

4/2/15 11:57 BOBG R19 G:\CLIENTS\NPS\GOGA\164335\13-0326B\DRAWINGS\CIVL\13-0326B.SET-EROSION CONTROL PLAN.DWG  
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IMAGES: G:\CLIENTS\NPS\GOGA\164335\13-0326B\DRAWINGS\CIVL\IMAGES\MSS EARTHWORK TABLE 3-24-15.JPG;

EROSION AND SEDIMENT CONTROL NOTES

1. MINIMIZE DUST DURING DEMOLITION, GRADING, AND CONSTRUCTION BY LIGHTLY SPRAYING EXPOSED SOIL ON A REGULAR BASIS.
2. MINIMIZE WIND AND WATER EROSION ON TEMPORARY SOIL STOCKPILES BY SPRAYING WITH WATER DURING DRY WEATHER AND COVERING WITH PLASTIC SHEETING OR OTHER SIMILAR MATERIAL.
3. MINIMIZE THE AREA AND LENGTH OF TIME DURING WHICH THE SITE IS CLEARED AND GRADED.
4. PREVENT THE RELEASE OF CONSTRUCTION POLLUTANTS SUCH AS CEMENT, MORTAR, PAINTS AND SOLVENTS, FUEL AND LUBRICATING OILS, PESTICIDES, AND HERBICIDES BY STORING SUCH MATERIALS IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SWPPP.
5. AS NEEDED, INSTALL FILTER FENCES AROUND THE PERIMETER OF THE CONSTRUCTION SITE TO PREVENT OFF-SITE SEDIMENT DISCHARGE. PRIOR TO GRADING THE DRAINFIELD, FILTRATION SYSTEM, AND OTHER OPEN EXCAVATIONS, INSTALL SILT OR FILTER FENCES TO SLOW WATER AND REMOVE SEDIMENT. AS NEEDED, PROPERLY TRENCH AND ANCHOR IN THE SILT OR FILTER FENCES SO THAT THEY STAND UP TO THE FORCES OF TIDAL FLUCTUATION AND WAVE ACTION, AND DO NOT ALLOW SEDIMENT-LADEN WATER TO ESCAPE UNDERNEATH THEM.
6. FOLLOW DESIGN AND CONSTRUCTION STANDARDS FOUND IN THE MANUAL OF STANDARDS FOR EROSION AND SEDIMENT CONTROL MEASURES FOR PLACEMENT OF RIPRAP AND STONE SIZE.
7. INSTALL AND MAINTAIN SEDIMENT AND OIL AND GREASE TRAPS IN LOCAL STORMWATER INTAKES DURING THE CONSTRUCTION PERIOD, OR OTHERWISE PROPERLY CONTROL OIL AND GREASE DISCHARGES.
8. CLEAN WHEELS AND COVER LOADS OF TRUCKS CARRYING EXCAVATED SOILS BEFORE THEY LEAVE THE CONSTRUCTION SITE.
9. IMPLEMENT A HAZARDOUS MATERIAL SPILL PREVENTION, CONTROL, AND CLEAN-UP PROGRAM FOR THE CONSTRUCTION PERIOD. AS NEEDED, THE PROGRAM WOULD INCLUDE MEASURES SUCH AS CONSTRUCTING SWALES AND BARRIERS THAT WOULD DIRECT ANY POTENTIAL SPILLS AWAY FROM WATER DRAINAGE COURSES AND THE OCEAN AND INTO CONTAINMENT BASINS TO PREVENT THE MOVEMENT OF ANY MATERIALS FROM THE CONSTRUCTION SITE INTO WATER.

SILT FENCE

MATERIALS

1. FILTER FABRIC SHALL BE A PERVIOUS SHEET OF SYNTHETIC POLYMER COMPOSED OF AT LEAST 85% BY WEIGHT ETHYLENE, PROPYLENE, AMIDE, ESTER OF VINYLIDENE YARN, WOVEN OR NON WOVEN, AND SHALL CONTAIN STABILIZERS AND/OR INHIBITORS TO RESIST DETERIORATION BY HEAT, WATER AND ULTRAVIOLET LIGHT. THE FABRIC SHALL CONFORM TO THE FOLLOWING CRITERIA:
  - 1.1. THE EQUIVALENT OPENING SIZE (U.S. STANDARD SIEVE) SHALL BE WITHIN THE RANGE 70-100.
  - 1.2. THE TENSILE STRENGTH (ASTM D1682G) SHALL BE AT LEAST 120 POUNDS. THE STRENGTH OF FABRIC REQUIRED DEPENDS ON THE WIRE SUPPORT FENCE. THE STRENGTH GIVEN IS THE MINIMUM FOR A 6-INCH SQUARE MESH WIRE SUPPORT FENCE. IF EXTRA-STRENGTH FABRIC IS USED WITHOUT A SUPPORT FENCE, THE STRENGTH REQUIRED SHALL BE 200 POUNDS MINIMUM WITH POSTS SPACED ON 6 FOOT CENTERS.
2. POSTS FOR SILT FENCES SHALL BE EITHER 4-INCH-DIAMETER WOOD OR 1.33-POUNDS-PER LINEAR FOOT STEEL WITH A MINIMUM LENGTH OF 5 FEET. STEEL POSTS SHALL HAVE PROJECTIONS FOR FASTENING WIRE TO THEM.
3. WIRE FENCE REINFORCEMENT FOR SILT FENCES SHALL BE A MINIMUM OF 42 INCHES IN HEIGHT, SHALL BE A MINIMUM OF 14-GAUGE, AND SHALL HAVE A MAXIMUM MESH SPACING OF 6 INCHES.

CONSTRUCTION SPECIFICATIONS

1. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES. ON SLOPES, THE FENCE LINE SHALL FOLLOW THE CONTOUR AS CLOSELY AS POSSIBLE. IN SMALL SWALES, THE FENCE LINE SHALL BE CURVED UPSTREAM AT THE SIDES TO DIRECT THE FLOW TOWARD THE MIDDLE OF THE FENCE.
2. IF POSSIBLE, THE FILTER FABRIC SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP AND BOTH ENDS SECURELY FASTENED TO THE POST.
3. STEEL POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). WHEN EXTRA-STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, OR WOOD POST ARE UTILIZED, POST SPACING SHALL NOT EXCEED 6 FEET.
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POST AND UPSLOPE FROM THE BARRIER.
5. WHEN STANDARD-STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD-STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL EXTEND INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
7. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRE DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF NO. 6 ABOVE APPLYING.
8. THE TRENCH SHALL BE BACK FILLED AND THE SOIL COMPACTED OVER THE TOE OF THE FILTER FABRIC.
9. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

STRAW WATTLES

1. THE ONLY APPROVED STRAW WATTLES SHALL BE "WEED FREE RICE STRAW WITH BURLAP OUTER FILTER". NO PLASTIC NETTING OR OUTER FILTER CAN BE PURCHASED LOCALLY FROM STEVENSON'S NORTH BAY. (CONTRACTOR IS NOT LIMITED TO PURCHASE MATERIAL FROM THIS LOCATION.)

SILT FENCE AND FIBER ROLL FILTER BARRIERS MAINTENANCE

1. SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SWPPP.
2. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE BARRIER'S EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

CONSTRUCTION ENTRANCE

DESIGN AND CONSTRUCTION SPECIFICATIONS

1. THE MATERIAL FOR CONSTRUCTION OF THE CONSTRUCTION ENTRANCE PAD SHALL BE 2 TO 3 INCH STONE.
2. THE THICKNESS OF THE PAD SHALL NOT BE LESS THAN 8 INCHES.
3. THE WIDTH OF THE PAD SHALL NOT BE LESS THAN THE FULL WIDTH OF ALL POINTS ON INGRESS OR EGRESS.
4. THE LENGTH OF THE PAD SHALL BE AS REQUIRED, BUT NOT LESS THAN 50 FEET.
5. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR LEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
6. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, BOARDS OR OTHER APPROVED METHODS.

MASS DIAGRAM - TABLE A									
TRENCHES (All - Includes Drainfield)			RTF SYSTEM and Lifeguard - Ranger Building Tanks (Base Bid)			Tanks - North, Central, South Comfort Stations & Admin Area (Bid Option)			DRAINFIELD (6" Surface Removal & Fine Grading Fill)
CUT (CY)	BACKFILL (CY)		CUT (CY)	BACKFILL (CY)		CUT (CY)	FILL (CY)		CUT (CY) HAUL OFF SITE
2111.6	Backfill	1723.6	293.3	Over Demolished Septic Tank	28.0	90.7	Smaller Tanks	72.8	340.4
	Bedding	388.0		Inside Demolished Septic Tank	23.0				
AVAILABLE FILL (CY)		388.0		242.3			17.8		0.0
15% Increase Available Fill from Bedding (Tanks Only)				44.0			13.6		
MINIMUM EXPECTED CUT HAULED OFF SITE FROM DRAINFIELD CUT - CLEAR AND GRUB (CY)									340.4
TOTAL AVAILABLE FILL (CY)									705.8
TOTAL FILL NEEDED - DRAINFIELD (CY)									629.6
LEFT OVER FILL (CY)									39.1
Volumes are approximate. Soil variations in the filed may vary affecting actual excavated volumes experienced.									



Reference:

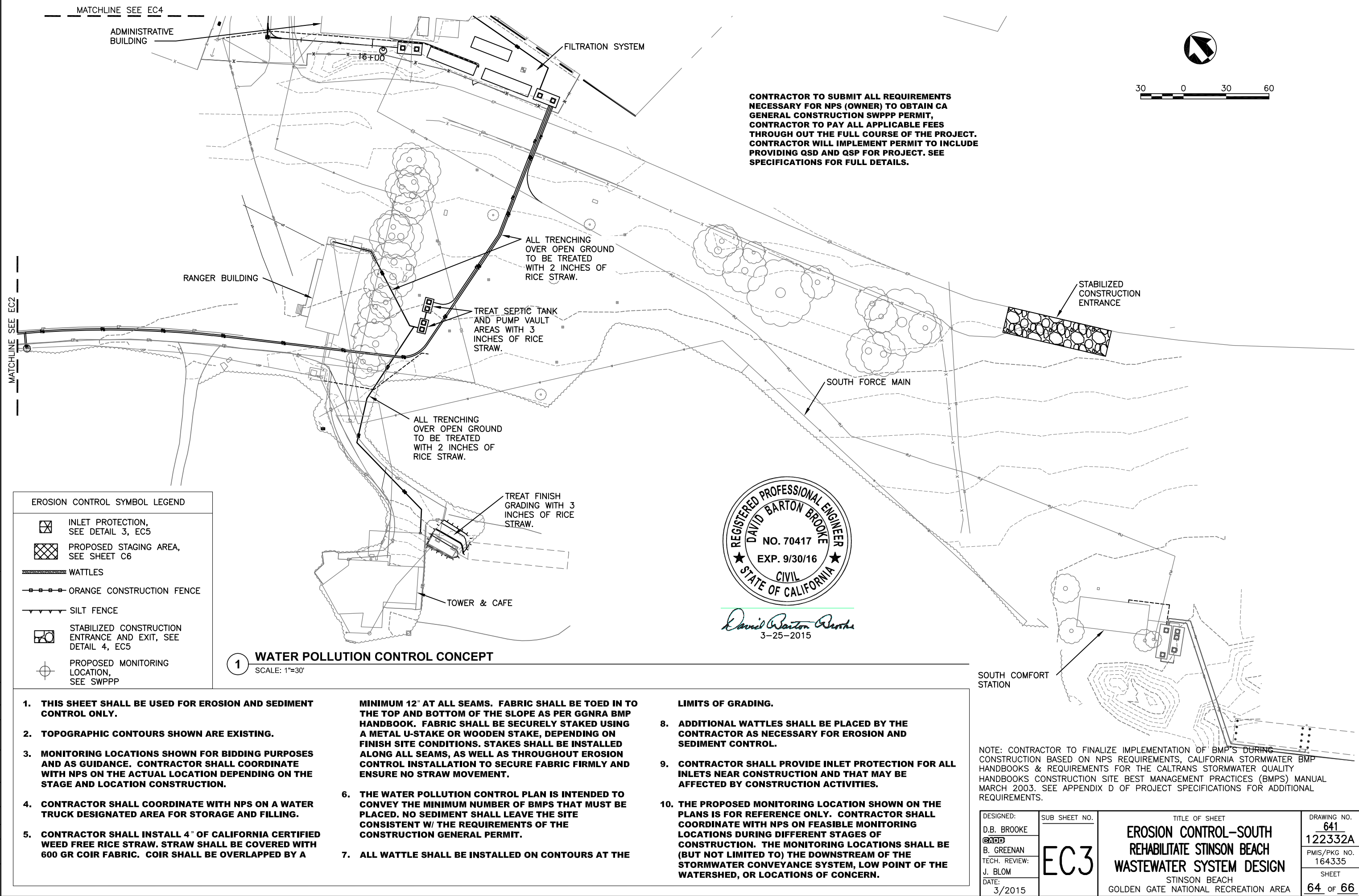
1. California NPDES General Permit for Stormwater Discharges Associated with Construction Activity – Water Quality Order 99-08-DWQ

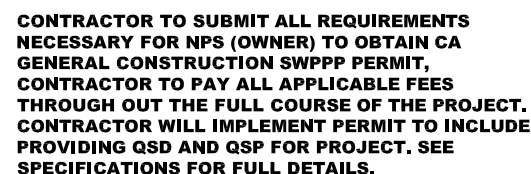
NOTE: CONTRACTOR TO FINALIZE IMPLEMENTATION OF BMP’S DURING CONSTRUCTION BASED ON NPS REQUIREMENTS, CALIFORNIA STORMWATER BMP HANDBOOKS & REQUIREMENTS FOR THE CALTRANS STORMWATER QUALITY HANDBOOKS CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMPS) MANUAL MARCH 2003. SEE APPENDIX D OF PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.




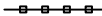
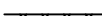


DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
D.B. BROOKE	EC1	EROSION CONTROL-GENERAL NOTES REHABILITATE STINSON BEACH WASTEWATER SYSTEM DESIGN STINSON BEACH GOLDEN GATE NATIONAL RECREATION AREA	641
TECH. REVIEW:			122332A
J. BLOM			PMIS/PKG NO. 164335
DATE: 3/2015			SHEET 62 of 66









EROSION CONTROL SYMBOL LEGEND	
	INLET PROTECTION, SEE DETAIL 3, EC5
	PROPOSED STAGING AREA, SEE SHEET C6
	WATTLES
	ORANGE CONSTRUCTION FENCE
	SILT FENCE
	STABILIZED CONSTRUCTION ENTRANCE AND EXIT, SEE DETAIL 4, EC5
	PROPOSED MONITORING LOCATION, SEE SWPPP

SCALE: 1"=30'

- MINIMUM 12" AT ALL SEAMS. FABRIC SHALL BE TOED IN TO THE TOP AND BOTTOM OF THE SLOPE AS PER GGNRA BMP HANDBOOK. FABRIC SHALL BE SECURELY STAKED USING A METAL U-STAKE OR WOODEN STAKE, DEPENDING ON FINISH SITE CONDITIONS. STAKES SHALL BE INSTALLED ALONG ALL SEAMS, AS WELL AS THROUGHOUT EROSION CONTROL INSTALLATION TO SECURE FABRIC FIRMLY AND ENSURE NO STRAW MOVEMENT.**

- ### LIMITS OF GRADING.

- 8. ADDITIONAL WATTLES SHALL BE PLACED BY THE CONTRACTOR AS NECESSARY FOR EROSION AND SEDIMENT CONTROL.**
- 9. CONTRACTOR SHALL PROVIDE INLET PROTECTION FOR ALL INLETS NEAR CONSTRUCTION AND THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES.**
- 10. THE PROPOSED MONITORING LOCATION SHOWN ON THE PLANS IS FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE WITH NPS ON FEASIBLE MONITORING LOCATIONS DURING DIFFERENT STAGES OF CONSTRUCTION. THE MONITORING LOCATIONS SHALL BE (BUT NOT LIMITED TO) THE DOWNSTREAM OF THE STORMWATER CONVEYANCE SYSTEM, LOW POINT OF THE WATERSHED, OR LOCATIONS OF CONCERN.**



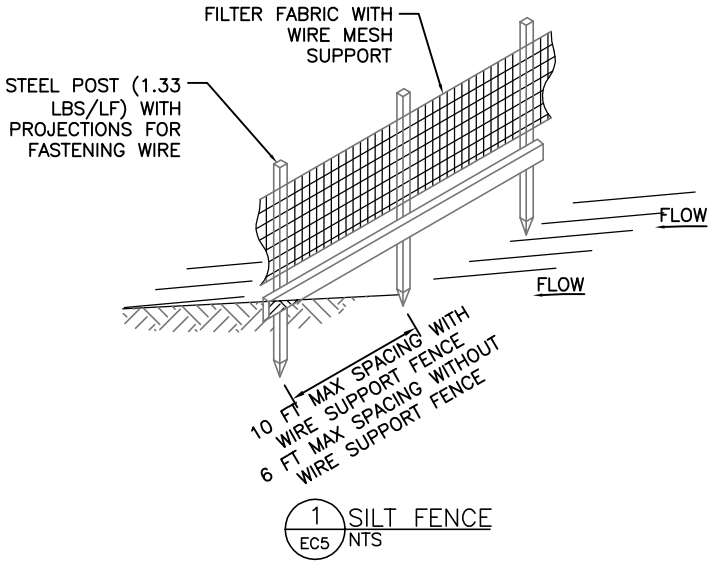
David Barton Booth  
3-25-2015

NOTE: CONTRACTOR TO FINALIZE IMPLEMENTATION OF BMP'S DURING CONSTRUCTION BASED ON NPS REQUIREMENTS, CALIFORNIA STORMWATER BMP HANDBOOKS & REQUIREMENTS FOR THE CALTRANS STORMWATER QUALITY HANDBOOKS CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMPS) MANUAL MARCH 2003. SEE APPENDIX D OF PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

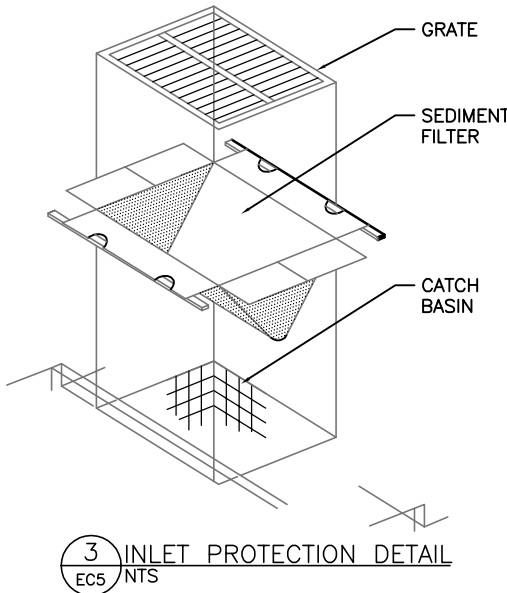
DESIGNED: D.B. BROOKE	SUB SHEET NO.  <b>EC4</b>	TITLE OF SHEET  <b>EROSION CONTROL—DRAINFEILD REHABILITATE STINSON BEACH WASTEWATER SYSTEM DESIGN</b>	DRAWING NO. <b>641</b> <b>122332A</b>
<b>CADD</b>			PMIS/PKG NO. <b>164335</b>
B. GREENAN			SHEET
TECH. REVIEW: J. BLOM			<b>65</b> OF <b>66</b>
DATE: 3/2015		STINSON BEACH GOLDEN GATE NATIONAL RECREATION AREA	

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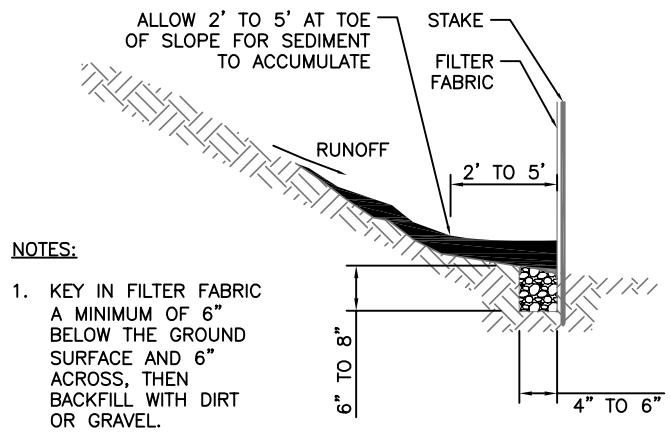
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1 SILT FENCE  
EC5 NTS



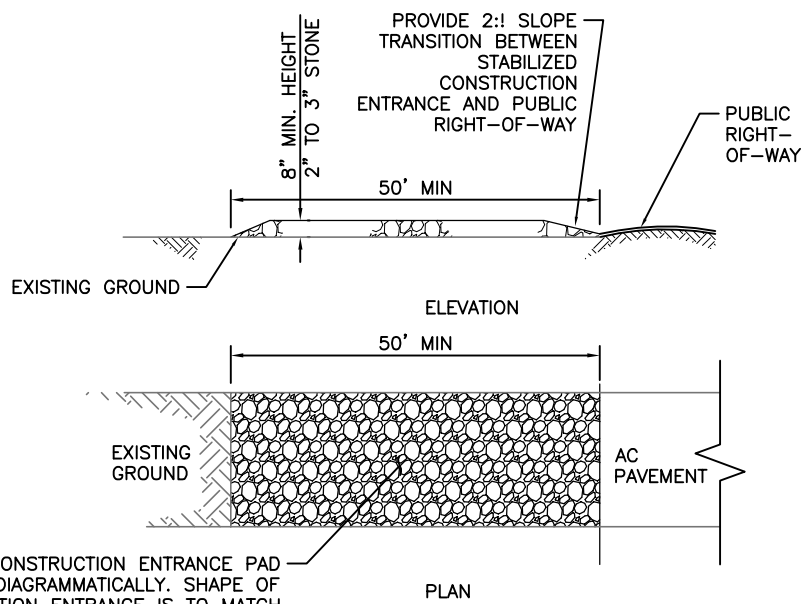
3 INLET PROTECTION DETAIL  
EC5 NTS



NOTES:

1. KEY IN FILTER FABRIC A MINIMUM OF 6" BELOW THE GROUND SURFACE AND 6" ACROSS, THEN BACKFILL WITH DIRT OR GRAVEL.

2 SILT FENCE PROFILE  
EC5 NTS

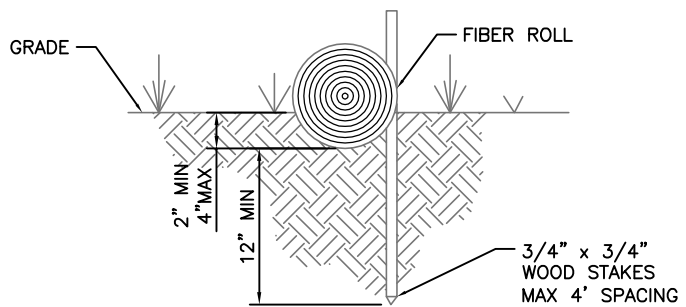


STABILIZED CONSTRUCTION ENTRANCE PAD IS SHOWN DIAGRAMMATICALLY. SHAPE OF CONSTRUCTION ENTRANCE IS TO MATCH FIELD CONDITIONS. SEE "CONSTRUCTION ENTRANCE" NOTES 3 AND 4.

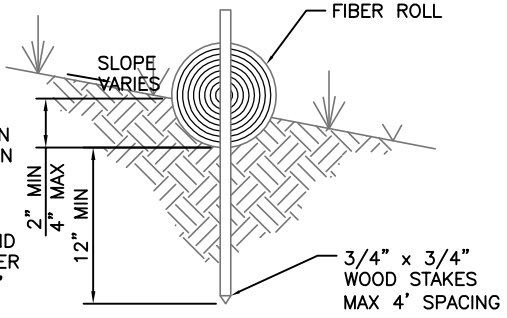
4 STABILIZED CONSTRUCTION ENTRANCE/EXIT  
EC5 NTS

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FLAT INSTALLATION



SLOPED INSTALLATION

NOTES:

1. FIBER ROLLS ARE WRAPPED IN TUBULAR NETTING SUPPLIED IN 20'-25' ROLLS.
2. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE FIBER ROLL IN A TRENCH, 2" TO 4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND FIBER ROLL.

5 FIBER ROLL FILTER BARRIER INSTALLATION  
EC5 NTS



David Barton Brooke  
3-25-2015

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DESIGNED: D.B. BROOKE B. GREENAN TECH. REVIEW: J. BLOM DATE: 3/2015	SUB SHEET NO.  EC5	TITLE OF SHEET EROSION CONTROL-DETAILS REHABILITATE STINSON BEACH WASTEWATER SYSTEM DESIGN STINSON BEACH GOLDEN GATE NATIONAL RECREATION AREA	DRAWING NO. 641 122332A PMIS/PKG NO. 164335 SHEET 66 OF 66
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