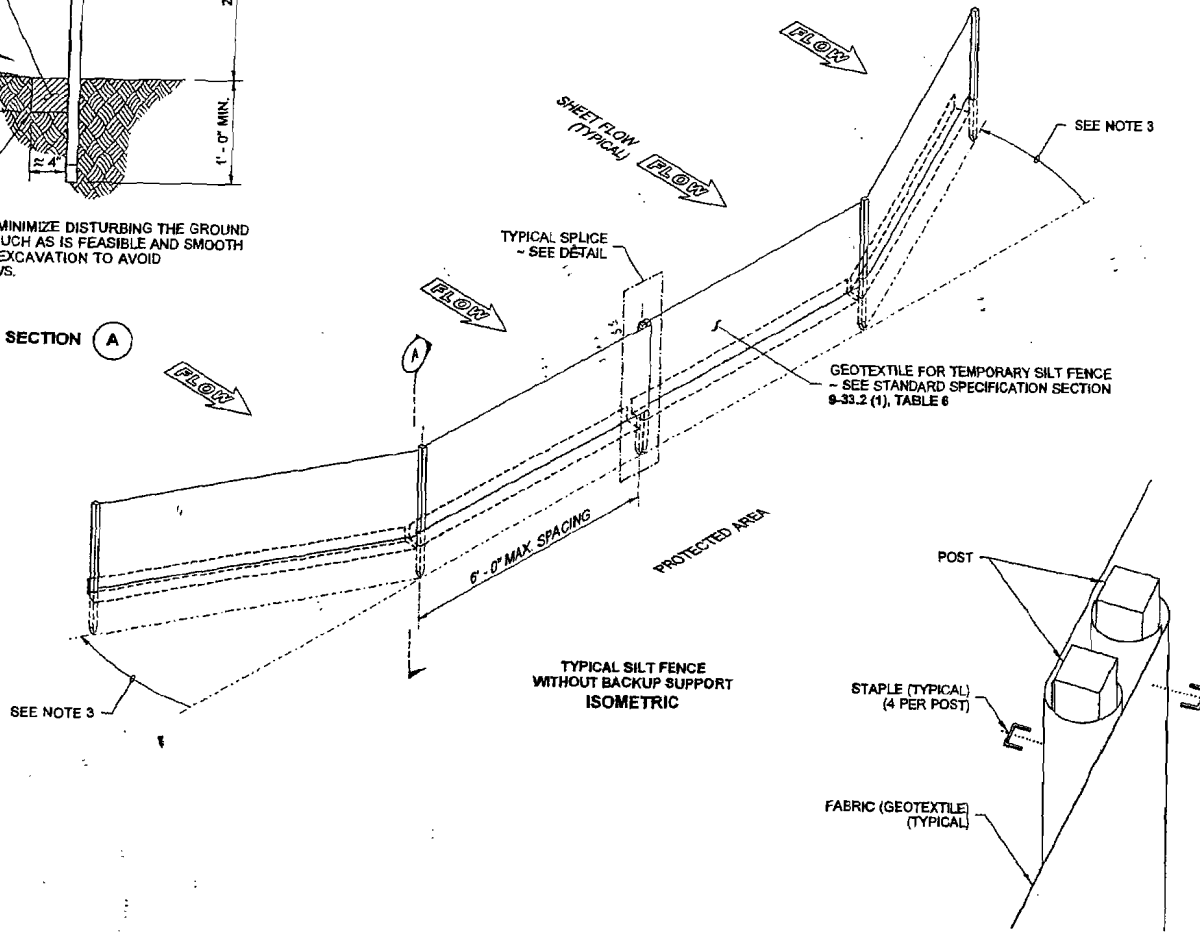
**STRAW BALE BARRIER**  
**STANDARD PLAN I-30.50-00**

DRAWN BY: BILL BERENS



**NOTE**  
 DURING EXCAVATION, MINIMIZE DISTURBING THE GROUND AROUND TRENCH AS MUCH AS IS FEASIBLE AND SMOOTH SURFACE FOLLOWING EXCAVATION TO AVOID CONCENTRATING FLOWS.

**SECTION A**



**NOTES**

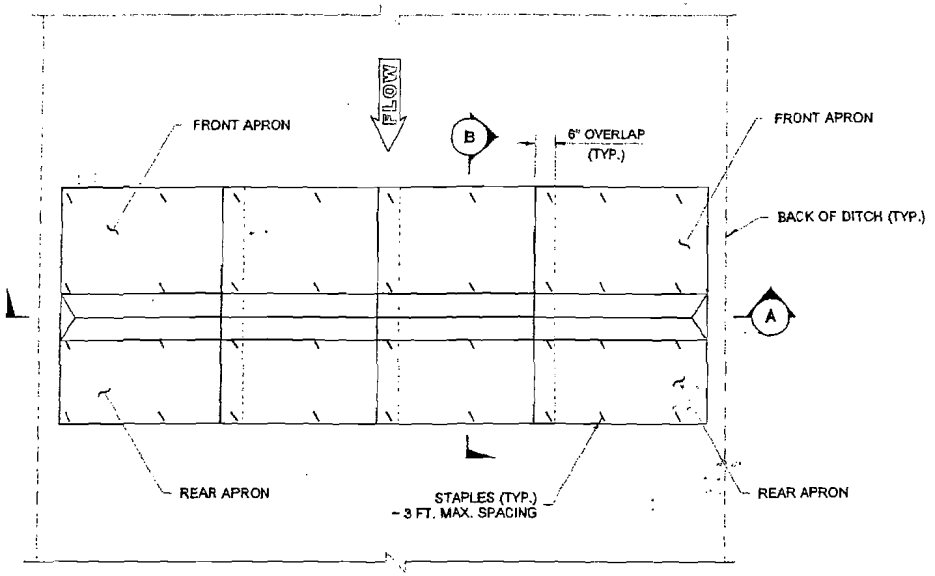
1. Maximize detention of stormwater by placing fence as far away from toe of slope as possible without encroaching on sensitive areas or outside of the clearing boundaries.
2. Install silt fencing along contours.
3. Install the ends of the silt fence to point slightly up-slope to prevent sediment from flowing around the ends of the fence.
4. Perform maintenance in accordance with Standard Specifications 8.01.3(9)A and 8.01.3(15).

**SILT FENCE  
 STANDARD PLAN I-30.15-00**

SPLICED FENCE SECTIONS SHALL BE CLOSE ENOUGH TOGETHER TO PREVENT SILT LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP. JOINING SECTIONS SHALL NOT BE PLACED IN LOW SPOTS OR IN SUMP LOCATIONS.

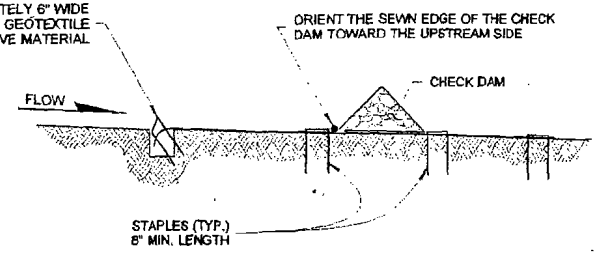
**SPLICE DETAIL**

DRAWN BY: LISA CYFORD

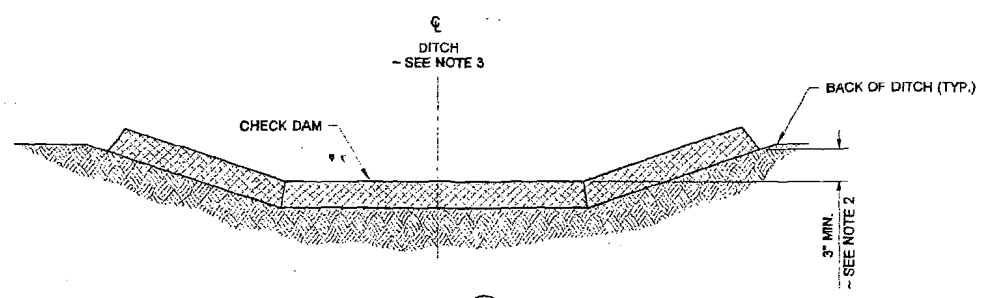


PLAN VIEW

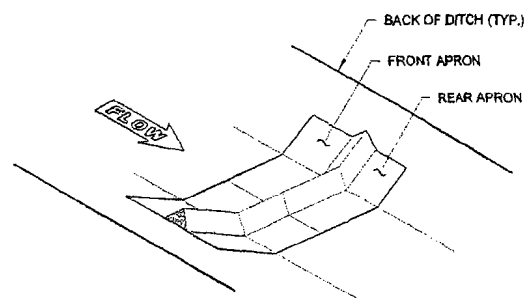
DIG TRENCH APPROXIMATELY 6" WIDE AND DEEP, STAPLE END OF GEOTEXTILE AND BACKFILL WITH NATIVE MATERIAL



SECTION B



SECTION A



ISOMETRIC VIEW

NOTES

1. Geotextile encased Check Dams shall meet the requirements of Standard Specifications 8-01.3(6)A and 9-14.5(4).
2. Install the sloped ends of the Check Dam a minimum of 3" higher than the top of the check dam in the channel to ensure that water flows over the dam and not around it.
3. Flat bottom ditch design shown, Check Dam installation details are similar for "V" bottom ditches.
4. Perform maintenance in accordance with Standard Specifications 8-01.3(15).

**GEOTEXTILE ENCASED CHECK DAM INSTALLATION STANDARD PLAN I-50.10-00**