



California Regional Water Quality Control Board Los Angeles Region



Linda S. Adams
Agency Secretary

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Arnold Schwarzenegger
Governor

Ms. Jemellee Cruz
Los Angeles County Department of Public Works
P.O. Box 1460
Alhambra, CA 91803-1460

WATER QUALITY CERTIFICATION FOR PROPOSED CRIB DAM REPAIRS AND SLOPE PROTECTION PROJECT (Corps' Project No. 2010-00833-CO), CITIES OF LA CRESCENTA, LA CANADA FLINTRIDGE, AND GLENDALE, LOS ANGELES COUNTY (File No. 10-133)

Dear Ms. Cruz:

Board staff has reviewed your request on behalf of Los Angeles County Department of Public Works (Applicant) for a Clean Water Act Section 401 Water Quality Certification for the above-referenced project. Your application was deemed complete on October 11, 2010.

I hereby issue an order certifying that any discharge from the referenced project will comply with the applicable provisions of sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, and with other applicable requirements of State law. This discharge is also regulated under State Water Resources Control Board Order No. 2003 - 0017 - DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges that have received State Water Quality Certification" which requires compliance with all conditions of this Water Quality Certification.

The Applicant shall be liable civilly for any violations of this Certification in accordance with the California Water Code. This Certification does not eliminate the Applicant's responsibility to comply with any other applicable laws, requirements and/or permits.

Should you have questions concerning this Certification action, please contact Valerie Carrillo, Lead, Section 401 Program, at (213) 576-6759.

Samuel Unger
Samuel Unger
Executive Officer

10-28-10
Date

DISTRIBUTION LIST

Jemellee Cruz
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Bill Orme (via electronic copy)
State Water Resources Control Board
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Sarah Rains (via electronic copy)
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P.O. Box 532711
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Eric Raffini (via electronic copy)
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105

Jim Bartel
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92009

ATTACHMENT A

Project Information

File No. 10-133

1. Applicant: Los Angeles County Department of Public Works
P. O. Box 1460
Alhambra, CA 91803

2. Applicant's Agent: Jemellee Cruz
Los Angeles County
Department of Public Works
P.O. Box 1460
Alhambra, CA 91803

Phone: (626) 458-4170 Fax: (626) 458-4150

3. Project Name: Storm Damaged Crib Dam Repairs and Slope Stabilization

4. Project Location: Pickens Canyon, Unincorporated Los Angeles County and City of La Canada Flintridge

Dunsmuir Canyon, City of Glendale and US Forest Area

Upper Shields Canyon, City of La Crescenta

Halls Canyon, City of La Canada Flintridge

Latitude/Longitude information: (see Attachment C)

5. Project Background: The 2009 Station Fire affected several watersheds upstream of Los Angeles County Flood Control District (LACFCD) facilities within La Crescenta, La Canada Flintridge, Glendale and US Forest Service Area. Inspections conducted after the 2009-10 storm season within these fire-burned watersheds found storm damaged crib dam structures and side canyon slopes along Pickens, Dunsmuir, Halls, Upper Shields, and Goss Canyons.

These canyons convey storm flows, including debris, rock and vegetation from the recently burned watersheds into the downstream flood control debris basins. During the debris flows of 2009-10, several of the structures were damaged and now require immediate repair to protect residences before the next storm season.

Failure of the existing crib structures could result in significant erosion of debris stored behind them and overwhelm the downstream debris basins, posing a threat to life and property.

ATTACHMENT A

Project Information

File No. 10-133

6. Project Description:

The project involves: guniting undermined reinforced concrete paved sideslopes downstream of the crib dams; placing concreted riprap to protect exposed foundations; filling cavities in the existing paved side slopes with native materials; finishing with gunite at various locations; repairing damaged cribs; and removing accumulated debris between crib dams.

In addition, immediate slope stabilization repairs will take place for crib dam structures located in Pickens, Dunsmuir, Halls and Upper Shields Canyons. These repairs are necessary to ensure that the channel side slopes and adjacent homes and properties are protected during the next storms.

Existing materials will be used as much as possible for the repair work. These materials will otherwise end up in downstream debris basins for future removal. Existing materials will also be utilized to build an access ramp to the crib structures. Small construction equipment and construction materials may be lowered from a helicopter or transported by truck where feasible. Small bulldozers and back hoes may be used to shape rocks and debris from the canyon bottom into access ramps and remove excessive accumulation of debris and collect rocks and sand to be used for concrete paving and grouted rock. During construction, hand-held concrete saw-cutting tools will be used with dry cutting blades to eliminate any concrete slurry runoff.

Work will commence immediately and the primary method of access will be through the canyon bottom. Work will be avoided during storm events.

This Certification shall cover a 5-year maintenance period of all of the crib dam structures included in the application package. Attachment D contains all project areas and work activities, including dimensions.

7. Federal Agency/Permit:

U.S. Army Corps of Engineers
Permit No. 2010-00833- CO

8. Other Required
Regulatory Approvals:

California Department of Fish and Game
Streambed Alteration Agreement

ATTACHMENT A

Project Information File No. 10-133

9. California Environmental Quality Act Compliance: The proposed project is Categorically Exempt from CEQA pursuant to the CEQA Guidelines, 15303. New Construction or Conversion of Small Structures
10. Receiving Water: Pickens Canyon Creek (Hydrologic Unit No. 405.24)
Halls Canyon Creek (Hydrologic Unit No. 405.24)
Shields Canyon Creek (Hydrologic Unit No. 405.24)
Dunsmuir Canyon Creek ((Hydrologic Unit No. 405.24)
11. Designated Beneficial Uses: Pickens - MUN, GWR, REC-1, REC-2, WARM, WILD
Halls - MUN*, IND, PROC, GWR, REC-1, REC-2, WARM, WILD
Upper Shields - MUN, IND, PROC, GWR, REC-1, REC-2, WARM, WILD
Dunsmuir - MUN, IND, PROC, GWR, REC-1, REC-2, WARM, WILD
*Conditional beneficial use
12. Impacted Waters of the United States: Non-wetland waters (streambed):
Pickens Canyon (vegetated streambed): 0.36 permanent acres
Dunsmuir Canyon (vegetated streambed): 0.03 permanent acres
Upper Shields Canyon (vegetated streambed): 0.001 permanent acres
Halls Canyon (vegetated streambed): 0.03 permanent acres
Total acreage impact for all project areas: 0.421
13. Dredge Volume: None
14. Related Projects Implemented/to be Implemented by the Applicant: The Applicant has not identified any related projects carried out in the last 5 years or planned for implementation in the next 5 years.
15. Avoidance/Minimization Activities: The Applicant has proposed to implement several Best Management Practices, including, but not limited to, the following:
- Work is anticipated to occur when no flows are present. Should flows be present, a Surface Water Diversion Plan shall be implemented.
 - BMPs will be implemented immediately downstream of the project site to prevent sediment from entering waters

ATTACHMENT A

Project Information File No. 10-133

downstream.

- Equipment will not be stored in channel and will be properly maintained and checked for any leaks.
- All applicable Best Management Practices shall be implemented to ensure that pollutants, concrete and/or debris are not allowed to enter any water sources.
- Additional appropriate BMPs will be implemented immediately downstream of or at the project site. Proposed BMPs and avoidance and/or minimization efforts by the Emergency Contractor will be discussed and implemented upon approval of LACFCD staff.
- Repair work on the crib dam structures will be conducted throughout the year, weather permitting. If work needs to be performed during the nesting bird season (i.e., March 15 through September 1), a qualified biologist will be contracted out to conduct a nesting bird survey prior to start of work. If the result is negative, work will commence within 72 hours after the survey. Avoidance measures will be implemented as required by the qualified biologist.

16. Proposed
Compensatory
Mitigation:

The Applicant has not proposed any additional compensatory mitigation.

17. Required
Compensatory
Mitigation:

The Regional Board will require LACFCD to remove invasive and/or exotic species within each of the canyon areas surrounding project areas. LACFCD is not legally allowed to enter into private property, therefore, the invasive and/or exotics removal will take place in all areas accessible in and around the project sites (with the exception of private property). The enhancement shall take place at a 2:1 ratio for all project impacts.

See *Attachment B, Conditions of Certifications, Additional Conditions* for modifications and additions to the above proposed compensatory mitigation.

ATTACHMENT B

Conditions of Certification File No. 10-133

STANDARD CONDITIONS

Pursuant to §3860 of Title 23 of the California Code of Regulations (23 CCR), the following three standard conditions shall apply to this project:

1. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to §13330 of the California Water Code and Article 6 (commencing with 23 CCR §3867).
2. This Certification action is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent Certification application was filed pursuant to 23 CCR Subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
3. Certification is conditioned upon total payment of any fee required pursuant to 23 CCR Chapter 28 and owed by the Applicant.

ADDITIONAL CONDITIONS

Pursuant to 23 CCR §3859(a), the Applicant shall comply with the following additional conditions:

1. The Applicant shall submit to this Regional Board copies of any other final permits and agreements required for this project, including, but not limited to, the U.S. Army Corps of Engineers' (ACOE) Section 404 Permit and the California Department of Fish and Game's (CDFG) Streambed Alteration Agreement. **These documents shall be submitted prior to any discharge to waters of the State.**
2. The Applicant shall adhere to the most stringent conditions indicated with either this Certification, the CDFG's Streambed Alteration Agreement, or the ACOE Section 404 Permit.
3. The Applicant shall comply with all water quality objectives, prohibitions, and policies set forth in the *Water Quality Control Plan, Los Angeles Region (1994)*, as amended.
4. The Avoidance/Minimization activities proposed by the Applicant as described in Attachment A, No. 15, are incorporated as additional conditions herein.
5. The Applicant and all contractors employed by the Applicant shall have copies of this Certification, and all other regulatory approvals for this project on site at all times and shall be familiar with all conditions set forth.

ATTACHMENT B

Conditions of Certification

File No. 10-133

6. Fueling, lubrication, maintenance, operation, and storage of vehicles and equipment shall not result in a discharge or a threatened discharge to waters of the State. At no time shall the Applicant use any vehicle or equipment which leaks any substance that may impact water quality. Staging and storage areas for vehicles and equipment shall be located outside of waters of the State.
7. All excavation, construction, or maintenance activities shall follow best management practices to minimize impacts to water quality and beneficial uses. Dust control activities shall be conducted in such a manner that will not produce downstream runoff.
8. No construction material, spoils, debris, or any other substances associated with this project that may adversely impact water quality standards, shall be located in a manner which may result in a discharge or a threatened discharge to waters of the State. Designated spoil and waste areas shall be visually marked prior to any excavation and/or construction activity, and storage of the materials shall be confined to these areas.
9. All waste and/or dredged material removed shall be relocated to a legal point of disposal if applicable. A legal point of disposal is defined as one for which Waste Discharge Requirements have been established by a California Regional Water Quality Control Board, and is in full compliance therewith. Please contact the Land Disposal Unit, at the Regional Board for further information.
10. The Applicant shall implement all necessary control measures to prevent the degradation of water quality from the proposed project in order to maintain compliance with the Basin Plan. The discharge shall meet all effluent limitations and toxic and effluent standards established to comply with the applicable water quality standards and other appropriate requirements, including the provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act. This Certification does not authorize the discharge by the applicant for any other activity than specifically described in the 404 Permit.
11. The discharge shall not: a) degrade surface water communities and populations including vertebrate, invertebrate, and plant species; b) promote the breeding of mosquitoes, gnats, black flies, midges, or other pests; c) alter the color, create visual contrast with the natural appearance, nor cause aesthetically undesirable discoloration of the receiving waters; d) cause formation of sludge deposits; or e) adversely affect any designated beneficial uses.
12. The Applicant shall allow the Regional Board and its authorized representative entry to the premises, including all mitigation sites, to inspect and undertake any activity to determine compliance with this Certification, or as otherwise authorized by the California Water Code.

ATTACHMENT B

Conditions of Certification File No. 10-133

13. The Applicant shall not conduct any construction activities within waters of the State during a rainfall event. The Applicant shall maintain a **five-day (5-day) clear weather forecast** before conducting any operations within waters of the State.
14. The Applicant shall utilize the services of a qualified biologist with expertise in riparian assessments during any vegetation clearing activities. The biologist shall be available on site during construction activities to ensure that all protected areas are marked properly and ensure that no vegetation outside the specified areas is removed. The biologist shall have the authority to stop the work, as necessary, if instructions are not followed. The biologist shall be available upon request from this Regional Board for consultation within 24 hours of request of consultation.
15. Sufficient time should be allowed to obtain any such permits (generally 180 days). If groundwater is encountered without the benefit of appropriate permits, the Applicant shall cease all activities in the areas where groundwater is present, file a Report of Waste Discharge to this Regional Board, and obtain any necessary permits prior to discharging waste.
16. All project/maintenance activities not included in this Certification, and which may require a permit, must be reported to the Regional Board for appropriate permitting. Bank stabilization and grading, as well as any other ground disturbances, are subject to restoration and revegetation requirements, and may require additional Certification action.
17. All surface waters, including ponded waters, shall be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. If surface water diversions are anticipated, the Applicant shall develop and submit a **Surface Water Diversion Plan** (plan) to this Regional Board. The plan shall include the proposed method and duration of diversion activities, structure configuration, construction materials, equipment, erosion and sediment controls, and a map or drawing indicating the locations of diversion and discharge points. Contingency measures shall be a part of this plan to address various flow discharge rates. The plan shall be submitted prior to any surface water diversions. If surface flows are present, then upstream and downstream monitoring for the following shall be implemented:
 - pH
 - temperature
 - dissolved oxygen
 - turbidity
 - total suspended solids (TSS)

Analyses must be performed using approved US Environmental Protection Agency methods, where applicable. These constituents shall be measured at least once prior to diversion and then monitored for on a daily basis during the first week of diversion and/or dewatering activities, and then on a weekly basis, thereafter, until the in-stream work is complete.

ATTACHMENT B

Conditions of Certification File No. 10-133

Results of the analyses shall be submitted to this Regional Board by the 15th day of each subsequent sampling month. A map or drawing indicating the locations of sampling points shall be included with each submittal. Diversion activities shall not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Downstream TSS shall be maintained at ambient levels. Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases shall not exceed 20%. Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%. Any such violations may result in corrective and/or enforcement actions, including increased monitoring and sample collection.

18. The Applicant shall restore **all areas** of TEMPORARY IMPACTS to waters of the United States and all other areas of temporary disturbance which could result in a discharge or a threatened discharge to waters of the State. Restoration shall include grading of disturbed areas to pre-project contours and revegetation with native species. Restored areas shall be monitored and maintained with native species as necessary for five years. The Applicant shall implement all necessary Best Management Practices to control erosion and runoff from areas associated with this project.
19. The Applicant shall provide COMPENSATORY MITIGATION to offset the proposed permanent impacts to **0.421 acres** of vegetation within waters of the United States through enhancement of riparian habitat at a minimum **2:1** area replacement ratio (**0.842 acres**). The mitigation site shall be located within the watershed unless otherwise approved by this Regional Board. The Applicant shall submit a **Proposed Mitigation Report** which shall include:
 - (a) The boundary of the mitigation site shall be clearly identified on a map of suitable resolution and quality and shall also be defined by latitude and longitude.
 - (b) The type(s) of mitigation shall be described (e.g., removal of exotics and/or replanting with native species, etc.)
 - (c) Success criteria shall be established.

This information shall be submitted to this Regional Board for approval within 30 days of issuance of this certification and shall include copies of all agreements made between the Applicant and a third party organization regarding compensatory mitigation efforts.

20. The Applicant shall submit to this Regional Board **Annual Mitigation Monitoring Reports** (Annual Reports) by **January 1st** of each year for a minimum period of **five (5) years** until mitigation success has been achieved. The Annual Reports shall describe in detail all of the project/construction activities performed during the previous year and all restoration and mitigation efforts. At a minimum the Annual Reports shall include the following documentation:

ATTACHMENT B

Conditions of Certification

File No. 10-133

- (a) Color photo documentation of the pre- and post-project and mitigation site conditions;
 - (b) Geographical Positioning System (GPS) coordinates in decimal-degrees format outlining the boundary of the project and mitigation areas;
 - (c) The overall status of project including a detailed schedule of work;
 - (d) Copies of all permits revised as required in Additional Condition 1;
 - (e) Water quality monitoring results (as required) compiled in an easy to interpret format;
 - (f) A certified Statement of "no net loss" of wetlands associated with this project;
 - (g) Discussion of any monitoring activities and exotic plant control efforts; and
 - (h) A certified Statement from the permittee or his/her representative that all conditions of this Certification have been met.
21. All applications, reports, or information submitted to the Regional Board shall be signed:
- (a) For corporations, by a principal executive officer at least of the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which discharge originates.
 - (b) For a partnership, by a general partner.
 - (c) For a sole proprietorship, by the proprietor.
 - (d) For a municipal, State, or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.
22. Each and any report submitted in accordance with this Certification shall contain the following completed declaration:
- "I declare under 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 managed the system or those 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.

ATTACHMENT B

Conditions of Certification
File No. 10-133

Executed on the _____ day of _____ at _____.

(Signature)
(Title)"

23. All communications regarding this project and submitted to this Regional Board shall identify the Project File Number 10-133. Submittals shall be sent to the attention of the 401 Certification Unit.
24. Any modifications of the proposed project may require submittal of a new Clean Water Act Section 401 Water Quality Certification application and appropriate filing fee.
25. The project shall comply with the local regulations associated with the Regional Board's **Municipal Stormwater Permit** issued to Los Angeles County and co-permittees under NPDES No. CAS004001 and Waste Discharge Requirements Order No. 01-182. This includes the Standard Urban Storm Water Mitigation Plan (SUSMP) and all related implementing local ordinances and regulations for the control of stormwater pollution from new development and redevelopment. The project shall also comply with all requirements of the National Pollutant Discharge Elimination System (NPDES) **General Permit** for Storm Water Discharges Associated with Construction Activity, Order No. 2009-009-DWQ. All stormwater treatment systems shall be located outside of any water of the State and shall not be used as a wetland or riparian mitigation credit.
26. Coverage under this Certification may be transferred to the extent the underlying federal permit may legally be transferred and further provided that the Applicant notifies the Executive Officer at least 30 days before the proposed transfer date, and the notice includes a written agreement between the existing and new Applicants containing a specific date of coverage, responsibility for compliance with this Certification, and liability between them.
27. The Applicant or their agents shall report any noncompliance. Any such information shall be provided verbally to the Executive Officer within 24 hours from the time the Applicant becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Applicant becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

ATTACHMENT B

Conditions of Certification

File No. 10-133

28. *Enforcement:*

- (a) In the event of any violation or threatened violation of the conditions of this Certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under State law. For purposes of section 401(d) of the Clean Water Act, the applicability of any State law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Certification.
- (b) In response to a suspected violation of any condition of this Certification, the State Water Resources Control Board (SWRCB) or Regional Water Quality Control Board (RWQCB) may require the holder of any permit or license subject to this Certification to furnish, under penalty of perjury, any technical or monitoring reports the SWRCB deems appropriate, provided that the burden, including costs, of the reports shall be a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
- (c) In response to any violation of the conditions of this Certification, the SWRCB or RWQCB may add to or modify the conditions of this Certification as appropriate to ensure compliance.

29. This Certification shall expire **five (5) years** from date of this Certification. The Applicant shall submit a complete application prior to termination of this Certification if renewal is requested.

ATTACHMENT C

Latitude/Longitude Information
File No. 10-133

	Crib/Dam	Latitude	Longitude
DUNSMUIR	DUNSMUIR DU-1	34.249298	118.252479
	DUNSMUIR DU-2	34.249931	118.251463
	DUNSMUIR DU-3	34.250573	118.250522
	DUNSMUIR DU-4	34.251141	118.249752
	DUNSMUIR DU-5	34.251734	118.248925
	DUNSMUIR DU-6	34.252525	118.248345
	DUNSMUIR DU-7	34.253353	118.247601
	DUNSMUIR DU-8	34.255501	118.244341
	DUNSMUIR DU-9	34.257088	118.242601
HALLS	HALLS H- 1	34.223824	118.220499
	HALLS H- 2	34.224360	118.219968
	HALLS H- 3	34.224579	118.219062
	HALLS H- 4	34.224725	118.218009
	HALLS H- 5	34.225417	118.216489
	HALLS H- 6	34.225747	118.215618
	HALLS H- 7	34.226282	118.215029
	HALLS H- 8	34.226732	118.214509
	HALLS H- 9	34.228015	118.213311
	HALLS H-10	34.228471	118.211824
	HALLS H-11	34.229401	118.211413
PICKENS	PICKENS P- 1	34.222600	118.228666
	PICKENS P- 2	34.223228	118.228155
	PICKENS P- 3	34.224371	118.227311
	PICKENS P- 4	34.225363	118.227097
	PICKENS P- 5	34.227126	118.227609
	PICKENS P- 6	34.227813	118.227811
	PICKENS P- 7	34.228526	118.227629

PICKENS	PICKENS P- 8	34.229201	118.227483
	PICKENS P- 9	34.229904	118.227499
	PICKENS P-10	34.231093	118.227503
	PICKENS P-11	34.232423	118.227418
	PICKENS P-12A	34.233769	118.227845
	PICKENS P-12B	34.234051	118.227275
	PICKENS P-12C	34.234631	118.226903
	PICKENS P-14	34.238936	118.224808
	PICKENS P-15	34.240501	118.223795
	PICKENS P-16	34.241808	118.223968
	PICKENS P-19	34.245069	118.223588
	PICKENS P-20	34.246116	118.224560
	PICKENS P-21	34.248961	118.225378
PICKENS P-22	34.249576	118.225628	
SHIELDS	UPPER SHIELDS M-1	34.248480	118.238399
	UPPER SHIELDS M-2	34.249242	118.237808
	UPPER SHIELDS W-1	34.248448	118.238618
	UPPER SHIELDS W-2	34.249018	118.239284

ATTACHMENT D

**Project Specifications
File No. 10-133**

HALLS CANYON

DESIGNATION	PICTURE	DAMAGE	TYPE OF REPAIR/ MATERIALS NEEDED	QUANTITY	UNIT	UNIT COST	TOTAL	JURISDICTION (CITY, COUNTY OR FOREST SERVICE)	REPAIR AREA (FT ²)	ACCESS TO CANYON	
H6 (Halls Canyon)	H6-1	slope undermined/damaged	Unclassified fill	60	CY	\$75.00	\$4,500	City of La Canada Flintridge	150		
	H6-1	slope undermined/damaged	4" thick Gunite with welded mesh wire	150	SF	\$25.00	\$3,750	City of La Canada Flintridge		Dirt ramps	
	H6-3	Foundation exposed	Grouted rock	100	CY	\$200.00	\$20,000	City of La Canada Flintridge	500		
H7 (Halls Canyon)	H7-2	spall on crib dam	4" thick Gunite with welded mesh wire	5	SF	\$25.00	\$125	City of La Canada Flintridge	5		
	H7-1	Side slope failure	Unclassified fill	85	CY	\$75.00	\$6,375	City of La Canada Flintridge	120		
	H7-1	Side slope failure	4" thick Gunite with welded mesh wire	120	SF	\$25.00	\$3,000	City of La Canada Flintridge			
H8 (Halls Canyon)	H8-4	Multiple areas of spall	4" thick Gunite with welded mesh wire	75	SF	\$23.00	\$1,875	City of La Canada Flintridge	75	Dirt ramps	
	H8-2	Slope damages	Unclassified fill	25	CY	\$75.00	\$1,875	City of La Canada Flintridge	100		
	H8-2	Slope damages	4" thick Gunite with welded mesh wire	100	SF	\$25.00	\$2,500	City of La Canada Flintridge			
							\$44,000				

LEGEND (ABBREVIATIONS): H = HALLS CANYON, THE NUMBER IMMEDIATELY FOLLOWS IS THE NUMBER ASSIGNED TO EACH CRIB STRUCTURE. NUMBER AFTER THE DASH IS THE PICTURE FILE NAME.
 FOR EXAMPLE: "H6-1" IS PICTURE #1 FOR CRIB DAM 6 IN HALLS CANYON

PICKENS CANYON

DESIGNATION	PICTURE	DAMAGE	TYPE OF REPAIR/ MATERIALS NEEDED	QUANTITY	UNIT	UNIT COST	TOTAL	JURISDICTION (CITY, COUNTY OR FOREST SERVICE)	REPAIR AREA (FT ²)	ACCESS TO CANYON
P2 (Pickens Canyon)	P2-1	slope undermined/damaged	4" thick Gunite with welded mesh wire	200	SF	\$25.00	\$5,000	County of Los Angeles	200	
	P2-1	slope undermined/damaged	Unclassified fill	30	CY	\$75.00	\$2,222	County of Los Angeles		
	P2-4	Concrete slope repair	4" thick Gunite with welded mesh wire	375	SF	\$25.00	\$9,375	County of Los Angeles	375	
P3 (Pickens Canyon)	P3-1	slope undermined/damaged	Unclassified fill	167	CY	\$75.00	\$12,500	County of Los Angeles	1500	Access Road
	P3-1	slope undermined/damaged	4" thick Gunite with welded mesh wire	1,500	SF	\$25.00	\$37,500	County of Los Angeles		
	P4-1	slope undermined/damaged	Unclassified fill	42	CY	\$75.00	\$3,125	County of Los Angeles	450	
	P4-1	slope undermined/damaged	4" thick Gunite with welded mesh wire	450	SF	\$25.00	\$11,250	County of Los Angeles		
P5 (Pickens Canyon)	P5	repair exposed crib dam foundation	Grouted rock	467	CY	\$200.00	\$93,333	City of La Canada Flintridge	1,800	
P7 (Pickens Canyon)	P7	repair exposed crib dam foundation	Grouted rock	333	CY	\$200.00	\$66,667	County of Los Angeles	1,800	Dirt ramps
P11 (Pickens Canyon)	P11-1	various damage on dam on low flow notch	Fix crib structure with grout patch	75	SF	\$30.00	\$2,250	City of La Canada Flintridge	75	Dirt ramps
P12A (Pickens Canyon)	P11-9	Debris from P11 to P12A	Sediment removal needed from P11 to P12A	2,225	CY	\$75.00	\$166,875	County of Los Angeles	7,500	
P15 (Pickens Canyon)	P15-2	damage on dam at upstream portion	Grouted rock	5	CY	\$200.00	\$1,048	City of La Canada Flintridge	50	Dirt ramps
P19 (Pickens Canyon)	P19-4	Crib cage damage	Fix crib structure with grouted rock	40	CY	\$200.00	\$8,000	County of Los Angeles	150	
	P19-2	Bedrock damage	Grouted rock	37	CY	\$200.00	\$7,467	County of Los Angeles	120	
	P19-2	Bedrock damage	4" thick Gunite with welded mesh wire	120	SF	\$25.00	\$3,000	County of Los Angeles		Dirt ramps
	P19	Missing access ladder	Install new ladder	1	EA/LS	\$100.00	\$100	County of Los Angeles	70	
P21 (Pickens Canyon)	P21-4	Damage on crib wall	Fix crib structure with grouted rock	60	CY	\$200.00	\$12,000	County of Los Angeles	260	
	P21-7	Damaged wall base	Grouted rock	187	CY	\$200.00	\$57,333	County of Los Angeles	1,300	
							\$480,000			

LEGEND (ABBREVIATIONS) : P = PICKENS CANYON, THE NUMBER IMMEDIATELY FOLLOWS IS THE NUMBER ASSIGNED TO EACH CRIB STRUCTURE. NUMBER AFTER THE DASH IS THE PICTURE FILE NAME. FOR EXAMPLE: "P2-1" IS PICTURE #1 FOR CRIB DAM 2 IN PICKENS CANYON

DUNSMUIR CANYON

DESIGNATION	PICTURE	DAMAGE	TYPE OF REPAIR/ MATERIALS NEEDED	QUANTITY	UNIT	UNIT COST	TOTAL	JURISDICTION (CITY, COUNTY OR FOREST SERVICE)	REPAIR AREA (FT*2)	ACCESS TO CANYON	
DU-2 (Dunsmuir Canyon)	DU2-4	Crib & cap damage	Fix crib structure with grouted rock	20	CY	\$200.00	\$4,000	City of Glendale	110		
	DU2-3	Cavity on crib structure	Unclassified fill	45	CY	\$75.00	\$3,375	City of Glendale	400	Dirt ramps	
	DU2-3	Cavity on crib structure	4" thick Gunite with welded mesh wire	300	SF	\$25.00	\$7,500	City of Glendale			
DU-4 (Dunsmuir Canyon)	DU4-2	Front of crib dam damaged	Grouted rock	10	CY	\$200.00	\$2,000	City of Glendale	110		
DU-7 (Dunsmuir Canyon)	DU7-6	Damage on crib face and cap	Fix crib structure with grouted rock	20.00	CY	\$200.00	\$4,000	USFS	205		
	DU7-2	damaged gunite slope	Unclassified fill	60.00	CY	\$75.00	\$4,500	USFS	150	Dirt ramps	
			4" thick Gunite with welded mesh wire	150.00	SF	\$25.00	\$3,750	USFS			
DU-9 (Dunsmuir Canyon)	DU9-4	Dam face damaged adjacent to spillway	Fix crib structure with grouted rock	10.00	CY	\$200.00	\$2,000	USFS	50		
							\$32,000				

LEGEND (ABBREVIATIONS) : DU=DUNSMUIR CANYON, THE NUMBER IMMEDIATELY FOLLOWS IS THE NUMBER ASSIGNED TO EACH CRIB STRUCTURE. NUMBER AFTER THE DASH IS THE PICTURE FILE NAME.
 FOR EXAMPLE: "DU2-4" IS PICTURE #4 FOR CRIB DAM 2 IN DUNSMUIR CANYON

UPPER SHIELDS CANYON

DESIGNATION	PICTURE	DAMAGE	TYPE OF REPAIR MATERIALS NEEDED	QUANTITY	UNIT	UNIT COST	TOTAL	JURISDICTION (CITY, COUNTY OR FOREST SERVICE)	REPAIR AREA (FT ²)	ACCESS TO CANYON
M-2 (Upper Shields Canyon)	M2-6	Damaged crib/missing crib structure	Fix Crib structure with grouted rock	5	CY	\$200.00	\$1,000	City of La Canada Flintridge	35	Blit Falls

\$1,000

LEGEND (ABBREVIATIONS): M = UPPER SHIELDS CANYON, THE NUMBER IMMEDIATELY FOLLOWS IS THE NUMBER ASSIGNED TO EACH CRIB STRUCTURE. NUMBER AFTER THE DASH IS THE PICTURE FILE NAME.
 FOR EXAMPLE: "M2-6" IS PICTURE #6 FOR CRIB DAM 2 IN UPPER SHIELDS CANYON

