

STORMWATER MANAGEMENT PLAN (SWMP) FOR MINOR PROJECTS

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9589) requires all applications for a permit or approval associated with a Land Disturbance Activity must be accompanied by a Storm Water Management Plan (SWMP) (section 67.804.f). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality.

The WPO does not set a minimum size or type of project requiring a SWMP. The following types of projects/permits are generally not significant contributors to pollution loading after construction is complete:

Construction Right of Way Permits, Encroachment Permits, Minor Excavation Permits, Variances, Boundary Adjustments, Minor Use Permits for Cellular Facilities, and Residential Tentative Parcel Maps.

As such, these projects may not require post construction Best Management Practices (BMPs) that require long-term maintenance. This form is to be submitted for these types of projects to fulfill the SWMP requirement of the WPO (section 67.804.f). It is a living document that can be modified at any time even after construction is complete. Changes to the SWMP are documented on the attached Addendum sheet.

Please be aware that completion of this form does not remove the applicant's responsibility from addressing BMPs during construction. If it is determined during the review process that the project has the potential to significantly impact water quality after construction, then a more detailed SWMP will be required that addresses post-construction BMPs.

Please describe the proposed project.

Project Name: National Quarries

Permit Number: RP79-005-W1

Project Details: The project is a revised Reclamation Plan that will allow quarry operations in three phases over a larger reclamation area.

Project Location: Located in a hillside west of the south fork of Gopher Canyon Creek.

Assessors Parcel No.: 172-061-37, 172-063-01, 172-063-02, 172-063-04, 172-063-14, 172-113-03

Address: 28474 N. Twin Oaks Valley Road, San Marcos, CA 92069

Hydrologic Unit*: San Luis Rey (903.00)

Hydrologic Subarea**: Bonsall (903.12)

Any previous stormwater action: None

* Hydrologic Unit and Area may be determined from the maps found at the following link:
http://www.projectcleanwater.org/html/ws_map.html

** Hydrologic Subarea may be determined from the maps found at the following links:
<http://www.stormwater.water-programs.com/Webctswpfinal/Indexfinal.htm>;
http://endeavor.des.ucdavis.edu/wqsid/wblist.asp?region_pkey=9

Unique Site Features: (Check all that apply.)

Project is in a river, creek, or lake.

× Directly discharges to a river, creek, or lake.

Project is 200 feet from a river, creek, or lake.

Runoff will directly discharge into a storm drain.

There are no unique site features.

Individual designated as stormwater protection contact for the permit.

Name: Lenvel Barzee

Address: 28474 N. Twin Oaks Valley Road

City, State, ZIP: San Marcos, CA 92069

Phone Number: (760) 726-6246

Cellular Phone Number: N/A

Fax Number: (760) 726-6217

A. CONSTRUCTION PHASE

1. Potential Pollutant Sources During Construction: (Check all that apply.)

× There will be soil-disturbing activities that will result in exposed soil areas. This includes minor grading and trenching.

There will be asphalt paving including patching.

There will be slurries from mortar mixing, coring, or PCC saw cutting and placement.

There will be solid wastes from PCC demolition and removal, wall construction, or form work.

× There might be stockpiling (soil, compost, asphalt concrete, solid waste) for over 24 hours.

There will be dewatering operations.

There will be temporary on-site storage of construction materials, including mortar mix, raw landscaping and soil stabilization materials, treated lumber, rebar, and plated metal fencing materials.

× There might be trash generated from the project.

This project will involve activities that are not considered to generate pollutants. Includes placement of temporary signs (i.e. elections, events).

2. List the construction BMPs that may be used: (Check all that apply.)

The BMPs selected are those that will be implemented during construction of the project. The applicant is responsible for the placement and maintenance of the BMPs selected. Attach descriptions of the BMPs and their application (available at the DPW counter) as Attachment A.

- | | |
|--|--|
| <input type="checkbox"/> Silt Fence | <input type="checkbox"/> Desilting Basin |
| <input type="checkbox"/> Fiber Rolls | <input type="checkbox"/> Gravel Bag Berm |
| Street Sweeping and Vacuuming | Sandbag Barrier |
| Storm Drain Inlet Protection | <input type="checkbox"/> Material Delivery and Storage |
| <input type="checkbox"/> Stockpile Management | <input type="checkbox"/> Spill Prevention and Control |
| <input type="checkbox"/> Solid Waste Management | Concrete Waste Management |
| Stabilized Construction Entrance/Exit | Water Conservation Practices |
| Dewatering Operations | Paving and Grinding Operations |
| <input type="checkbox"/> Vehicle and Equipment Maintenance | |

Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval.

No BMPs needed. Activities are not considered to generate pollutants.

B. POST-CONSTRUCTION PHASE

ATTENTION: THIS PROJECT MAY BE EXEMPT FROM POST CONSTRUCTION BMP REQUIREMENTS IF ONE OR MORE OF THE FOLLOWING THREE STATEMENTS APPLY.

(Check all that apply.)

My project is not located within the County Urban Area as defined by the map that is in Appendix B of the County Watershed Protection, Stormwater Management and Discharge Control Ordinance (map on file with the Clerk of the Board as document number 0768626), AND my project will not route stormwater run-off into or through an underground conveyance other than a road-crossing culvert. I have attached project plans that show the location of this project, and that demonstrate that stormwater run-off will be carried above ground only, except at road crossings.

IF YOU CHECKED OFF THE STATEMENT ABOVE, SKIP TO ITEM D. OTHERWISE COMPLETE ALL REMAINING SECTIONS.

My project is physically complete or substantially complete, and the prior work on the project has all been done pursuant to or as required by a valid County permit or approval. The permit or approval I am seeking is not related to the construction of any stormwater management device, and will not be followed by any additional construction that will increase the impervious surface of this project or change the post-construction uses of the project area. I have attached photographs showing the current state of construction in the areas of the project to which this application for a permit or approval applies.

My project has no potential to add pollutants to stormwater after construction is complete, AND will not affect the flow rate or velocity of stormwater run off after construction is complete. I have attached project plans that demonstrate that the project will not significantly increase impervious surfaces in the project area and will not add any impervious surfaces that are directly connected to the stormwater conveyance system. These plans also show the anticipated post-construction use of the project area. **I understand that this application will not be exempt from the requirement to submit a post-construction stormwater management plan if County staff conclude that these post-construction uses of the project area have the potential to add pollutants to stormwater after construction is complete. I acknowledge that at such time that staff makes this determination, I shall be notified and required to submit the appropriate post-construction SWMP.**

List the post-construction BMPs that will be used: (Check all that apply.)

There will be permanent landscaping as part of this project. The property owner will maintain the landscaping.

Asphalt concrete will be placed over the disturbed areas designated as roadway or parking lots.

PCC will be placed over the disturbed areas designated as either roadway, parking lots or building pads.

Rock slope protection will be placed along channel banks.

- × Outlet Protection/velocity dissipation devices will be placed at storm drain outfalls to reduce the velocity of the flow.

This project will result in a reduction of the amount of asphalt concrete or PCC within the project.

Either asphalt concrete, PCC or porous pavement will be placed over a dirt driveway.

C. MINISTERIAL PERMITS (Per Part G.8 of Ordinance No. 9426) N/A

Please complete this section C if the proposed project is a discretionary permit subject to future ministerial permits, be aware that additional requirements may have to be fulfilled in order to satisfy the requirements of the WPO.

Provide information for the following steps to determine the impervious area for this project:

- A. Total size of construction area _____ (Acres or ft² whichever is appropriate.)
 - B. Total impervious area (including roof tops) before construction _____ (Acres or ft²)
 - C. Total impervious area (including roof tops) after construction _____ (Acres or ft²)
- Percent impervious before construction: B/A = _____ %
- Percent impervious after construction: C/A = _____ %

For proposals that increase impervious surface, a detailed drawing showing drainage from these surfaces being directed to flat vegetated areas not less that 15 feet wide in the

direction of runoff flow. A detailed drawing of the proposed activity showing that it will not occupy any of the areas currently used for surface drainage flow, filtering, or infiltration.

- New walkways, trails, and alleys and other low-traffic areas shall be constructed with permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, or granular materials that allow infiltration.

If the proposed project is subject to future ministerial permits, please be aware that additional requirements may have to be fulfilled in order to satisfy the requirements of the WPO.

D. ATTACHMENTS

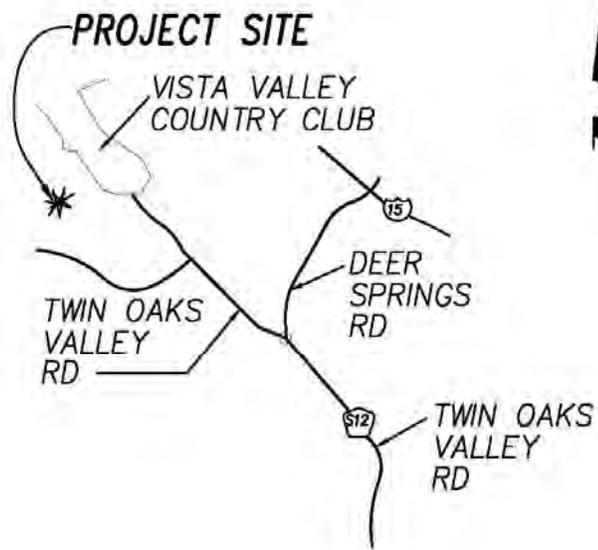
1. Please Attach a Project Map or Plan.
2. If applicable, construction BMPs from Caltrans Storm Water Quality Handbooks Construction Site Best Management Practices Manual, November 2000. Available at the DPW Counter, 5201 Ruffin Road, Suite B, San Diego, CA 92123 or on the Internet at http://www.dot.ca.gov/hq/construc/stormwater/CSBMPM_303_Final.pdf

APPLICANT'S CERTIFICATION OF SWMP

I certify under a penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

	December 24, 2007
Signature	Date
Wayne W. Chang, Principal	(858) 692-0760
Name and Title	Telephone Number





VICINITY MAP

N.T.S.

NATIONAL QUARRIES EXTRACTION SITE

GRADING NOTES

1. THE ENGINEER OF WORK WILL NOT ENFORCE SAFETY MEASURES OR REGULATIONS. THE OWNER SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.
2. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL OF VERTICAL OR HORIZONTAL ALIGNMENT OF ANY PRIVATE ROAD SHOWN HEREON FOR COUNTY ROAD PURPOSES.
3. A CONSTRUCTION, EXCAVATION OR ENCROACHMENT PERMIT FROM THE DIRECTOR OF PUBLIC WORKS WILL BE REQUIRED FOR ANY WORK IN THE COUNTY RIGHT-OF-WAY.
4. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK. NOTICE OF THE PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES.

SAN DIEGO GAS & ELECTRIC 1-800-422-4133
 PACIFIC BELL 1-800-422-4133
 CATV 1-800-422-4133
 WATER: VALLECITOS WATER DISTRICT 1-760-744-0460

PROTECTION OF EXISTING UTILITIES:

THE OWNER IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. ANY PAVEMENT OR OTHER EXISTING SURFACE IMPROVEMENTS DAMAGED BY THE OWNER SHALL BE REPLACED AS REQUIRED BY THE COUNTY OF SAN DIEGO ENGINEERING DEPARTMENT. EXISTING UTILITIES SHOWN HEREON ARE PLOTTED FROM RECORD DATA AND MAY NOT NECESSARILY BE WHERE SHOWN. IT IS THE OWNER'S RESPONSIBILITY TO DETERMINE LOCATION PRIOR TO CONSTRUCTION.

BRUSH REMOVAL:

BRUSH SHALL BE REMOVED ONLY WITHIN THE AREA TO BE GRADED.
 FINISH GRADING:
 CUT AND FILL SLOPES SHALL BE TRIMMED TO THE FINISH GRADE TO PRODUCE A SMOOTH AND UNIFORM SURFACE OR CROSS SECTION. THE FINAL SLOPES OF EXCAVATIONS OR EMBANKMENTS SHALL BE SHAPED AND TRIMMED AS DIRECTED BY THE ENGINEER OF WORK AND LEFT IN A NEAT AND ORDERLY CONDITION. ALL STONES, ROOTS, OR OTHER WASTE EXPOSED ON EXCAVATION OR EMBANKMENT SLOPES SHALL BE REMOVED AND DISPOSED OF.

GENERAL UTILITY NOTES

EXPLORATORY EXCAVATION REQUIRED:

OWNER WILL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF EXCAVATION TO PREVENT DAMAGE TO SAID UTILITIES.

ALL EXISTING UTILITIES WITHIN THE SITE, AND THOSE ADJACENT TO THE SITE WHICH ARE AFFECTED BY THE WORK PROPOSED TO BE DONE ARE SHOWN ON THIS PLAN. THE UTILITY COMPANIES HAVE REVIEWED THESE PLANS AND ARE SATISFIED WITH THE ARRANGEMENTS MADE BY THE PERMITEE TO PROTECT OR RELOCATE THE UTILITIES.

IT SHALL BE THE OWNER'S RESPONSIBILITY TO BACKFILL ALL WELLS, SEPTIC TANKS, AND CISTERNS FOUND ON SITE.

EXISTING UTILITIES OR STRUCTURES ARE SHOWN ACCORDING TO THE RECORDS OF THE FOLLOWING COMPANIES AND HAVE BEEN EXAMINED TO VERIFY THAT THEY OWN NO UTILITIES OR STRUCTURES WHICH WILL BE AFFECTED BY THE PROPOSED GRADING.

SAN DIEGO GAS & ELECTRIC COMPANY: 1-800-422-4133

APPROVAL OF THESE PLANS BY THE PLANNING COMMISSION DOES NOT AUTHORIZE ANY WORK OR GRADING TO BE PERFORMED UNTIL THE PROPERTY OWNER'S PERMISSION HAS BEEN OBTAINED.

NO WAIVER OF THE GRADING ORDINANCE REQUIREMENTS CONCERNING MINIMUM COVER OVER EXPANSIVE SOILS IS MADE OR IMPLIED (SECTIONS 87.403 AND 87.410). ANY SUCH WAIVER MUST BE OBTAINED FROM THE PLANNING COMMISSION.

ALL OPERATIONS CONDUCTED ON THE PREMISES, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTHMOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED GRADING EQUIPMENT SHALL BE LIMITED TO THE SITE'S HOURS OF OPERATION EACH DAY, MONDAY THROUGH FRIDAY, AND NO EARTHMOVING OR GRADING OPERATIONS SHALL BE CONDUCTED ON THE PREMISES ON SUNDAYS OR HOLIDAYS.

ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT OR FILL FACES TO NATURAL GROUND AND ABUTTING CUT OR FILL SURFACES.

14. NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE GRADING ORDINANCE AND NOTWITHSTANDING THE APPROVAL OF THESE RECLAMATION PLANS, THE PERMITEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING, SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FROM THE GRADING DESCRIBED ON THIS PLAN. THE COUNTY WILL HOLD THE PERMITEE RESPONSIBLE FOR CORRECTION OF NON-DEDICATED IMPROVEMENTS WHICH DAMAGE ADJACENT PROPERTY.

SLOPE RATIOS:

CUT - 1:1 (MAXIMUM) FOR ALL SLOPES
 FILL - 2:1 (MAXIMUM) FOR ALL SLOPES DEVIATING FROM THE ABOVE WILL REQUIRE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS AFTER REVIEW OF A REPORT FROM A SOILS ENGINEER.

IF ANY ARCHAEOLOGICAL RESOURCES ARE DISCOVERED ON THE SITE DURING GRADING OPERATIONS, SUCH OPERATIONS WILL CEASE IMMEDIATELY AND THE PERMITEE WILL NOTIFY THE DIRECTOR OF PUBLIC WORKS OF THE DISCOVERY. GRADING OPERATIONS WILL NOT RECOMMENCE UNTIL THE PERMITEE HAS RECEIVED WRITTEN AUTHORITY FROM THE DIRECTOR OF PUBLIC WORKS TO DO SO.

ALL GRADING DETAILS WILL BE IN ACCORDANCE WITH SAN DIEGO COUNTY STANDARD DRAWINGS DS-10, DS-11, D-75.

FINISHED GRADING SHALL BE CERTIFIED BY A REGISTERED CIVIL GEOTECHNICAL ENGINEER AND INSPECTED BY THE COUNTY ENGINEER FOR DRAINAGE CLEARANCE. (APPROVAL OF ROUGH GRADING DOES NOT CERTIFY FINISH GRADING BECAUSE OF POTENTIAL SURFACE DRAINAGE PROBLEMS THAT MAY BE CREATED BY LANDSCAPING ACCOMPLISHED AFTER ROUGH GRADING CERTIFICATION.)

LEGAL DESCRIPTION

PORTIONS OF SECTIONS 9 AND 10, TOWNSHIP 11 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN

PROJECT DESCRIPTION

RECLAMATION OF ONGOING MINERAL EXTRACTION IN ACCORDANCE WITH THE APPROVED RECLAMATION PLAN RP79-005W1.

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE IN ACCORDANCE WITH THESE PLANS, THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (2000 EDITION), THE REGIONAL SUPPLEMENT AMENDMENTS (2000 EDITION), THE SAN DIEGO AREA REGIONAL STANDARD DRAWINGS (DATED JULY 2000).

OWNER

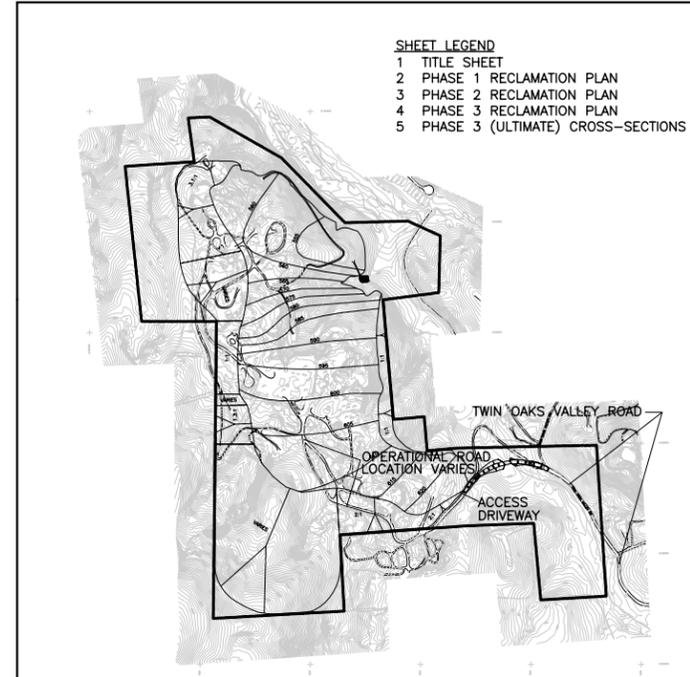
JOHN PETERSON
 2166 AVENIDA DE LA PLAYA, SUITE F
 SAN DIEGO, CA 92037-3238
 1-(858)-459-0142

PERMITEE

JOHN PETERSON
 2166 AVENIDA DE LA PLAYA, SUITE F
 SAN DIEGO, CA 92037-3238
 1-(858)-459-0142

ASSESSOR'S PARCEL NUMBER

172-061-37, 172-063-01, 172-063-02, 172-063-04,
 172-063-14, 172-113-03



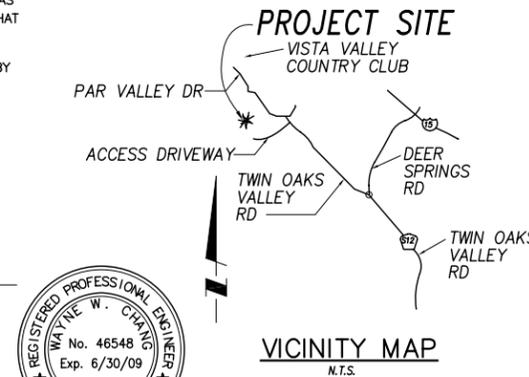
DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE COUNTY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

WAYNE W. CHANG
 CHANG CONSULTANTS
 P.O. BOX 9496
 RANCHO SANTA FE, CA 92067
 PHONE: (858) 692-0760

DESIGN. BY: *Wayne W. Chang* DATE: _____
 WAYNE W. CHANG, R.C.E. 46548



LEGEND

PROPOSED CONTOUR-----
 EXISTING CONTOUR-----
 EXISTING SPOT ELEVATION----- x 2298.0

SYMBOL

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date

PERMITS

HABITAT LOSS PERMIT NO. _____
 N.O.I. NO. _____
 SPECIFIC PLAN AMENDMENT _____
 SPECIAL USE PERMIT NO. _____
 GRADING PERMIT NO. _____
 TENTATIVE MAP NO. _____

BENCH MARK

DESCRIPTION: _____
 LOCATION: _____
 RECORD FROM: _____
 ELEVATION: _____ DATUM: _____

PRIVATE CONTRACT

SHEET 1 COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS 5 SHEETS

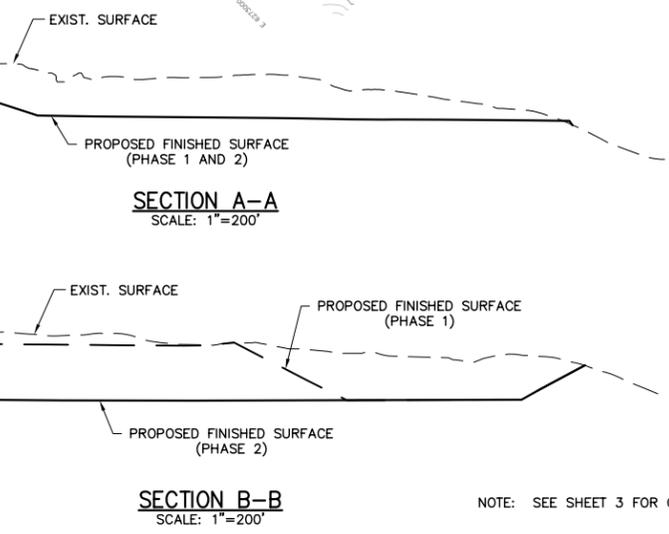
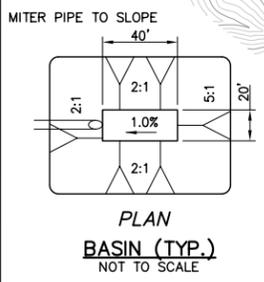
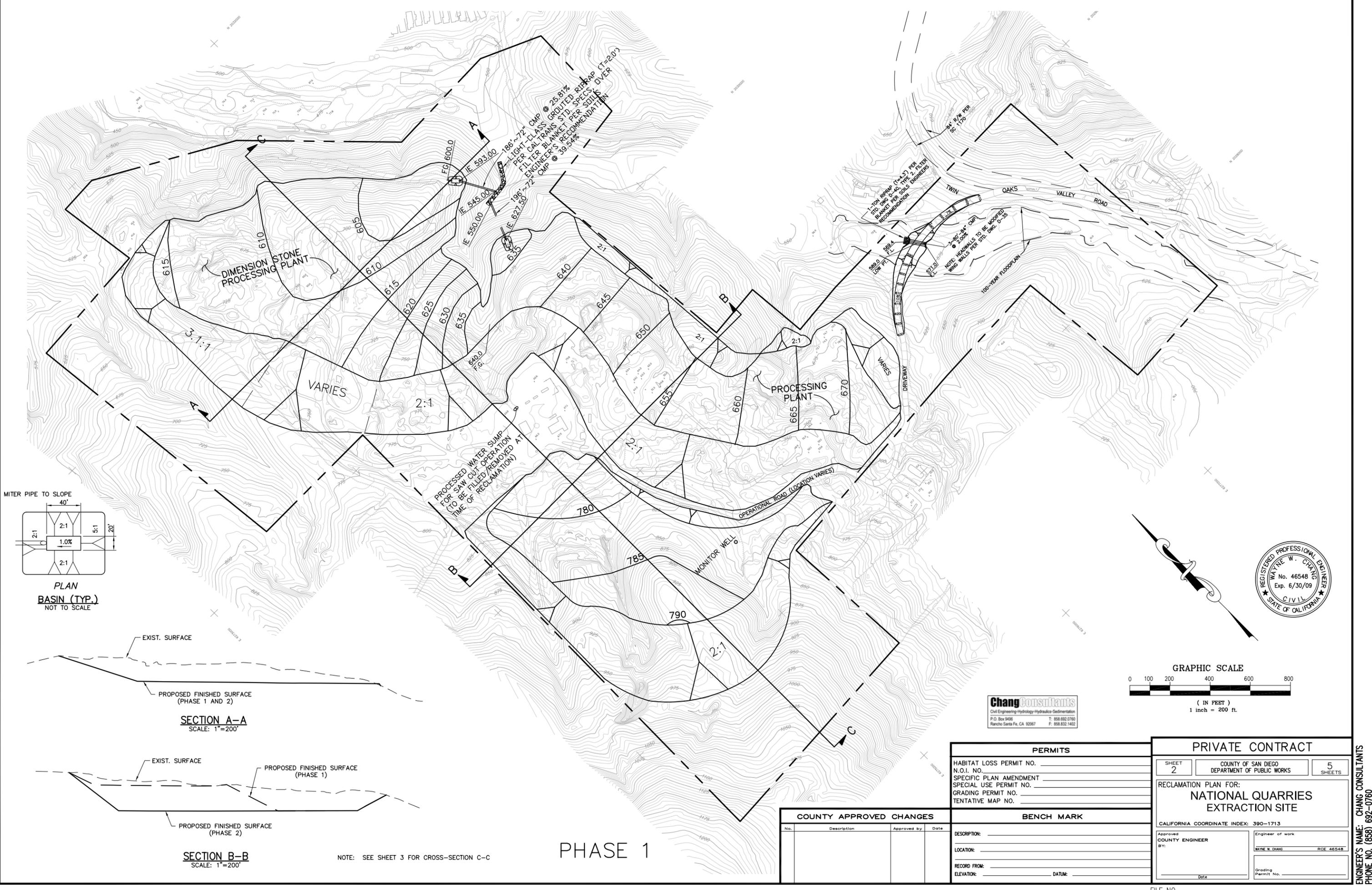
RECLAMATION PLAN FOR:
**NATIONAL QUARRIES
 EXTRACTION SITE**

CALIFORNIA COORDINATE INDEX: 390-1713

Approved COUNTY ENGINEER BY: *Wayne W. Chang* R.C.E. 46548
 Engineer of work BY: _____
 Date: _____
 Grading Permit No. _____

SITE RECLAMATION NOTES:

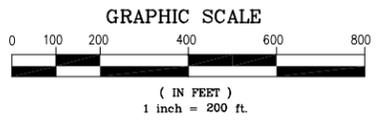
1. SOIL EROSION CONTROL: REMOVAL OF NATIVE VEGETATION WILL BE LIMITED TO AREAS WHERE BORROW SITE OPERATIONS ARE TO BE ACTIVELY CARRIED ON. STOCK PILES WILL BE MANAGED SO AS TO MINIMIZE WIND AND WATER EROSION.
2. WATER QUALITY AND WATERSHED CONTROL: TEMPORARY PILOT CHANNELS OR OTHER SUCH DIVERSIONS SHALL BE RESTORED IN THE FINAL RECLAMATION WHEREVER PRACTICABLE. ALL OPERATIONS SHALL BE CONDUCTED IN COMPLIANCE WITH U.S. ENVIRONMENTAL PROTECTION AGENCY, REGIONAL WATER QUALITY CONTROL BOARD, STATE FISH AND GAME, AND THE COUNTY OF SAN DIEGO REGULATIONS AND REQUIREMENTS.
3. FLOOD CONTROL: FLOOD CONTROL MEASURES SHALL BE MADE IN COMPLIANCE WITH THE REQUIREMENTS OF THE COUNTY OF SAN DIEGO, STATE RECLAMATION BOARD, U.S. ARMY CORPS OF ENGINEERS, AND THE STATE DEPARTMENT OF FISH AND GAME.
4. PROTECTION OF FISH AND WILDLIFE HABITAT: ALL REASONABLE MEASURES SHALL BE TAKEN TO PROTECT THE HABITAT OF FISH AND WILDLIFE.
5. DISPOSAL OF MINE WASTE ROCK AND OVERBURDEN: WASTE ROCK WILL BE SOLD OR USED ON-SITE AS RIP-RAP. SAND AND GRAVEL WILL BE SOLD IMMEDIATELY AFTER EXCAVATION. AFTER TERMINATION OF OPERATIONS, ALL EQUIPMENT WILL BE REMOVED FROM THIS SITE AND NO PERMANENT PILES OR DUMPS OF WASTE MATERIAL WILL REMAIN.
6. SOIL SAVAGE: ON-SITE SUBSOIL AND SILT WILL BE BLENDED WITH SOILS AND USED FOR REVEGETATING THE FACE OF EXPOSED FINAL CUT SLOPES AND OTHER DISTURBED AREAS, EXCEPT ROCK FACES. A SOILS SURVEY MAY BE REQUIRED IN THE FUTURE PRIOR TO ISSUANCE OF ANY BUILDING PERMITS.
7. FINAL SLOPE GRADIENT: CUT AND FILL SLOPES SHALL HAVE A MAXIMUM SLOPE OF 1:1 AND 2:1, RESPECTIVELY, AND SHALL BE TRIMMED TO THE FINISH GRADE TO PRODUCE A SMOOTH AND UNIFORM SURFACE OR CROSS SECTION. THE FINAL SLOPES OF EXCAVATIONS OR EMBANKMENTS SHALL BE SHAPED AND TRIMMED AND LEFT IN A NEAT AND ORDERLY CONDITION. NO SLOPE SHALL BE ESTABLISHED HAVING A GRADE STEEPER THAN ONE-FOOT RISE IN EVERY ONE FOOT. TEMPORARY VERTICAL CUTS IN INCREMENTS OF 100 FEET SHALL BE PERMITTED UNTIL THE END OF THE WORKING WEEK AT WHICH TIME THE VERTICAL CUT MUST BE BACKFILLED.
8. BACKFILLING AND GRADING: GRADING SHALL CONSIST OF THE CONSTRUCTION OF ALL CUTS AND FILLS AS SHOWN. WELLS, SEPTIC TANKS, AND CISTERNS FOUND ON THE SITE SHALL BE BACK-FILLED, ALONG WITH NECESSARY BACKFILLING OF TEMPORARY VERTICAL CUTS AT THE END OF THE WORKING WEEK.
9. EROSION AND DRAINAGE: GRADING AND REVEGETATION SHALL BE DESIGNED TO BOTH PREVENT EXCESSIVE EROSION AND TO CONVEY SURFACE RUNOFF TO NATURAL DRAINAGE COURSES.
10. RESOILING: IN CONSIDERATION OF VARIABLE GEOLOGIC CONDITIONS AND SHALLOW TOPSOIL DEPTHS, IS ESTIMATED THAT AN AVERAGE THICKNESS OF 6 INCHES OF TOPSOIL WILL BE AVAILABLE FOR APPLICATION TO REVEGETATION SURFACES.
11. REVEGETATION: REVEGETATION PLAN IS ATTACHED TO THE RECLAMATION PLAN REPORT.
12. THE PREMISES TO BE GRADED, AND ALL OPERATIONS ON SAID PREMISES SHALL BE CONDUCTED SO THAT THERE IS NO PONDING OR ACCUMULATION OF SURFACE WATER THAT COULD CONSTITUTE A HEALTH AND/OR SAFETY HAZARD TO PERSONS OR PROPERTY, AND SO THERE IS NO PONDING OR ACCUMULATION OF SURFACE WATERS WHICH, IN THE OPINION OF A COUNTY HEALTH OFFICER, WOULD OR COULD PROVIDE A PLACE FOR THE DEVELOPMENT OF HARBORAGE OF INSECTS OR PESTS THAT COULD CAUSE ANNOYANCE OR CONSTITUTE A NUISANCE TO PERSONS OR PROPERTY IN THE VICINITY OF SUCH PREMISES. ALL WATER IMPOUNDMENTS WILL BE REMOVED UPON FINAL RECLAMATION.
13. COUNTY ENGINEER APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL OF ANY WAIVER OF THE TWO FEET (2') OF EXPANSIVE SOIL COVER REQUIRED BY SECTION 87.403 AND THREE FEET (3') OF EXPANSIVE SOIL COVER REQUIRED BY SECTION 87.410 OF THE SAN DIEGO COUNTY GRADING ORDINANCE. ANY SUCH WAIVER MUST BE OBTAINED FROM THE DIRECTOR OF BUILDING INSPECTION.
14. NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE GRADING ORDINANCE AND NOT WITHSTANDING THE APPROVAL OF THESE GRADING PLANS, THE PERMITEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING, SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FROM THE GRADING DESCRIBED ON THIS PLAN.
15. ALL LANDSCAPING AND FENCING SHALL BE ADEQUATELY MAINTAINED AT ALL TIMES.



NOTE: SEE SHEET 3 FOR CROSS-SECTION C-C

PHASE 1

Chang Consultants
 Civil Engineering-Hydrology-Hydraulics-Sedimentation
 P.O. Box 9496 T: 858.692.0760
 Rancho Santa Fe, CA 92067 F: 858.832.1402



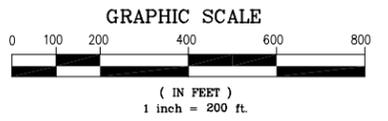
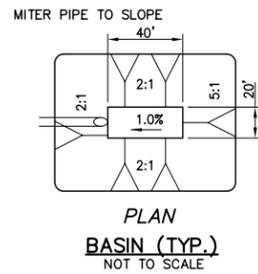
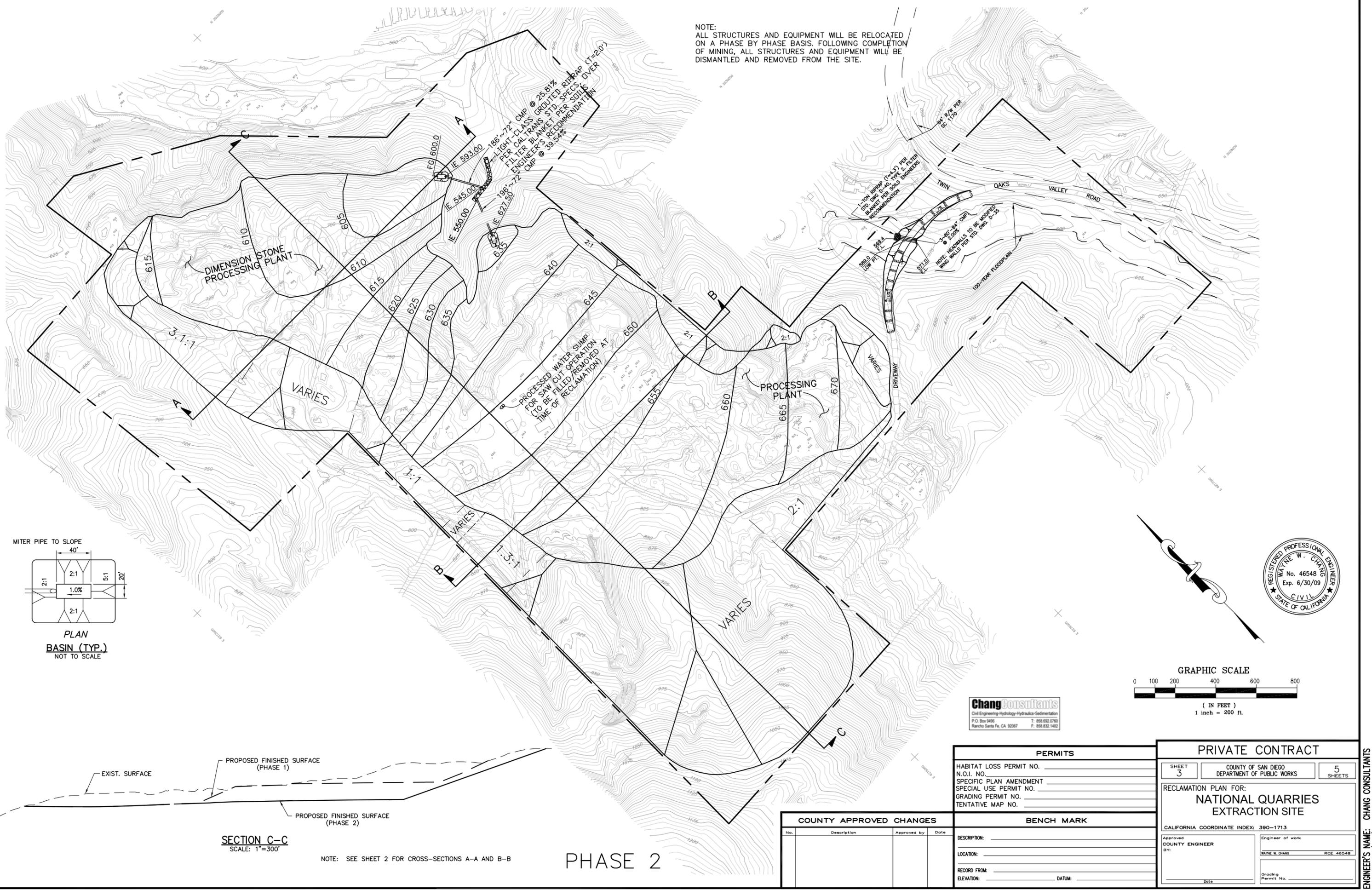
COUNTY APPROVED CHANGES				BENCH MARK	
No.	Description	Approved by	Date	DESCRIPTION:	ELEVATION:

PERMITS			PRIVATE CONTRACT	
HABITAT LOSS PERMIT NO.			SHEET	5
N.O.I. NO.			2	COUNTY OF SAN DIEGO
SPECIFIC PLAN AMENDMENT			DEPARTMENT OF PUBLIC WORKS	
SPECIAL USE PERMIT NO.			RECLAMATION PLAN FOR:	
GRADING PERMIT NO.			NATIONAL QUARRIES	
TENTATIVE MAP NO.			EXTRACTION SITE	
CALIFORNIA COORDINATE INDEX: 390-1713				
Approved COUNTY ENGINEER BY:			Engineer of work	
			WAYNE W. CHANG RCE 46548	
Date			Grading Permit No.	

ENGINEER'S NAME: CHANG CONSULTANTS
 PHONE NO. (858) 692-0760

FILE NO.

NOTE:
ALL STRUCTURES AND EQUIPMENT WILL BE RELOCATED ON A PHASE BY PHASE BASIS. FOLLOWING COMPLETION OF MINING, ALL STRUCTURES AND EQUIPMENT WILL BE DISMANTLED AND REMOVED FROM THE SITE.



Chang Consultants
Civil Engineering-Hydrology-Hydraulics-Sedimentation
P.O. Box 9496 T: 858.692.0760
Rancho Santa Fe, CA 92067 F: 858.832.1492

SECTION C-C
SCALE: 1"=300'

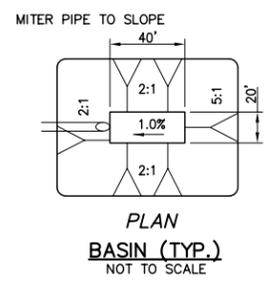
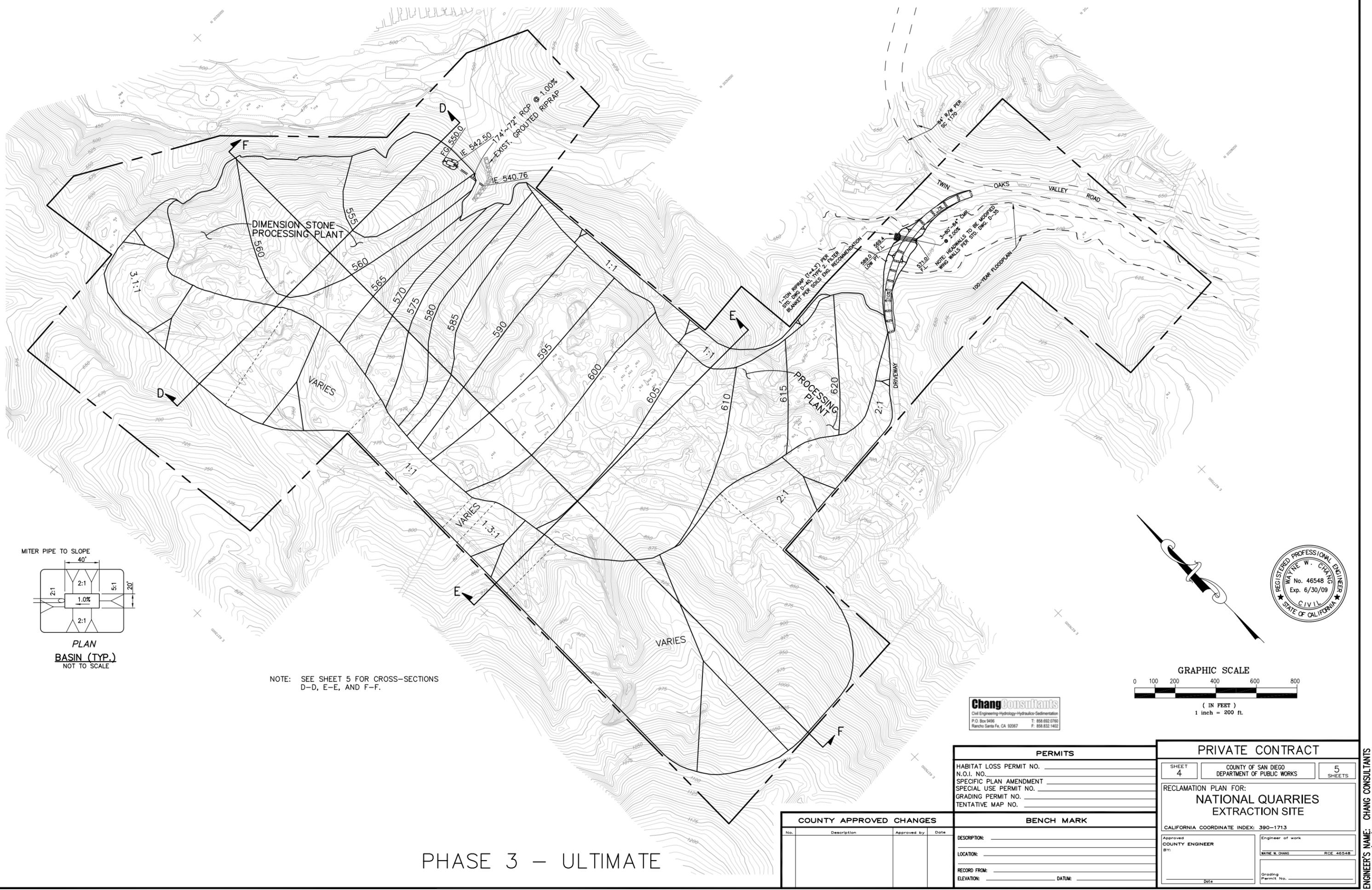
NOTE: SEE SHEET 2 FOR CROSS-SECTIONS A-A AND B-B

PHASE 2

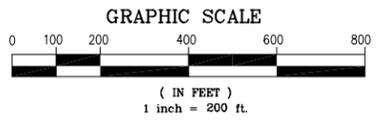
PERMITS				PRIVATE CONTRACT			
HABITAT LOSS PERMIT NO. _____				SHEET 3		COUNTY OF SAN DIEGO	
N.O.I. NO. _____				DEPARTMENT OF PUBLIC WORKS		5 SHEETS	
SPECIFIC PLAN AMENDMENT _____				RECLAMATION PLAN FOR:			
SPECIAL USE PERMIT NO. _____				NATIONAL QUARRIES			
GRADING PERMIT NO. _____				EXTRACTION SITE			
TENTATIVE MAP NO. _____				CALIFORNIA COORDINATE INDEX: 390-1713			
COUNTY APPROVED CHANGES				BENCH MARK			
No.	Description	Approved by	Date	DESCRIPTION: _____			
				LOCATION: _____			
				RECORD FROM: _____			
				ELEVATION: _____ DATUM: _____			
Approved COUNTY ENGINEER BY: _____				Engineer of work WAYNE W. CHANG RCE 46548			
Date _____				Grading Permit No. _____			

FILE NO.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760



NOTE: SEE SHEET 5 FOR CROSS-SECTIONS D-D, E-E, AND F-F.



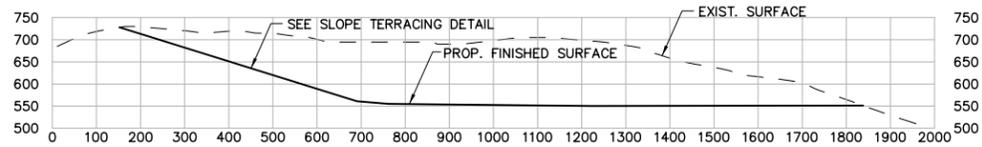
Chang Consultants
Civil Engineering-Hydrology-Hydraulics-Sedimentation
P.O. Box 9496 T: 858.692.0760
Rancho Santa Fe, CA 92067 F: 858.832.1462

PHASE 3 - ULTIMATE

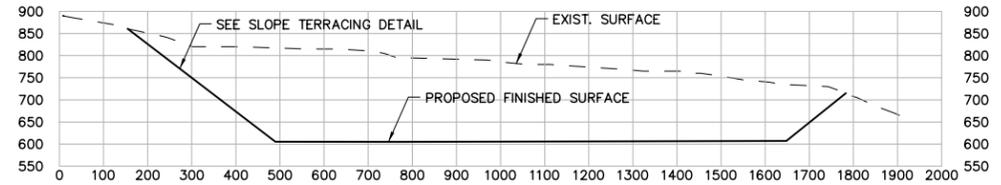
<p align="center">PERMITS</p> HABITAT LOSS PERMIT NO. _____ N.O.I. NO. _____ SPECIFIC PLAN AMENDMENT _____ SPECIAL USE PERMIT NO. _____ GRADING PERMIT NO. _____ TENTATIVE MAP NO. _____		<p align="center">PRIVATE CONTRACT</p> SHEET 4 COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS SHEETS 5 RECLAMATION PLAN FOR: <p align="center">NATIONAL QUARRIES EXTRACTION SITE</p> CALIFORNIA COORDINATE INDEX: 390-1713 Approved COUNTY ENGINEER BY: _____ Engineer of work: <u>WAYNE W. CHANG</u> RCE 46548 Grading Permit No. _____ Date _____																	
<p align="center">COUNTY APPROVED CHANGES</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Approved by</th> <th>Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		No.	Description	Approved by	Date													<p align="center">BENCH MARK</p> DESCRIPTION: _____ LOCATION: _____ RECORD FROM: _____ ELEVATION: _____ DATUM: _____	
No.	Description	Approved by	Date																

FILE NO.

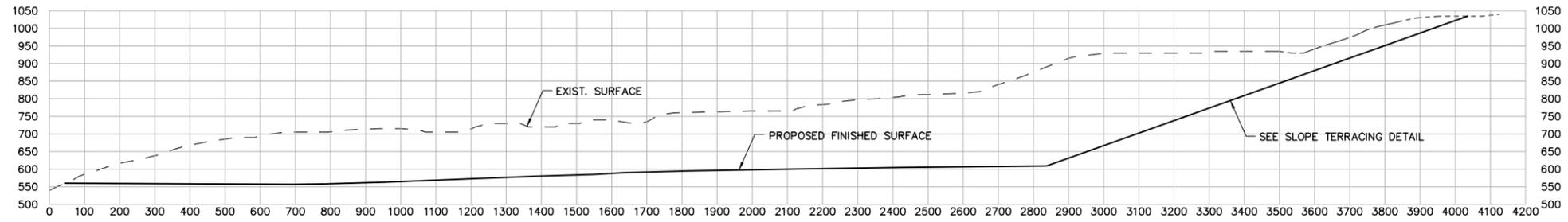
ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760



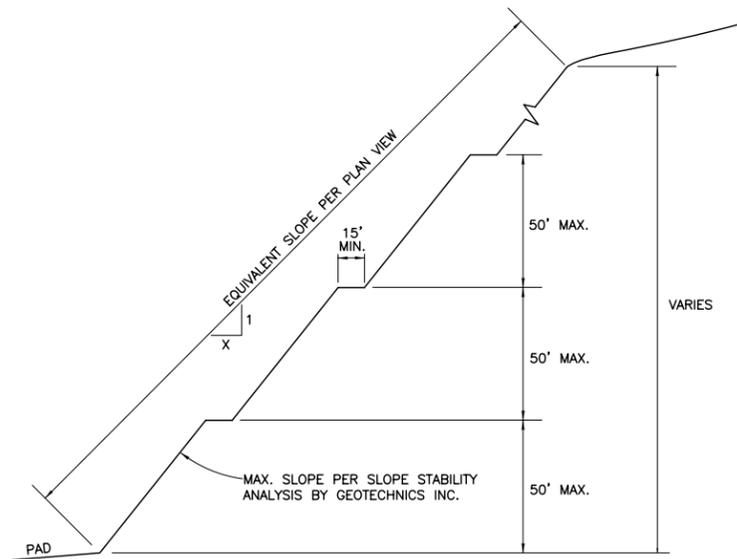
SECTION D-D
SCALE: 1"=200'



SECTION E-E
SCALE: 1"=200'



SECTION F-F
SCALE: 1"=200'



SLOPE TERRACING (TYP.)
NO SCALE

PHASE 3 (ULTIMATE) - CROSS-SECTIONS



PERMITS	
HABITAT LOSS PERMIT NO.	_____
N.O.I. NO.	_____
SPECIFIC PLAN AMENDMENT	_____
SPECIAL USE PERMIT NO.	_____
GRADING PERMIT NO.	_____
TENTATIVE MAP NO.	_____

PRIVATE CONTRACT		
SHEET 5	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	5 SHEETS

RECLAMATION PLAN FOR:
**NATIONAL QUARRIES
EXTRACTION SITE**

CALIFORNIA COORDINATE INDEX: 390-1713

Approved
COUNTY ENGINEER
BY: _____
Date _____

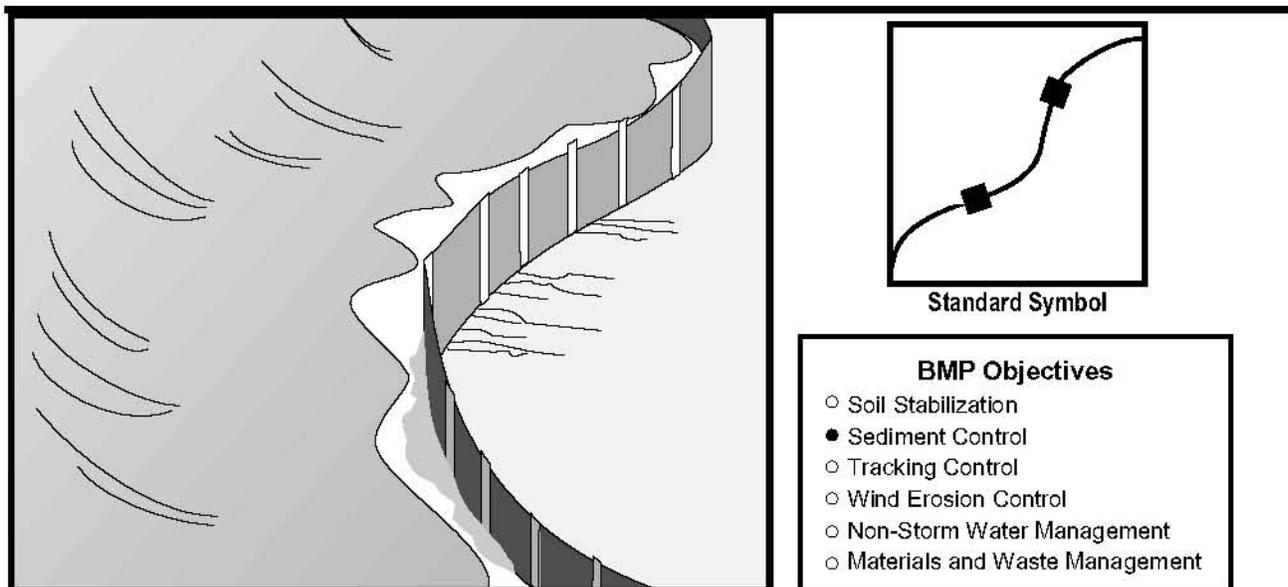
Engineer of work
NAME: W. CHANG RCE 46548
Grading
Permit No. _____
Date _____

COUNTY APPROVED CHANGES			
No.	Description	Approved by	Date

BENCH MARK	
DESCRIPTION:	_____
LOCATION:	_____
RECORD FROM:	_____
ELEVATION:	_____ DATUM: _____

FILE NO.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760



Definition and Purpose A silt fence is a temporary linear sediment barrier of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff. Silt fences allow sediment to settle from runoff before water leaves the construction site.

- Appropriate Applications** Silt fences are placed:
- Below the toe of exposed and erodible slopes.
 - Down-slope of exposed soil areas.
 - Around temporary stockpiles.
 - Along streams and channels.
 - Along the perimeter of a project.

- Limitations**
- Not effective unless trenched and keyed in.
 - Not intended for use as mid-slope protection on slopes greater than 1:4 (V:H).
 - Must be maintained.
 - Must be removed and disposed of.
 - Don't use below slopes subject to creep, slumping, or landslides.
 - Don't use in streams, channels, drain inlets, or anywhere flow is concentrated.
 - Don't use silt fences to divert flow.

Standards and Specifications

Design and Layout

- The maximum length of slope draining to any point along the silt fence shall be 61 m (200 ft) or less.
- Slope of area draining to silt fence shall be less than 1:1 (V:H).
- Limit to locations suitable for temporary ponding or deposition of sediment.
- Fabric life span generally limited to between five and eight months. Longer periods may require fabric replacement.
- Silt fences shall not be used in concentrated flow areas.
- Lay out in accordance with Pages 5 and 6 of this BMP.
- For slopes steeper than 1:2 (V:H) and that contain a high number of rocks or large dirt clods that tend to dislodge, it may be necessary to install additional protection immediately adjacent to the bottom of the slope, prior to installing silt fence. Additional protection may be a chain link fence or a cable fence.
- For slopes adjacent to water bodies or Environmentally Sensitive Areas (ESAs), additional temporary soil stabilization BMPs shall be used.

Materials

- Silt fence fabric shall be woven polypropylene with a minimum width of 900 mm (36 inches) and a minimum tensile strength of 0.45-kN. The fabric shall conform to the requirements in ASTM designation D4632 and shall have an integral reinforcement layer. The reinforcement layer shall be a polypropylene, or equivalent, net provided by the manufacturer. The permittivity of the fabric shall be between 0.1 sec^{-1} and 0.15 sec^{-1} in conformance with the requirements in ASTM designation D4491. Contractor must submit certificate of compliance in accordance with Standard Specifications Section 6-1.07.
- Wood stakes shall be commercial quality lumber of the size and shape shown on the plans. Each stake shall be free from decay, splits or cracks longer than the thickness of the stake or other defects that would weaken the stakes and cause the stakes to be structurally unsuitable.
- Bar reinforcement may be used, and its size shall be equal to a number four (4) or greater. End protection shall be provided for any exposed bar reinforcement.
- Staples used to fasten the fence fabric to the stakes shall be not less than 45 mm (1.75 inches) long and shall be fabricated from 1.57 mm (0.06 inch) or heavier wire. The wire used to fasten the tops of the stakes together when

joining two sections of fence shall be 3.05 mm (0.12 inch) or heavier wire. Galvanizing of the fastening wire is not required.

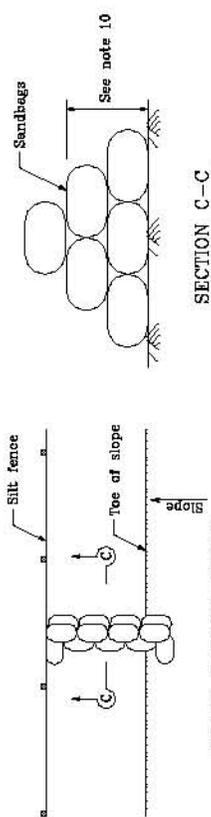
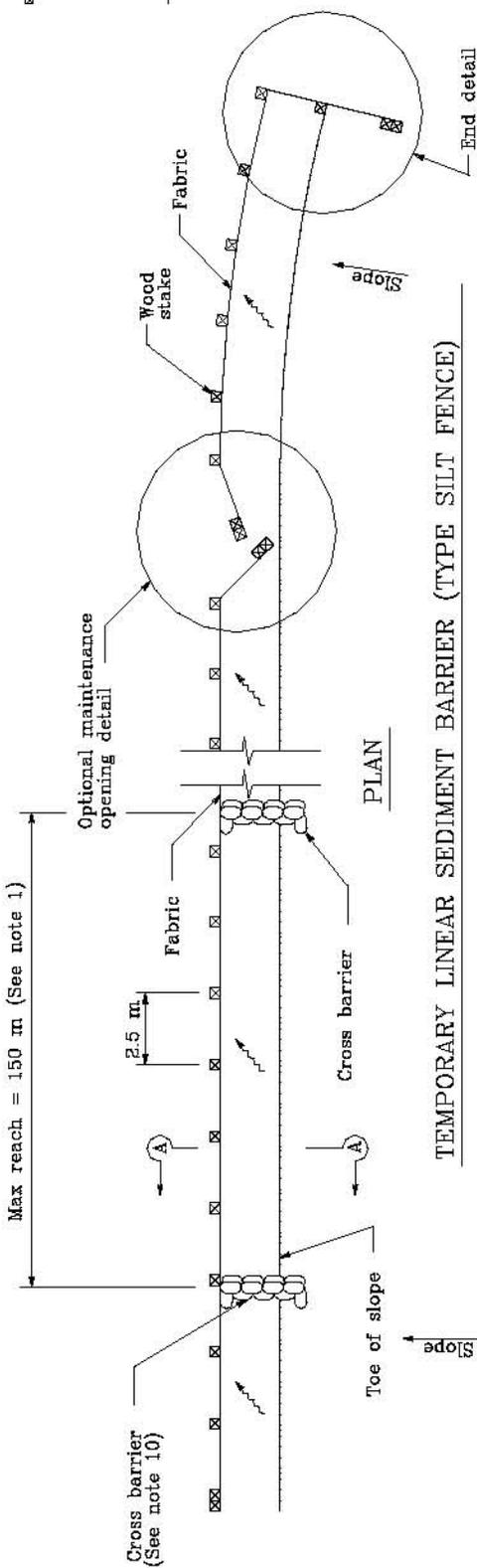
Installation

- Generally, silt fences shall be used in conjunction with soil stabilization source controls up slope to provide effective erosion and sediment control.
- Bottom of the silt fence shall be keyed-in a minimum of 150 mm (12 inches).
- Trenches shall not be excavated wider and deeper than necessary for proper installation of the temporary linear sediment barriers.
- Excavation of the trenches shall be performed immediately before installation of the temporary linear sediment barriers.
- Construct silt fences with a set-back of at least 1m (3 ft) from the toe of a slope. Where a silt fence is determined to be not practical due to specific site conditions, the silt fence may be constructed at the toe of the slope, but shall be constructed as far from the toe of the slope as practical.
- Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/3 the height of the barrier; in no case shall the reach exceed 150 meters (490 ft).
- Cross barriers shall be a minimum of 1/3 and a maximum of 1/2 the height of the linear barrier.
- Install in accordance with Pages 5 and 6 of this BMP.

Maintenance and Inspection

- Repair undercut silt fences.
- Repair or replace split, torn, slumping, or weathered fabric.
- Inspect silt fence when rain is forecast. Perform necessary maintenance, or maintenance required by the Resident Engineer (RE).
- Inspect silt fence following rainfall events. Perform maintenance as necessary, or as required by the RE.
- Maintain silt fences to provide an adequate sediment holding capacity. Sediment shall be removed when the sediment accumulation reaches one-third (1/3) of the barrier height. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the right-of-way in conformance with the Standard Specifications.
- Silt fences that are damaged and become unsuitable for the intended purpose, as determined by the RE, shall be removed from the site of work, disposed of outside the highway right-of-way in conformance with the Standard Specifications, and replaced with new silt fence barriers.

-
- Holes, depressions or other ground disturbance caused by the removal of the temporary silt fences shall be backfilled and repaired in conformance with the Standard Specifications.
 - Remove silt fence when no longer needed or as required by the RE. Fill and compact post holes and anchorage trench, remove sediment accumulation, and grade fence alignment to blend with adjacent ground.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

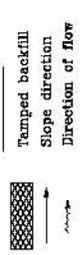
**TEMPORARY LINEAR SEDIMENT BARRIER
(TYPE SILT FENCE)**

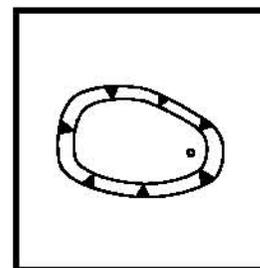
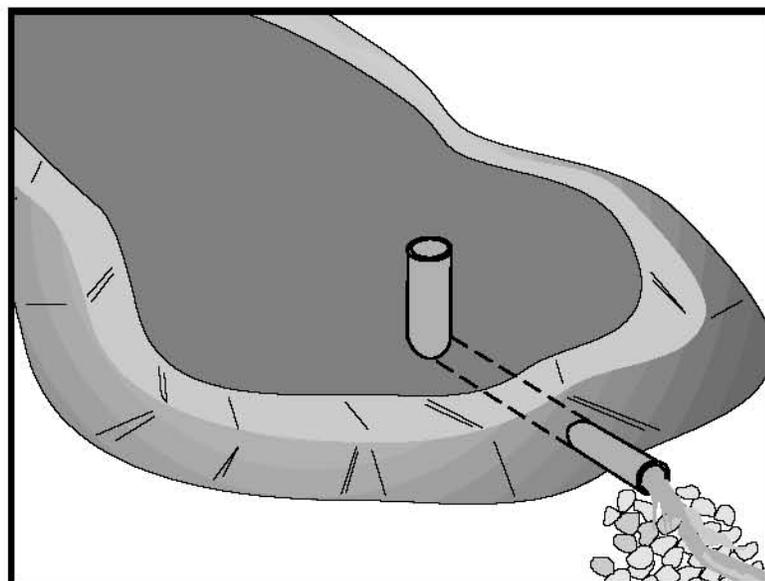
NO SCALE
ALL DIMENSIONS ARE IN
MILLIMETERS UNLESS OTHERWISE SHOWN

NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/3 the height of the linear barrier, in no case shall the reach length exceed 160m.
2. The last 2.5 m of fences shall be turned up slope.
3. Stake dimensions are nominal.
4. Dimension may vary to fit field condition.
5. Stakes shall be spaced at 2.5 m maximum and shall be positioned on downstream side of fence.
6. Stakes to overlap and fence fabric to fold around each stake one full turn. Secure fabric to stake with 4 staples.
7. Stakes shall be driven tightly together to prevent potential flow-through of sediment at joint. The tops of the stakes shall be secured with wire.
8. For end stake, fence fabric shall be folded around two stakes one full turn and secured with 4 staples.
9. Minimum 4 staples per stake. Dimensions shown are typical.
10. Cross barriers shall be a minimum of 1/3 and a maximum of 1/2 the height of the linear barrier.
11. Maintenance openings shall be constructed in a manner to ensure sediment remains behind silt fence.
12. Joining sections shall not be placed at sump locations.
13. Sandbag rows and layers shall be offset to eliminate gaps.

LEGEND





Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose A sediment/desilting basin is a temporary basin formed by excavating and/or constructing an embankment so that sediment-laden runoff is temporarily detained under quiescent conditions, allowing sediment to settle out before the runoff is discharged (refer to Figures 1 and 2).

Appropriate Applications Sediment basins shall be designed in accordance with Section A of the State of California NPDES General Permit for Storm Water Discharges Associated with Construction Activities (General Permit). If there is insufficient area to construct a sediment basin in accordance with the General Permit requirements, then the alternate desilting design standards specified herein may be used. This BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the RE.

Sediment/Desilting Basins shall be considered for use:

- On construction projects with disturbed areas during the rainy season.
- Where sediment-laden water may enter the drainage system or watercourses.
- At outlets of disturbed soil areas with areas between 2 ha and 4 ha (5 ac and 10 ac).

Limitations

- Alternative BMPs must be thoroughly investigated for erosion control before selecting temporary desilting basins.
- Requires large surface areas to permit settling of sediment.
- Not appropriate for drainage areas greater than 30 ha (75 ac).
- Not to be located in live streams

Standards and Specifications

- For safety reasons, basins shall have protective fencing.
- Size may be limited by availability of right-of-way.
- Limit the contributing area to the sediment/desilting basin to only the runoff from the disturbed soil areas. Use temporary concentrated flow conveyance controls to divert runoff from undisturbed areas away from the sediment/desilting basin.

Sediment Basin

- Sediment basins shall, at a minimum, be designed as follows:
 - Option 1: Pursuant to local ordinance for sediment basin design and maintenance, provided that the design efficiency is as protective or more protective of water quality than Option 3.

OR

- Option 2: Sediment basin(s), as measured from the bottom of the basin to the principal outlet, shall have at least a capacity equivalent to 102 cubic meters (3,600 cubic feet) of storage per 0.4 hectare (1 acre) draining into the sediment basin. The length of the basin shall be more than twice the width of the basin. The length is determined by measuring the distance between the inlet and the outlet; and the depth must not be less than 0.9 m (3 ft) nor greater than 1.5 m (5 ft) for safety reasons and for maximum efficiency.

OR

- Option 3: Sediment basin(s) shall be designed using the standard equation:

$$A_s = 1.2Q/V_s \quad (\text{Eq. 1})$$

Where:

A_s = Minimum surface area for trapping soil particles of a certain size

V_s = Settling velocity of the design particle size chosen

$$Q = CIA$$

Where:

Q = Discharge rate measured in cubic feet per second

C = Runoff coefficient

I = Precipitation intensity for the 10-year, 6-hour rain event

A = Area draining into the sediment basin in acres

The design particle size shall be the smallest soil grain size determined by wet sieve analysis, or the fine silt sized (0.01mm) particle, and the V_s used shall be 100 percent of the calculated settling velocity.

The length is determined by measuring the distance between the inlet and the outlet; the length shall be more than twice the dimension as the width; the depth shall not be less than 0.9 m (3 ft) nor greater than 1.5 m (5 ft) for safety reasons and for maximum efficiency [0.6 m (2 ft) of sediment storage, 0.6 m (2 ft) of capacity]. The basin(s) shall be located on the site where it can be maintained on a year-round basis and shall be maintained on a schedule to retain the 0.6 m (2 ft) of capacity.

OR

- Option 4: The use of an equivalent surface area design or equation, provided that the design efficiency is as protective or more protective of water quality than Option 3.

Desilting Basin

- Desilting basins shall be designed to have a capacity equivalent to 100 cubic meters of storage (as measured from the top of the basin to the principal outlet) per hectare of contributory area. This design is less than the required to capture the 0.01 mm particle size but larger than that required to capture particles 0.02 mm or larger.
- The length of the basin shall be more than twice the width of the basin; the length shall be determined by measuring the distance between the inlet and the outlet.
- The depth must be no less than one (1) meter nor greater than 1.5 m.
- Basins with an impounding levee greater than 1.5 m (5 ft) tall, measured from the lowest point to the impounding area to the highest point of the levee, and basins capable of impounding more than 1000 cubic meters (35,300 cubic feet), shall be designed by a professional Civil Engineer registered with the state of California. The design must be submitted to the Resident Engineer (RE) for approval at least 7 days prior to the basin construction. The design shall include maintenance requirements, including sediment and vegetation removal, to ensure continuous function of the basin outlet and bypass structures.

General Requirements

- Design and locate sediment/desilting basins so that they can be maintained. Construct desilting basins prior to the rainy season and construction activities.
- Sediment/desilting basins, regardless of size and storage volume, shall include features to accommodate overflow or bypass flows that exceed the design storm event. The calculated basin volume and proposed location shall be submitted to

the RE for approval at least 3 days prior to the basin construction.

- Construct an emergency spillway to accommodate flows not carried by the principal spillway. Spillway shall consist of an open channel (earthen or vegetated) over undisturbed material (not fill) or constructed of a non-erodible riprap.
- Spillway control section, which is a level portion of the spillway channel at the highest elevation in the channel, shall be a minimum of 6 m (20 ft) in length.
- A forebay, constructed upstream of the basin may be provided to remove debris and larger particles.
- Basin inlets shall be located to maximize travel distance to the basin outlet.
- Rock or vegetation shall be used to protect the basin inlet and slopes against erosion.
- The outflow from the basins shall be provided with outlet protection to prevent erosion and scouring of the embankment and channel. See BMP SS-10, "Outlet Protection/Velocity Dissipation Devices."
- Basin shall be located: (1) by excavating a suitable area or where a low embankment can be constructed across a swale, (2) where post-construction (permanent) detention basins will be constructed, (3) where failure would not cause loss of life or property damage, (4) where the basins can be maintained on a year-round basins to provide access for maintenance, including sediment removal and sediment stockpiling in a protected area, and to maintain the basin to provide the required capacity.
- Areas under embankments, structural works, and sediment/desilting basin must be cleared, stripped of vegetation in accordance with Standard Specifications Section 16 – "Clearing and Grubbing."
- Earthwork shall be in accordance with Standard Specifications Section 19 – "Earthwork". Contractor is specifically directed to Standard Specifications Sections 19-5, "Compaction," and 19-6, "Embankment Construction."
- Structure shall be placed on a firm, smooth foundation with the base securely anchored with concrete or other means to prevent floatation.
- Discharge from the basin shall be accomplished through a water quality outlet. An example is shown in Figure 3. The Principal outlet shall consist of a corrugated metal, high density polyethylene (HDPE), or reinforced concrete riser pipe with dewatering holes and an anti-vortex device and trash rack attached to the top of the riser, to prevent floating debris from flowing out of the basin or obstructing the system. This principal structure shall be designed

to accommodate the inflow design storm.

- A rock pile or rock-filled gabions can serve as alternatives to the debris screen, although the designer should be aware of the potential for extra maintenance involved should the pore spaces in the rock pile clog.
- Proper hydraulic design of the outlet is critical to achieving the desired performance of the basin. The water quality outlet should be designed to drain the basin within 24 to 72 hours (also referred to as “drawdown time”). (The 24-hour limit is specified to provide adequate settling time; the 72-hour limit is specified to mitigate vector control concerns.)
- The two most common outlet problems that occur are: (1) the capacity of the outlet is too great resulting in only partial filling of the basin and drawdown time less than designed for; and (2) the outlet clogs because it is not adequately protected against trash and debris. To avoid these problems, the following outlet types are recommended for use: (1) a single orifice outlet with or without the protection of a riser pipe, and (2) perforated riser. Design guidance for single orifice and perforated riser outlets are as follows:

Flow Control Using a Single Orifice At The Bottom Of The Basin

(Figure 1): The outlet control orifice should be sized using the following equation:

$$a = \frac{2A(H - H_o)^{0.5}}{3600CT(2g)^{0.5}} = \frac{(7 \times 10^{-5})A(H - H_o)^{0.5}}{CT} \quad (\text{Eq. 2})$$

where:

- a = area of orifice (ft²) (1 ft² = 0.0929m²)
- A = surface area of the basin at mid elevation (ft²)
- C = orifice coefficient
- T = drawdown time of full basin (hrs)
- G = gravity (32.2 ft/s²)
- H = elevation when the basin is full (ft)
- H_o = final elevation when basin is empty (ft)

With a drawdown time of 40 hours, the equation becomes:

$$a = \frac{(1.75 \times 10^{-6})A(H - H_o)^{0.5}}{C} \quad (\text{Eq. 3})$$

Flow Control Using Multiple Orifices (see Figure2):

$$a_t = \frac{2A(h_{max})}{CT(2g[h_{max} - h_{centroid\ of\ orifices}])^{0.5}} \quad (\text{Eq. 4})$$

With terms as described above except:

a_t = total area of orifices

h_{max} = maximum height from lowest orifice to the maximum water surface (ft)

$h_{centroid\ of\ orifices}$ = height from the lowest orifice to the centroid of the orifice configuration (ft)

Allocate the orifices evenly on two rows; separate the holes by 3x hole diameter vertically, and by 120 degrees horizontally (refer to Figure 3).

Because basins are not maintained for infiltration, water loss by infiltration should be disregarded when designing the hydraulic capacity of the outlet structure.

Care must be taken in the selection of "C"; 0.60 is most often recommended and used. However, based on actual tests, GKY (1989), "Outlet Hydraulics of Extended Detention Facilities for Northern Virginia Planning District Commission", recommends the following:

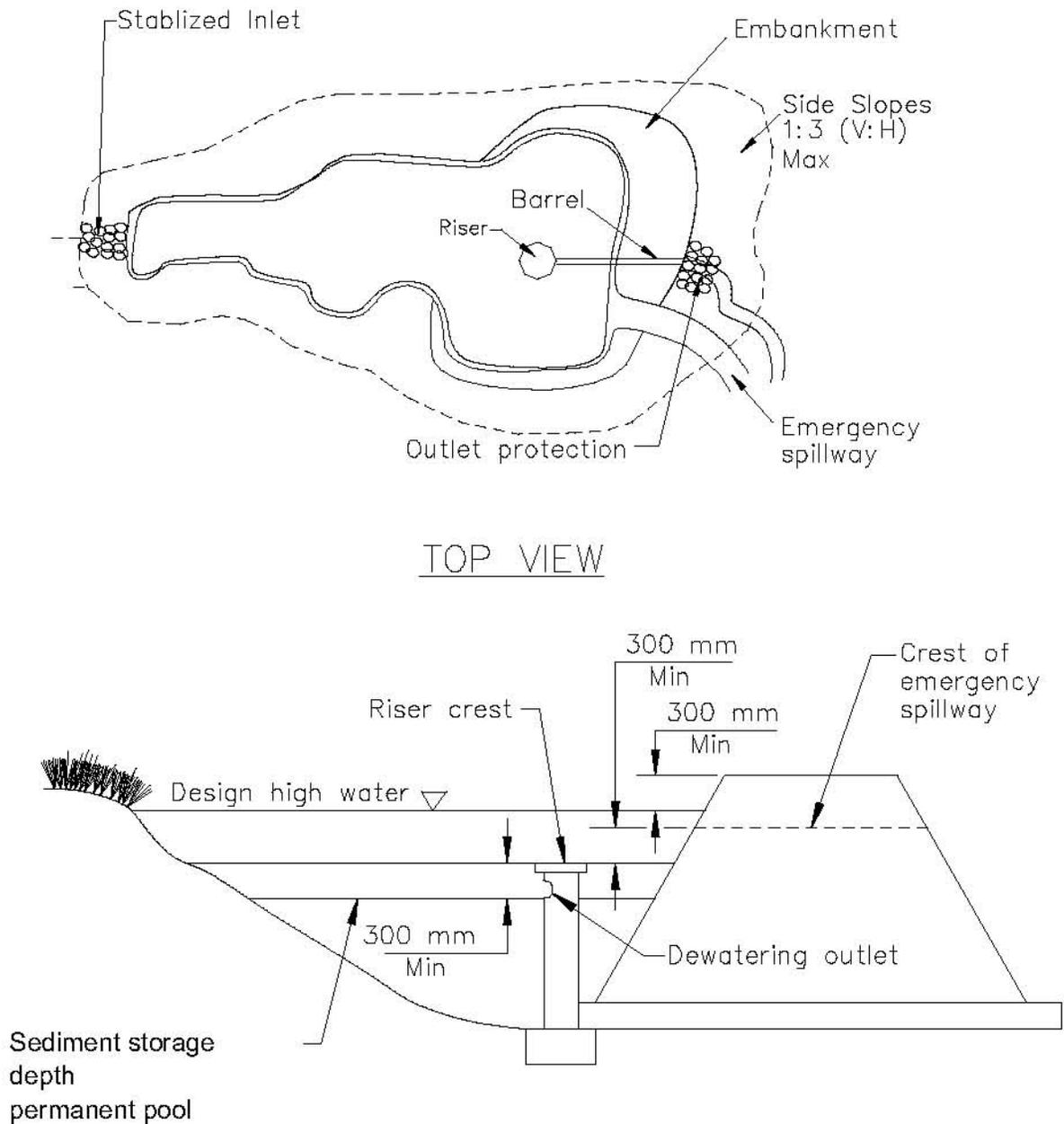
C = 0.66 for thin materials; where the thickness is equal to or less than the orifice diameter, or

C = 0.80 when the material is thicker than the orifice diameter

- The Contractor shall verify that the outlet is properly designed to handle the design and peak flows.
 - Attach riser pipe (watertight connection) to a horizontal pipe (barrel), which extends through the embankment to toe of fill. Provide anti-seep collars on the barrel.
 - Cleanout level shall be clearly marked on the riser pipe
 - Avoid dewatering of groundwater to the sediment/desilting basin during the rainy season. Insignificant quantities of accumulated precipitation may be dewatered to the sediment/desilting basin unless precipitation is forecasted within 24 hours. Refer to NS-2 "Dewatering Operations."
 - Chain link fencing shall be provided around each sediment/desilting basin to prevent unauthorized entry to the basin or if safety is a concern. Fencing shall be in accordance with Standard Specifications Section 80 – "Fencing."
- Maintenance and Inspection
- Inspect sediment/desilting basins before and after rainfall events and weekly during the rest of the rainy season. During extended rainfall events, inspect at

least every 24 hours.

- Examine basin banks for seepage and structural soundness.
- Check inlet and outlet structures and spillway for any damage or obstructions. Repair damage and remove obstructions as needed, or as directed by the RE.
- Remove standing water from the basin within 72 hours after accumulation.
- Check inlet and outlet area for erosion and stabilize if required, or if directed by the RE.
- Remove accumulated sediment when its volume reaches one-third the volume of the sediment storage. Properly dispose of sediment and debris removed from the basin.
- Check fencing for damage and repair as needed or as directed by the RE.



This outlet provides no drainage for permanent pool.

FIGURE 1: SINGLE ORIFICE DESIGN
NOT TO SCALE

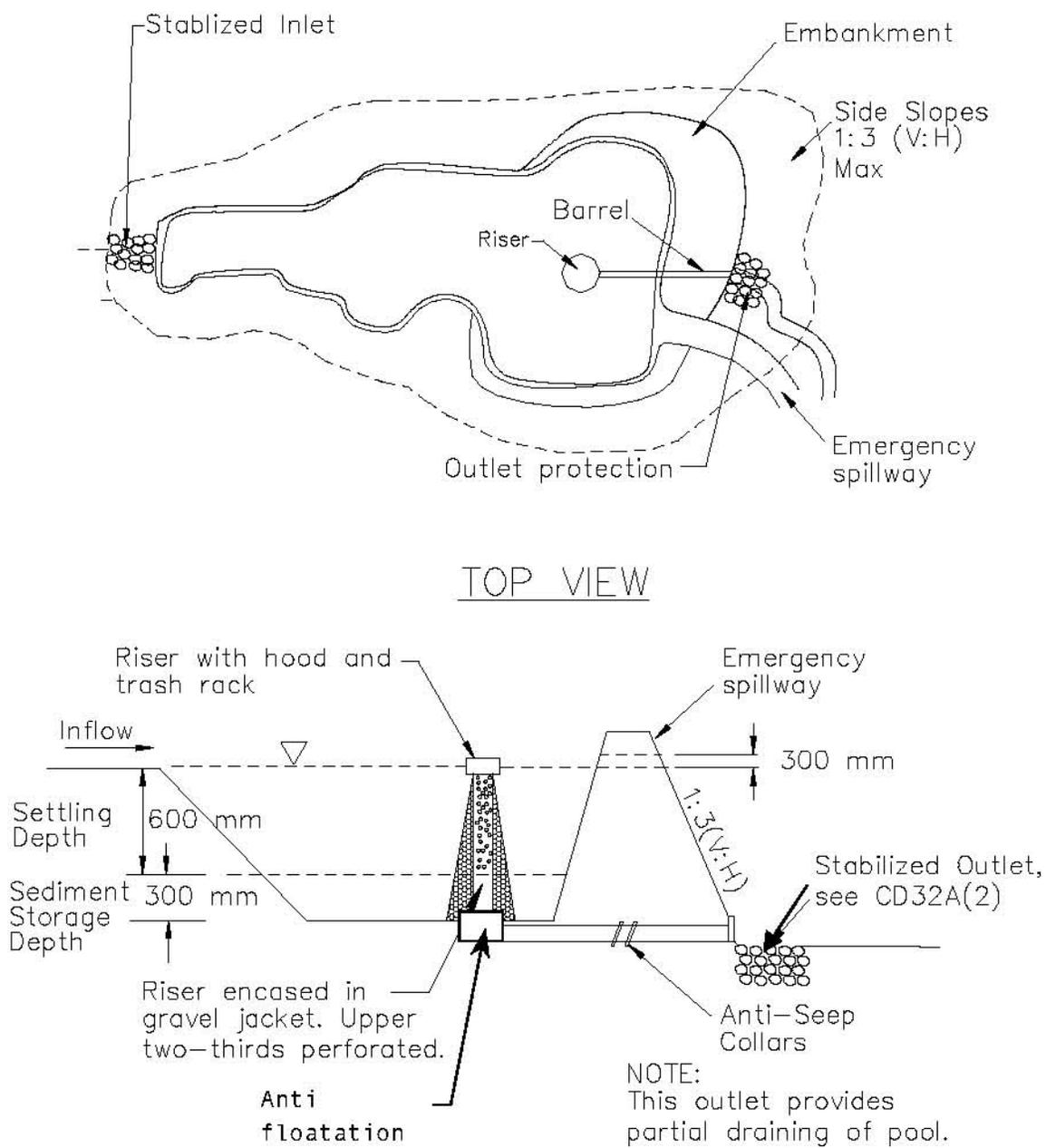
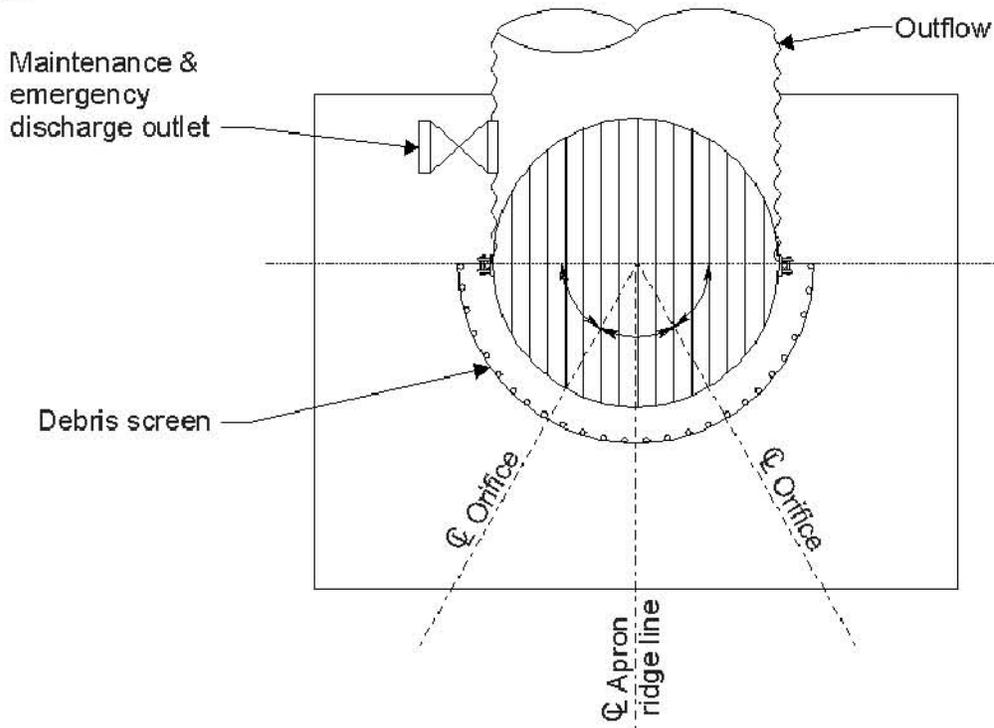


FIGURE 2: MULTIPLE ORIFICE DESIGN
NOT TO SCALE

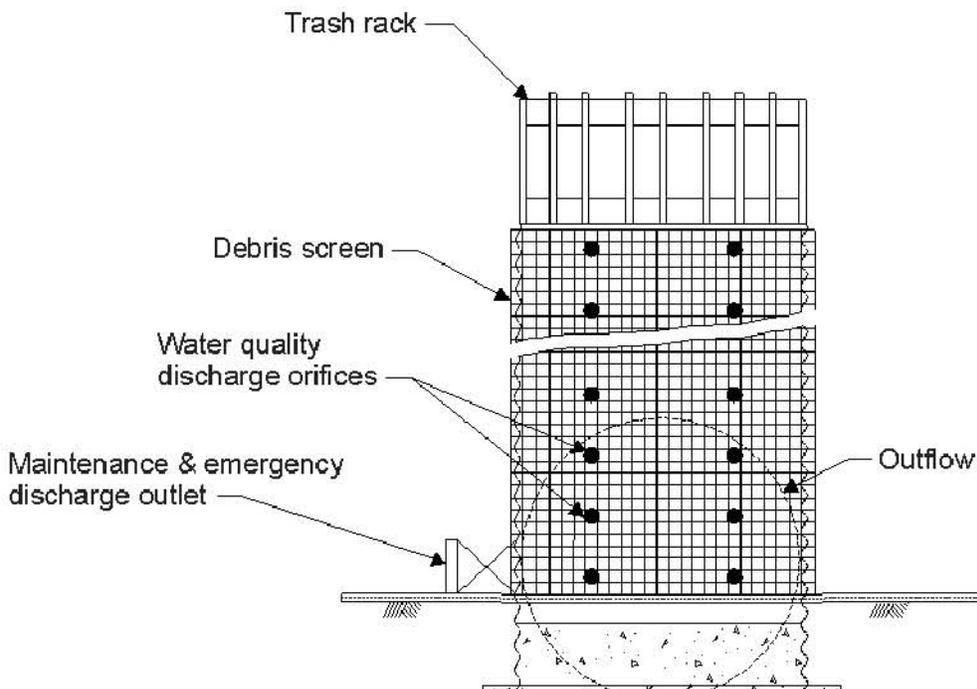
Sediment/Desilting Basin

SC-2

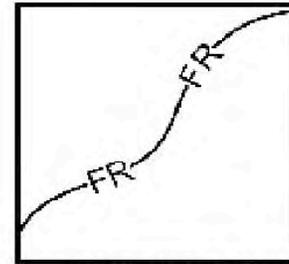
Plan



Profile



**FIGURE 3: MULTIPLE ORIFICE OUTLET RISER
NOT TO SCALE**



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose A fiber roll consists of wood excelsior, rice or wheat straw, or coconut fibers that is rolled or bound into a tight tubular roll and placed on the toe and face of slopes to intercept runoff, reduce its flow velocity, release the runoff as sheet flow and provide removal of sediment from the runoff. Fiber rolls may also be used for inlet protection and as check dams under certain situations.

- Appropriate Applications**
- This BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the RE.
 - Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.
 - Below the toe of exposed and erodible slopes.
 - Fiber rolls may be used as check dams in unlined ditches if approved by the Resident Engineer (RE) or the District Construction Storm Water Coordinator (refer to SC-4 “Check Dams”).
 - Fiber rolls may be used for drain inlet protection if approved by the RE or the District Construction Storm Water Coordinator (refer to SC-10 “Storm Drain Inlet Protection”).
 - Down-slope of exposed soil areas.
 - Around temporary stockpiles.
 - Along the perimeter of a project.

- Limitations
- Runoff and erosion may occur if fiber roll is not adequately trenched in.
 - Fiber rolls at the toe of slopes greater than 1:5 may require the use of 500 mm (20" diameter) or installations achieving the same protection (i.e., stacked smaller diameter fiber rolls, etc.).
 - Fiber rolls may be used for drainage inlet protection if they can be properly anchored.
 - Difficult to move once saturated.
 - Fiber rolls could be transported by high flows if not properly staked and trenched in.
 - Fiber rolls have limited sediment capture zone.
 - Do not use fiber rolls on slopes subject to creep, slumping, or landslide.

Standards and Specifications

Fiber Roll Materials

- Fiber rolls shall be either:
 - (1) Prefabricated rolls.
 - (2) Rolled tubes of erosion control blanket.

Assembly of Field Rolled Fiber Roll

- Roll length of erosion control blanket into a tube of minimum 200 mm (8 in) diameter.
- Bind roll at each end and every 1.2 m (4 ft) along length of roll with jute-type twine.

Installation

- Slope inclination of 1:4 or flatter: fiber rolls shall be placed on slopes 6.0 m apart.
- Slope inclination of 1:4 to 1:2: fiber rolls shall be placed on slopes 4.5 m apart.
- Slope inclination 1:2 or greater: fiber rolls shall be placed on slopes 3.0 m apart.
- Stake fiber rolls into a 50 to 100 mm (2 to 4 in) trench.

- Drive stakes at the end of each fiber roll and spaced 600 mm (2 ft) apart if Type 2 installation is used (refer to Page 4). Otherwise, space stakes 1.2 m (4 ft) maximum on center if installed as shown on Pages 5 and 6.
- Use wood stakes with a nominal classification of 19 by 19 mm (3/4 by 3/4 in), and minimum length of 600 mm (24 in).
- If more than one fiber roll is placed in a row, the rolls shall be overlapped; not abutted.

Removal

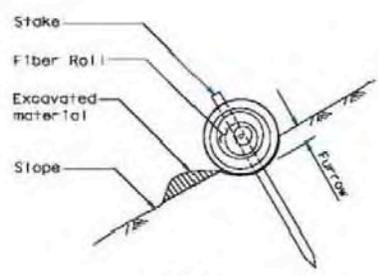
- Fiber rolls are typically left in place.
- If fiber rolls are removed, collect and dispose of sediment accumulation, and fill and compact holes, trenches, depressions or any other ground disturbance to blend with adjacent ground.

Maintenance and Inspection

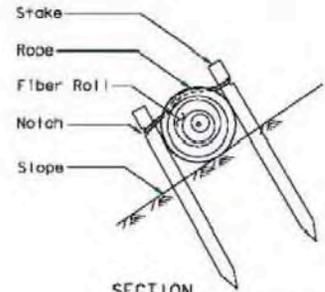
- Repair or replace split, torn, unraveling, or slumping fiber rolls.
- Inspect fiber rolls when rain is forecast. Perform maintenance as needed or as required by the RE.
- Inspect fiber rolls following rainfall events and at least daily during prolonged rainfall. Perform maintenance as needed or as required by the RE.
- Maintain fiber rolls to provide an adequate sediment holding capacity. Sediment shall be removed when the sediment accumulation reaches three quarters (3/4) of the barrier height. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications.

Fiber Rolls

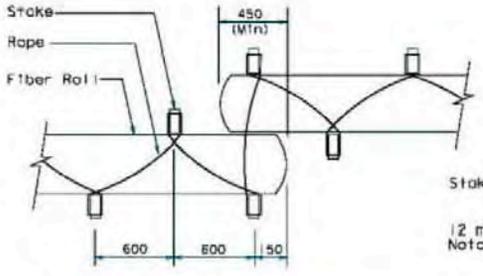
SC-5



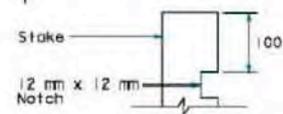
SECTION
TEMPORARY FIBER ROLL
(TYPE 1)



SECTION
TEMPORARY FIBER ROLL
(TYPE 2)

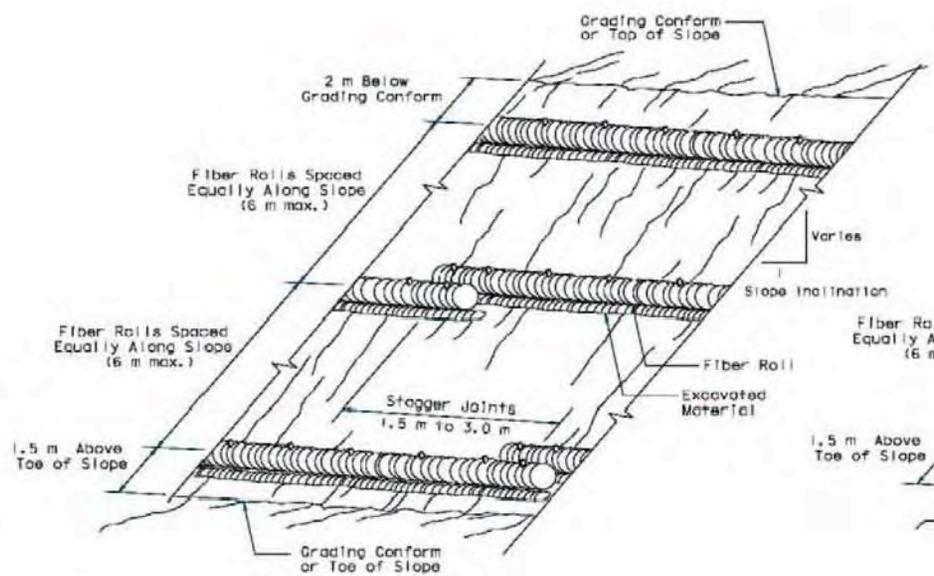


PLAN
TEMPORARY FIBER ROLL
(TYPE 2)

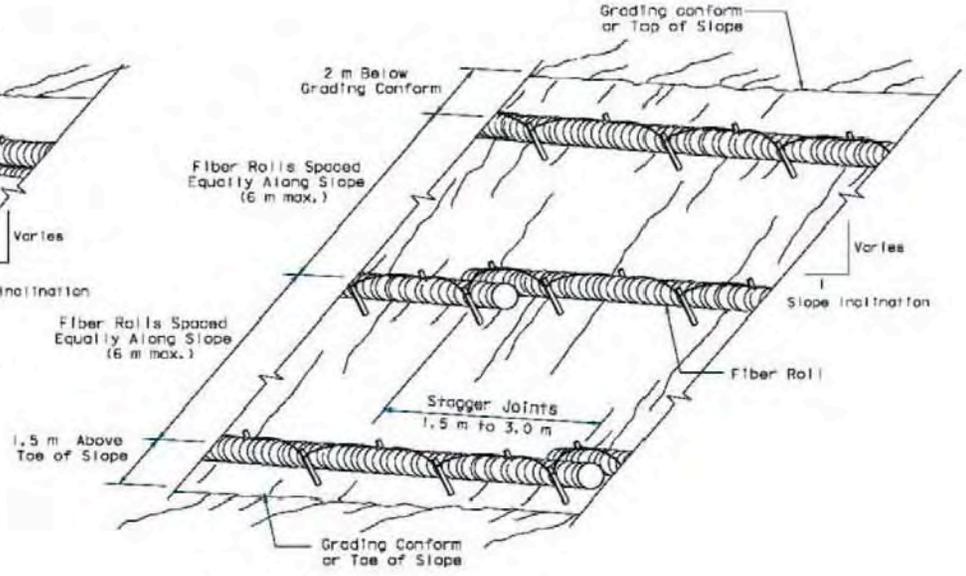


ELEVATION
NOTCH DETAIL

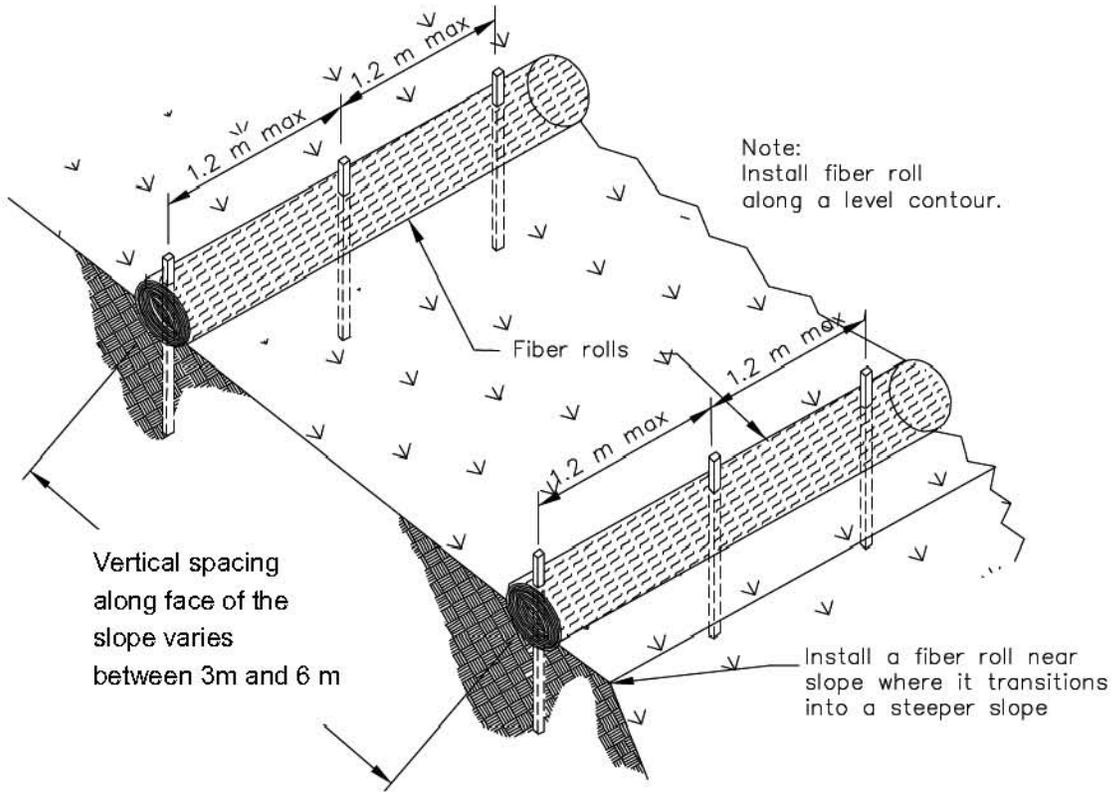
NOTE
1. Temporary fiber roll spacing varies depending upon slope inclination.



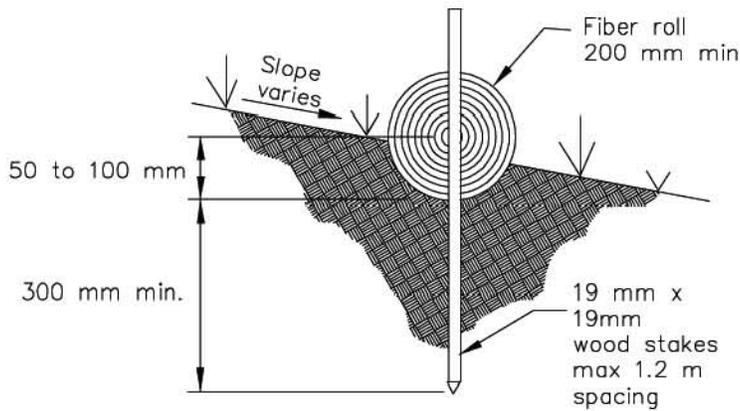
PERSPECTIVE
TEMPORARY FIBER ROLL (TYPE 1)



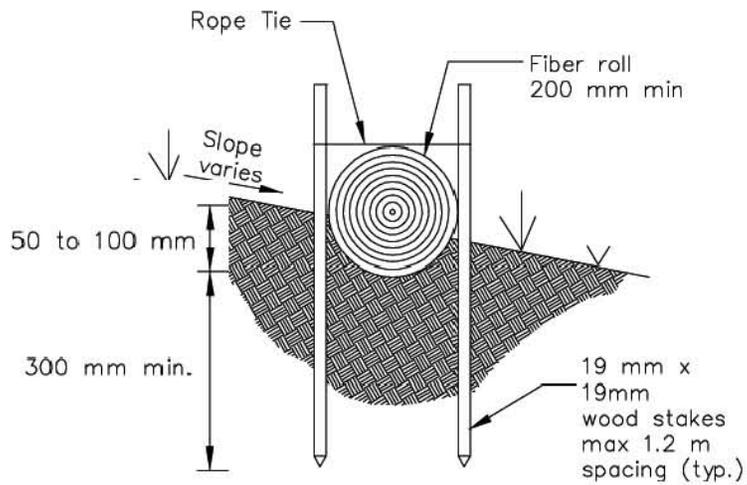
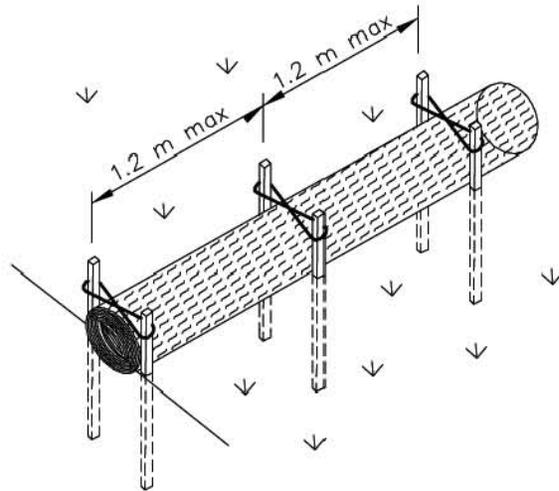
PERSPECTIVE
TEMPORARY FIBER ROLL (TYPE 2)



TYPICAL FIBER ROLL INSTALLATION
N.T.S.

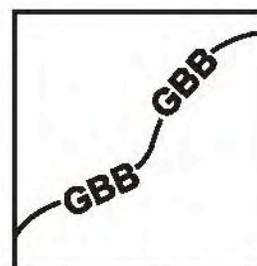
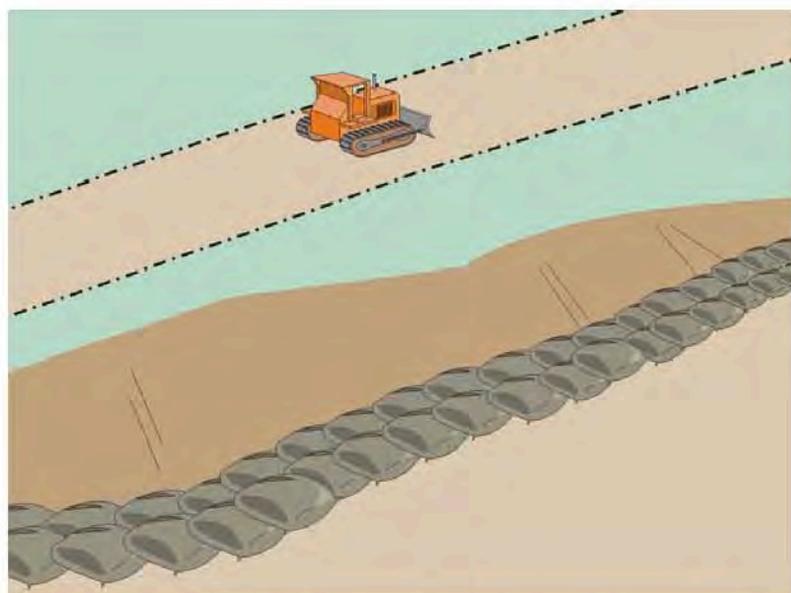


ENTRENCHMENT DETAIL
N.T.S.



OPTIONAL ENTRENCHMENT DETAIL

N.T.S.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose A gravel bag berm consists of a single row of gravel bags that are installed end to end to form a barrier across a slope to intercept runoff, reduce its flow velocity, release the runoff as sheet flow and provide some sediment removal. Gravel bags can be used where flows are moderately concentrated, such as ditches, swales, and storm drain inlets (see BMP SC-10, Storm Drain Inlet Protection) to divert and/or detain flows.

- Appropriate Applications**
- BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the RE.
 - Along streams and channels.
 - Below the toe of exposed and erodible slopes.
 - Down slope of exposed soil areas.
 - Around stockpiles.
 - Across channels to serve as a barrier for utility trenches or provide a temporary channel crossing for construction equipment, to reduce stream impacts.
 - Parallel to a roadway to keep sediment off paved areas.
 - At the top of slopes to divert roadway runoff away from disturbed slopes.
 - Along the perimeter of a site.
 - To divert or direct flow or create a temporary sediment basin.
 - During construction activities in stream beds when the contributing drainage

area is less than 2 ha (5 ac).

- When extended construction period limits the use of either silt fences or straw bale barriers.
- When site conditions or construction sequencing require adjustments or relocation of the barrier to meet changing field conditions and needs during construction.
- At grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.

Limitations

- Degraded gravel bags may rupture when removed, spilling contents.
- Installation can be labor intensive.
- Limited durability for long term projects.
- When used to detain concentrated flows, maintenance requirements increase.

Standards and Specifications

Materials

- **Bag Material:** Bags shall be woven polypropylene, polyethylene or polyamide fabric, minimum unit weight 135 g/m² (four ounces per square yard), mullen burst strength exceeding 2,070 kPa (300 psi) in conformance with the requirements in ASTM designation D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM designation D4355.
- **Bag Size:** Each gravel-filled bag shall have a length of 450 mm (18 in), width of 300 mm (12 in), thickness of 75 mm (3 in), and mass of approximately 15 kg (33 lb). Bag dimensions are nominal, and may vary based on locally available materials. Alternative bag sizes shall be submitted to the RE for approval prior to deployment.
- **Fill Material:** Gravel shall be between 10 mm and 20 mm (0.4 and 0.8 inch) in diameter, and shall be clean and free from clay balls, organic matter, and other deleterious materials. The opening of gravel-filled bags shall be between 13 kg and 22 kg (28 and 48 lb) in mass. Fill material is subject to approval by the RE.

Installation

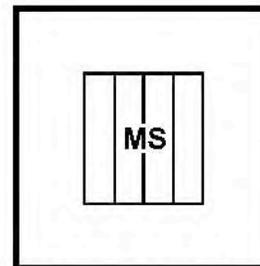
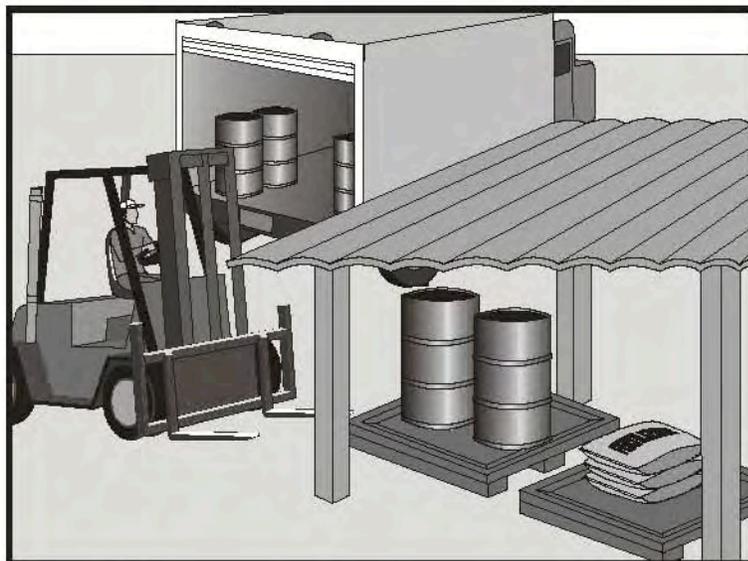
- When used as a linear control for sediment removal:
 - Install along a level contour.
 - Turn ends of gravel bag row up slope to prevent flow around the ends.
 - Generally, gravel bag barriers shall be used in conjunction with temporary soil stabilization controls up slope to provide effective erosion and sediment

control.

- When used for concentrated flows:
 - Stack gravel bags to required height using a pyramid approach.
 - Upper rows of gravel bags shall overlap joints in lower rows.
- Construct gravel bag barriers with a set-back of at least 1m from the toe of a slope. Where it is determined to be not practicable due to specific site conditions, the gravel bag barrier may be constructed at the toe of the slope, but shall be constructed as far from the toe of the slope as practicable.
- Requires Certificate of Compliance per Standard Specifications 6-1.07.

Maintenance and Inspection

- Inspect gravel bag berms before and after each rainfall event, and weekly throughout the rainy season.
- Reshape or replace gravel bags as needed, or as directed by the RE.
- Repair washouts or other damages as needed, or as directed by the RE.
- Inspect gravel bag berms for sediment accumulations and remove sediments when accumulation reaches one-third of the berm height. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications.
- Remove gravel bag berms when no longer needed. Remove sediment accumulations and clean, re-grade, and stabilize the area.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Procedures and practices for the proper handling and storage of materials in a manner that minimizes or eliminates the discharge of these materials to the storm drain system or to watercourses.

Appropriate Applications These procedures are implemented at all construction sites with delivery and storage of the following:

- Hazardous chemicals such as:
 - Acids,
 - lime,
 - glues,
 - adhesives,
 - paints,
 - solvents, and
 - curing compounds.
- Soil stabilizers and binders.
- Fertilizers.
- Detergents.
- Plaster.
- Petroleum products such as fuel, oil, and grease.
- Asphalt and concrete components.
- Pesticides and herbicides.

- Other materials that may be detrimental if released to the environment.
- Limitations
- Space limitation may preclude indoor storage.
 - Storage sheds must meet building & fire code requirements.

Standards and Specifications

General

- Train employees and subcontractors on the proper material delivery and storage practices.
- Temporary storage area shall be located away from vehicular traffic.
- Material Safety Data Sheets (MSDS) shall be supplied to the Resident Engineer (RE) for all materials stored.

Material Storage Areas and Practices

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 shall be stored in approved containers and drums and shall be placed in temporary containment facilities for storage.
- Throughout the rainy season, each temporary containment facility shall have a permanent cover and side wind protection or be covered during non-working days and prior to and during rain events.
- A temporary containment facility shall provide for a spill containment volume able to contain precipitation from a 24-hour, 25-year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
- A temporary containment facility shall be impervious to the materials stored therein for a minimum contact time of 72 hours.
- A temporary containment facility shall be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills shall be collected and placed into drums. These liquids shall be handled as a hazardous waste unless testing determines them to be non-hazardous. All collected liquids or non-hazardous liquids shall be sent to an approved disposal site.
- Sufficient separation shall be provided between stored containers to allow for spill cleanup and emergency response access.
- Incompatible materials, such as chlorine and ammonia, shall not be stored in the same temporary containment facility.
- Materials shall be stored in their original containers and the original product labels shall be maintained in place in a legible condition. Damaged or otherwise illegible labels shall be replaced immediately.

-
- Bagged and boxed materials shall be stored on pallets and shall not be allowed to accumulate on the ground. To provide protection from wind and rain, throughout the rainy season, bagged and boxed materials shall be covered during non-working days and prior to rain events.
- Stockpiles shall be protected in accordance with BMP WM-3, “Stockpile Management.”
- Minimize the material inventory stored on-site (e.g., only a few days supply).
- Have proper storage instructions posted at all times in an open and conspicuous location.
- Do not store hazardous chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and when possible, under cover in secondary containment.
- Keep hazardous chemicals well labeled and in their original containers.
- Keep ample supply of appropriate spill clean up material near storage areas.
- Also see BMP WM-6, “Hazardous Waste Management”, for storing of hazardous materials.

Material Delivery Practices

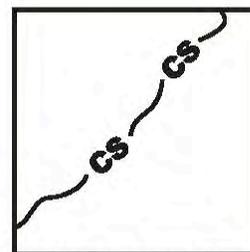
- Keep an accurate, up-to-date inventory of material delivered and stored on-site.
- Employees trained in emergency spill clean-up procedures shall be present when dangerous materials or liquid chemicals are unloaded.

Spill Clean-up

- Contain and clean up any spill immediately.
- If significant residual materials remain on the ground after construction is complete, properly remove and dispose any hazardous materials or contaminated soil.
- See BMP WM-4, “Spill Prevention and Control”, for spills of chemicals and/or hazardous materials.

Maintenance and Inspection

- Storage areas shall be kept clean, well organized, and equipped with ample clean-up supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners shall be repaired or replaced as needed to maintain proper function.
- Inspect storage areas before and after rainfall events, and at least weekly during other times. Collect and place into drums any spills or accumulated rainwater.



Standard Symbol

- BMP Objectives**
- Soil Stabilization
 - Sediment Control
 - Tracking Control
 - Wind Erosion Control
 - Non-Storm Water Management
 - Materials and Waste Management

Definition and Purpose	Stockpile management procedures and practices are designed to reduce or eliminate air and storm water pollution from stockpiles of soil, and paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate subbase or pre-mixed aggregate, asphalt binder (so called “cold mix” asphalt) and pressure treated wood.
Appropriate Applications	Implemented in all projects that stockpile soil and other materials.
Limitations	<ul style="list-style-type: none"> ■ None identified
Standards and Specifications	<ul style="list-style-type: none"> ■ Protection of stockpiles is a year-round requirement. ■ Locate stockpiles a minimum of 15 m (50 ft) away from concentrated flows of storm water, drainage courses, and inlets. ■ Implement wind erosion control practices as appropriate on all stockpiled material. For specific information see BMP WE-1, “Wind Erosion Control.” ■ Stockpiles of contaminated soil shall be managed in accordance with BMP WM-7, “Contaminated Soil Management.” ■ Bagged materials should be placed on pallets and under cover.

Protection of Non-Active Stockpiles

Non-active stockpiles of the identified materials shall be protected further as follows:

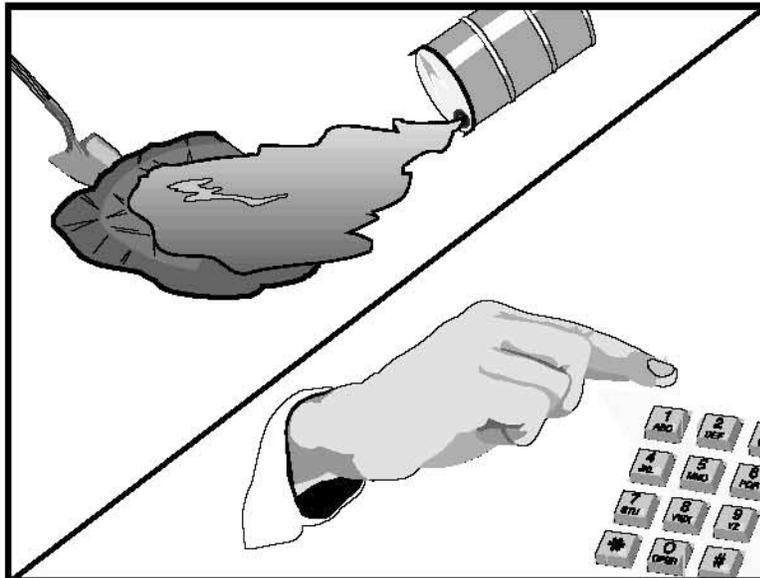
- ***Soil stockpiles:***
 - During the rainy seasons, soil stockpiles shall be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.
 - During the non-rainy season, soil stockpiles shall be covered and protected with a temporary perimeter sediment barrier prior to the onset of precipitation.
- ***Stockpiles of portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate subbase:***
 - During the rainy season, the stockpiles shall be covered or protected with a temporary perimeter sediment barrier at all times.
 - During the non-rainy season, the stockpiles shall be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.
- ***Stockpiles of “cold mix”:***
 - During the rainy season, cold mix stockpiles shall be placed on and covered with plastic or comparable material at all times.
 - During the non-rainy season, cold mix stockpiles shall be placed on and covered with plastic or comparable material prior to the onset of precipitation.
- ***Stockpiles/Storage of pressure treated wood with copper, chromium, and arsenic or ammonical, copper, zinc, and arsenate:***
 - During the rainy season, treated wood shall be covered with plastic or comparable material at all times.
 - During the non-rainy season, treated wood shall be covered with plastic or comparable material and shall be placed on pallets prior to the onset of precipitation.

Protection of Active Stockpiles

Active stockpiles of the identified materials shall be protected further as follows:

- All stockpiles shall be covered, stabilized, or protected with a temporary linear sediment barrier prior to the onset of precipitation.
- Stockpiles of “cold mix” shall be placed on and covered with plastic or comparable material prior to the onset of precipitation.

- Maintenance and Inspections
- Repair and/or replace perimeter controls and covers as needed, or as directed by the RE, to keep them functioning properly. Sediment shall be removed when sediment accumulation reaches one-third (1/3) of the barrier height.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose These procedures and practices are implemented to prevent and control spills in a manner that minimizes or prevents the discharge of spilled material to the drainage system or watercourses.

Appropriate Application This best management practice (BMP) applies to all construction projects. Spill control procedures are implemented anytime chemicals and/or hazardous substances are stored. Substances may include, but are not limited to:

- Soil stabilizers/binders.
- Dust Palliatives.
- Herbicides.
- Growth inhibitors.
- Fertilizers.
- Deicing/anti-icing chemicals.
- Fuels.
- Lubricants.
- Other petroleum distillates.

To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110, 117, and 302, and sanitary and septic wastes shall be contained and cleaned up immediately.

- Limitations
- This BMP only applies to spills caused by the contractor.
 - Procedures and practices presented in this BMP are general. Contractor shall identify appropriate practices for the specific materials used or stored on-site.

- Standards and Specifications
- To the extent that it doesn't compromise clean up activities, spills shall be covered and protected from storm water run-on during rainfall.
 - Spills shall not be buried or washed with water.
 - Used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose shall be stored and disposed of in conformance with the special provisions.
 - Water used for cleaning and decontamination shall not be allowed to enter storm drains or watercourses and shall be collected and disposed of in accordance with BMP WM-10, "Liquid Waste Management."
 - Water overflow or minor water spillage shall be contained and shall not be allowed to discharge into drainage facilities or watercourses.
 - Proper storage, clean-up and spill reporting instruction for hazardous materials stored or used on the project site shall be posted at all times in an open, conspicuous and accessible location.
 - Waste storage areas shall be kept clean, well organized and equipped with ample clean-up supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers and liners shall be repaired or replaced as needed to maintain proper function.

Education

- Educate employees and subcontractors on what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills.
- Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
- Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.
- The Contractor's Water Pollution Control Manager (WPCM) shall oversee and enforce proper spill prevention and control measures.

Cleanup and Storage Procedures

■ Minor Spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc., which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Remove the absorbent materials promptly and dispose of properly.
- The practice commonly followed for a minor spill is:
 - Contain the spread of the spill.
 - Recover spilled materials.
 - Clean the contaminated area and/or properly dispose of contaminated materials.

■ Semi-Significant Spills

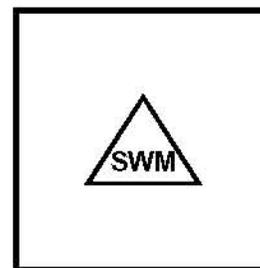
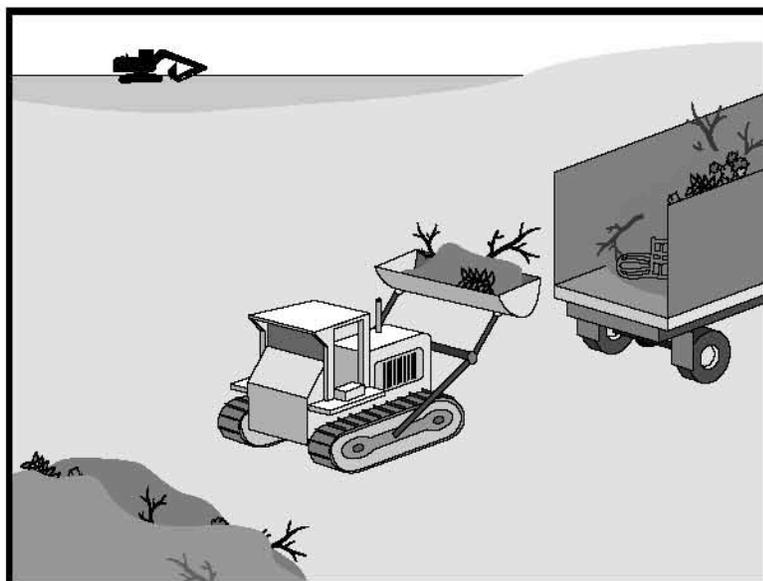
- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.
- Clean up spills immediately:
 - Notify the project foreman immediately. The foreman shall notify the Resident Engineer (RE).
 - Contain spread of the spill.
 - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
 - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
 - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

■ Significant/Hazardous Spills

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps shall be taken:
 - Notify the RE immediately and follow up with a written report.
 - Notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the proper county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
 - Notify the Governor's Office of Emergency Services Warning Center, (805) 852-7550.
 - For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor shall notify the National Response Center at (800) 424-8802.
 - Notification shall first be made by telephone and followed up with a written report.
 - The services of a spills contractor or a Haz-Mat team shall be obtained immediately. Construction personnel shall not attempt to clean up the spill until the appropriate and qualified staff have arrived at the job site.
 - Other agencies which may need to be consulted include, but are not limited to, the Fire Department, the Public Works Department, the Coast Guard, the Highway Patrol, the City/County Police Department, Department of Toxic Substances, California Division of Oil and Gas, Cal/OSHA, RWQCB, etc.

Maintenance and Inspection

- Verify weekly that spill control clean up materials are located near material storage, unloading, and use areas.
- Update spill prevention and control plans and stock appropriate clean-up materials whenever changes occur in the types of chemicals used or stored onsite.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Solid waste management procedures and practices are designed to minimize or eliminate the discharge of pollutants to the drainage system or to watercourses as a result of the creation, stockpiling, or removal of construction site wastes.

Appropriate Applications Solid waste management procedures and practices are implemented on all construction projects that generate solid wastes.

Solid wastes include but are not limited to:

- Construction wastes including brick, mortar, timber, steel and metal scraps, sawdust, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials.
- Highway planting wastes, including vegetative material, plant containers, and packaging materials.
- Litter, including food containers, beverage cans, coffee cups, paper bags, plastic wrappers, and smoking materials, including litter generated by the public.

Limitations ■ Temporary stockpiling of certain construction wastes may not necessitate stringent drainage related controls during the non-rainy season or in desert areas with low rainfall.

Standards and Specifications

Education

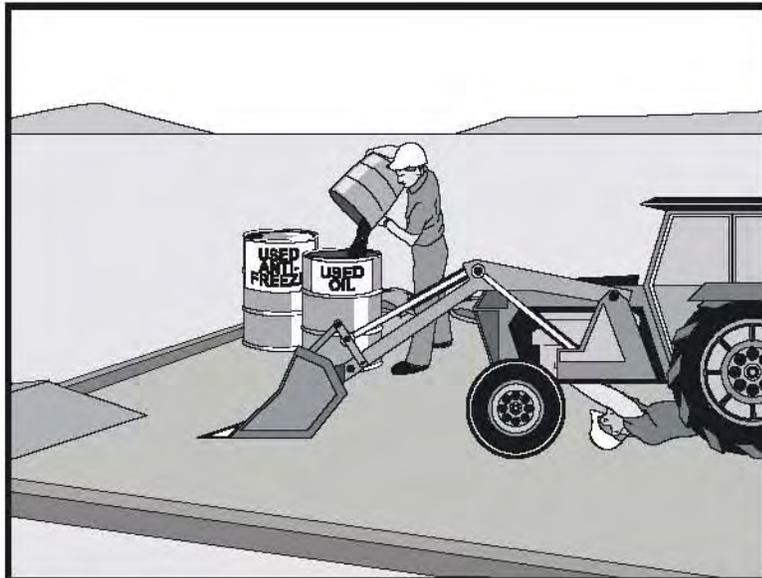
- The Contractor's Water Pollution Control Manager (WPCM) shall oversee and enforce proper solid waste procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees and subcontractors on solid waste storage and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Wherever possible, minimize production of solid waste materials.

Collection, Storage, and Disposal

- Dumpsters of sufficient size and number shall be provided to contain the solid waste generated by the project and properly serviced.
- Littering on the project site shall be prohibited.
- To prevent clogging of the storm drainage system litter and debris removal from drainage grates, trash racks, and ditch lines shall be a priority.
- Trash receptacles shall be provided in the Contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.
- Construction debris and litter from work areas within the construction limits of the project site shall be collected and placed in watertight dumpsters at least weekly regardless of whether the litter was generated by the Contractor, the public, or others. Collected litter and debris shall not be placed in or next to drain inlets, storm water drainage systems or watercourses.
- Full dumpsters shall be removed from the project site and the contents shall be disposed of outside the highway right-of-way in conformance with the provisions in the Standard Specifications Section 7-1.13.
- Litter stored in collection areas and containers shall be handled and disposed of by trash hauling contractors.
- Construction debris and waste shall be removed from the site every two weeks or as directed by the RE.

- Construction material visible to the public shall be stored or stacked in an orderly manner to the satisfaction of the RE.
- Storm water run-on shall be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.
- Solid waste storage areas shall be located at least 15 m (50 ft) from drainage facilities and watercourses and shall not be located in areas prone to flooding or ponding.
- Except during fair weather, construction and highway planting waste not stored in watertight dumpsters shall be securely covered from wind and rain by covering the waste with tarps or plastic sheeting or protected in conformance with the applicable Disturbed Soil Area protection section.
- Dumpster washout on the project site is not allowed.
- Notify trash hauling contractors that only watertight dumpsters are acceptable for use on-site.
- Plan for additional containers during the demolition phase of construction.
- Plan for more frequent pickup during the demolition phase of construction.
- Construction waste shall be stored in a designated area approved by the RE.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Keep the site clean of litter debris.
- Make sure that toxic liquid wastes (e.g., used oils, solvents, and paints) and chemicals (e.g., acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Dispose of non-hazardous waste in accordance with Standard Specification 7-1.13, Disposal of Material Outside the Highway Right of Way.
- For disposal of hazardous waste, see BMP WM-6, "Hazardous Waste Management." Have hazardous waste hauled to an appropriate disposal and/or recycling facility.
- Salvage or recycle useful vegetation debris, packaging and/or surplus building materials when practical. For example, trees and shrubs from land clearing can be converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

- Maintenance and Inspection
- The WPCM shall monitor onsite solid waste storage and disposal procedures.
 - Police site for litter and debris.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Procedures and practices to minimize or eliminate the discharge of pollutants to the storm drain systems or to watercourses from vehicle and equipment maintenance procedures.

Appropriate Applications These procedures are applied on all construction projects where an onsite yard area is necessary for storage and maintenance of heavy equipment and vehicles.

Limitations ■ None identified.

- Standards and Specifications**
- Drip pans or absorbent pads shall be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over an impermeable surface in a dedicated maintenance area.
 - All maintenance areas are required to have spill kits and/or use other spill protection devices.
 - Dedicated maintenance areas shall be protected from storm water run-on and runoff, and shall be located at least 15 m (50 ft) from downstream drainage facilities and watercourses.
 - Drip Pans or plastic sheeting shall be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than one hour.
 - Absorbent spill clean-up materials shall be available in maintenance areas and shall be disposed of properly after use. Substances used to coat asphalt transport trucks and asphalt-spreading equipment shall be non-toxic.
 - Use off-site maintenance facilities whenever practical.

- For long-term projects, consider constructing roofs or using portable tents over maintenance areas.
- Properly dispose of used oils, fluids, lubricants, and spill cleanup materials.
- Do not dump fuels and lubricants onto the ground.
- Do not place used oil in a dumpster or pour into a storm drain or watercourse.
- Properly dispose or recycle used batteries.
- Do not bury used tires.
- Repair of fluid and oil leaks immediately.
- Provide spill containment dikes or secondary containment around stored oil and chemical drums.
- Maintain waste fluid containers in leak proof condition.
- Vehicle and equipment maintenance areas shall be inspected regularly.
- Vehicles and equipment shall be inspected on each day of use. Leaks shall be repaired immediately or the problem vehicle(s) or equipment shall be removed from the project site.
- Inspect equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.

Maintenance and Inspection

STOP

**The following addendum sheet is only to be completed if changes to the
Stormwater Management Plan for Minor Projects form
Is necessary.**

ADDENDUM SHEET

Please fill in

Date: _____

Project Name: _____

Permit Number: _____

Project Location: _____

Address: _____

Address: _____

City, State, ZIP: _____

A modification to the SWMP is necessary for the following reason(s):

I certify under a penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature _____ Date _____

Name and Title _____ Telephone Number _____