



# California Regional Water Quality Control Board Los Angeles Region



Linda S. Adams  
Cal/EPA Secretary

320 W. 4th Street, Suite 200, Los Angeles, CA 90013  
Phone (213) 576-6600 FAX (213) 576-6640

Arnold Schwarzenegger  
Governor

## FAX TRANSMITTAL FOR REGIONAL PROGRAMS SECTION

DATE: 8/18/09

TO: Mike Leslie

FROM: Valerie Carrillo

FAX NO. (213) 629-9022

TELEPHONE: (213) 576-6759

FAX NO: (213) 576-6686

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MESSAGE: Sullivan Canyon 4d Water Quality Certification



# California Regional Water Quality Control Board Los Angeles Region



Linda S. Adams  
Agency Secretary

Recipient of the 2001 Environmental Leadership Award from Keep California Beautiful

Arnold Schwarzenegger  
Governor

320 W. 4th Street, Suite 200, Los Angeles, California 90013  
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Ms. Deanna Haines  
Southern California Gas Company  
Gas Transmission Technical Services  
9400 Oakdale Avenue, SC9314  
Chatsworth, CA 91311-6511

## WATER QUALITY CERTIFICATION FOR PROPOSED SULLIVAN CANYON MAINTENANCE ROAD CONSTRUCTION AND PIPELINE MAINTENANCE AND PROTECTION PROJECT, SULLIVAN CANYON CREEK, CITY OF LOS ANGELES, LOS ANGELES COUNTY (File No. 08-162)

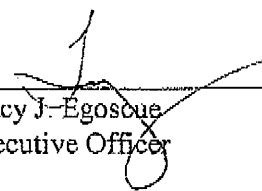
Dear Ms. Haines:

Board staff has reviewed your request on behalf of Southern California Gas Company for a Clean Water Act Section 401 Water Quality Certification for the above-referenced project. Your application was deemed complete on January 21, 2008.

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.

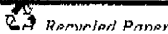
The Applicant shall be liable civilly for any violations of this Certification in accordance with the California Water Code. This Certification does not eliminate the Applicant's responsibility to comply with any other applicable laws, requirements and/or permits.

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

  
\_\_\_\_\_  
Tracy J. Egosque  
Executive Officer

5/24/09  
\_\_\_\_\_  
Date

*California Environmental Protection Agency*



**DISTRIBUTION LIST**

Bill Orme  
State Water Resources Control Board  
Division of Water Quality  
P.O. Box 944213  
Sacramento, CA 94244-2130

Jamie Jackson (via electronic copy)  
California Department of Fish and Game  
Streambed Alteration Team  
4949 View Ridge Avenue  
San Diego, CA 92123

Kenneth Wong  
U.S. Army Corps of Engineers  
Regulatory Branch, Los Angeles District  
P.O. Box 532711  
Los Angeles, CA 90053-2325

Eric Raffini (via electronic copy)  
U.S. Environmental Protection Agency  
600 Wilshire Boulevard, Suite 1460  
Los Angeles, CA 90017

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**Project Information  
File No. 08-162**

1. Applicant: Southern California Gas Company  
9400 Oakdale Avenue, SC9314  
Chatsworth, CA 91311-6511  
Attn: Deanna Haines  
Phone: (818) 701-4534 Fax: (818) 701-3441
  
2. Applicant's Agent: Mr. Jason Kirschenstein  
2801 Townsgate Rd., Suite 213  
Westlake Village, CA 91361  
  
Phone: (805) 434-2804 Fax: (805) 980-5886
  
3. Project Name: Lines 3003 / 407 (Sullivan Canyon) Pipeline Protection
  
4. Project Location: Brentwood-Sullivan Canyon area, Los Angeles County  
  
Longitude, Latitude:  
  
118.525902, 34.125575  
North / upstream end of project area  
  
118.509665, 34.074835  
South /downstream end of project area
  
5. Type of Project: Pipeline / Maintenance Road Repair project
  
6. Project Purpose: The purpose of the proposed project is to repair and maintain existing natural gas pipelines and an associated maintenance road within Sullivan Canyon. The Southern California Gas Company (SoCalGas) Pipeline Protection Project (Proposed Project) facilitates compliance with the existing Department of Transportation (DOT) and California Public Utilities Commission (CPUC) requirements for safely operating and maintaining the two existing natural gas pipelines which run through Sullivan Canyon.  
  
Channel migration over time in the canyon bottom has exposed portions of the previously buried pipeline that are now subject to creek flows. Maintaining and protecting the pipelines requires excavation for inspection and maintenance, and backfilling to certain required depths or protecting with structures (e.g. the proposed articulated concrete mats) that results in discharge of fill

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material into the waters of the U.S. Similarly, the maintenance road has been subject to erosion from creek flows. Repairing the road requires the discharge of fill material where the creek and road are in the same location, where the road falls within the OHWM, and at locations where the road crosses the low-flow channel of the creek.

In order to perform the necessary pipeline maintenance activities, a maintenance road will be re-established through the Canyon to allow for inspections and/or repairs.

#### 7. Project Description:

The Proposed Project includes a set of currently required maintenance activities for pipeline exposure protection, pipeline integrity digs, and road repair activities described below that are expected to be completed over a five-year period. An ongoing long-term maintenance program also described below includes a series of anticipated routine maintenance activities to ensure pipeline safety in accordance with DOT and CPUC regulations expected over the lifetime of the pipelines. The project plans include plan view and cross section details of the currently known pipeline exposure, pipeline integrity digs, and road repair maintenance activities which have been identified to date. The project plans, titled Southern California Gas Lines 407 and 3003, Sullivan Canyon (Psomas, November 2008) were included with the application package and specifically identify sites of needed pipe repair and layout of the proposed road. The road repair will occur first, within a year of receiving all required permit authorizations. Once the road repairs are completed, the remaining known pipeline integrity and exposures repairs will then be completed.

Clean imported fill material or in-situ soil material excavated at the project locations will be used for pipeline protection activities and road repairs. The use of articulated concrete mats and variable sized rock rip-rap will also be discharged as fill material into waters of the U.S. for pipeline protection and creek bank stabilization and erosion repair. Approximately 2,100 cubic yards of in-situ cut material will be used for fill at pipeline exposure and road repair locations. Approximately 3,600 cubic yards of engineered fill material will be imported for fill at pipeline exposure and maintenance road repair locations. Project plans include locations specified as E (1-18) and R (1-12). The letter E indicates a pipeline exposure location and the letter R indicates a road repair. These specific locations are labeled on Figure 3, Current Known Repair

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Areas (see Attachment C).

#### 1) Currently Planned Project Pipeline Exposure and Integrity Digs

Pipeline exposures: The proposed project includes the repair of 22 pipeline exposures. These are mostly a result from flood flows during large storm events. Maintenance repairs of pipeline exposures include the use of articulated concrete mats and ungrouted vegetated riprap bank protection that will provide for the protection of exposed pipelines in water ways while maintaining creek flows and facilitating the establishment of native riparian vegetation. Projects to repair exposed pipeline projects involve excavating a section of exposed pipeline to inspect for damage, repairing the pipe wrap, and installing pipeline protection structures including articulated concrete mats and riprap bank protection. These repairs are identified in the project plans titled Southern California Gas Lines 407 and 3003, Sullivan Canyon (Psomas, November 2008).

Pipeline integrity correlation/inspection digs and repairs: The proposed project includes three pipeline integrity correlation/inspection digs and repairs to investigate anomalies identified as part of pipeline integrity program. This investigation will comply with the requirements of the DOT and CPUC, including the Pipeline Safety Improvement Act, 49 U.S.C. § 60101, et seq. One pipeline integrity dig is located at pipeline exposure E-18 and will occur at the same time as a pipeline exposure repair to minimize impacts at this location. The other two pipeline integrity digs (PIP #2 & #3 will require excavation, inspection, and repair at locations not associated with pipeline exposures. To accomplish these inspections/repairs, SoCalGas will excavate the pipeline, remove pipe wrap, and visually inspect the pipeline. If repairs are required, then SoCalGas would perform these repairs while the excavation is open, incurring no further impact to the area. Excavations are anticipated to be approximately 40 feet long, by 15 feet wide, to approximately two feet below the pipeline.

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#### 2) Currently Planned Road Repair

The maintenance road has experienced severe degradation from flood flows and hillside erosion. In addition to 15 specific road repair locations, identified in project plan Southern California Gas Lines 407 and 3003, Sullivan Canyon (Psomas, November 2008), the existing maintenance road will be repaired and maintained as a 12-foot wide road with periodic turnouts needed for allowing two-way maintenance vehicle traffic to pass or turn around. The purpose of the maintenance road is to provide regular inspection access over all portions of the pipeline system using on-the-ground visual inspection while driving a truck.

Articulated concrete mats and ungrouted rip-rap planted with riparian vegetation will be used where the integrity of the road is subject to erosion from creek flows (See Attachment 2, Figure 5 for reference photos. Refer to Attachment 2, Figures 6 and 7 for representative site photos of the repair areas.)

#### 3) Ongoing Routine Maintenance Activities

The following is a list of maintenance actions that must be routinely conducted within Sullivan Canyon to safely maintain the pipeline system and maintenance road and which are covered by this certification. The actions described below are regulated by the DOT and/or CPUC and are considered safety related actions. Many of these actions are conducted on a specific schedule.

Pipeline Inspection. Pipeline inspection will be regularly conducted over all portions of the pipeline system using on-the-ground visual inspection while driving a truck. Inspections include the pipelines, maintenance roads, and support facilities. Operating personnel will check and record pipeline conditions, replace missing or damaged pipeline markers and patrol signs, assure that pipeline markers are clearly visible, perform minor maintenance activities, and record any conditions that may affect pipeline operations.

Damage Prevention. Surveillance (i.e. locating and marking of pipelines and facilities) will be conducted to ensure no damage is caused by third party excavation or construction activities.

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Leakage Surveys. Gas leak surveys will be conducted using hand-held leak testing equipment. These surveys will be conducted once each year, or more if necessary. A pickup truck and 1-2 crew members are typically required to complete this type of survey. No ground disturbance or vegetation clearing is required for this activity.

Cathodic Protection Surveys. Cathodic protection surveys will be completed bi-monthly to determine pipe and soil electrical potentials. Cathodic protection prevents metal corrosion by making the pipeline surface a cathode as in an electrochemical cell. Simple testing instruments are needed, and due to the length of the canyon, surveys may require 10 days to complete. Testing instruments connect to existing Electrolysis Test Stations (ETS) that are attached to the pipelines within the canyon. No ground disturbance or vegetation clearing is required for this activity.

Unscheduled Maintenance. Unscheduled maintenance and inspection may be initiated as a result of conditions encountered during normal maintenance activities. Unscheduled maintenance may also include special patrols conducted after heavy rains, fires, or other natural disasters to assess damage to maintenance roads and facilities and to insure that underground pipe has not been exposed as a consequence of erosion. Personnel will also inspect for subsidence that may threaten to wash out a pipeline. Because most of this work is unscheduled, it is not possible to accurately predict the number of hours necessary for completion or the dates of each activity. Various surveys may also include Close Interval Copper Sulfate Surveys or Atmospheric Corrosion Control Surveys.

Maintenance Road Repairs. Road maintenance will include grading of the existing maintenance road and spot-repair of erosion sites subject to scouring to allow for the passage of inspection vehicles. This will be done as necessary, usually following seasonal rains. The area of repair will be limited to the width of the maintenance road (approximately 12 feet wide).

Vegetation control. Where practical, the use of integrated pest management controls such as mechanical removal (i.e. grass mowing, weed whipping, or other mechanical methods) will be employed before using pesticides. Where these methods are not practical such as over large areas, pesticide application will occur. Pesticide use for purposes of this plan typically refers to



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applications of 0.25 acres or greater on pipeline areas. These applications are used to maintain access to pipeline facilities and are performed either by SoCalGas personnel or a contractor. Prior to application, a site and product specific recommendation is obtained by SoCalGas from a State Certified Pest Control Advisor and reviewed by employees and contractors. SoCalGas will also follow any applicable statewide general permit for the discharge of aquatic pesticides. A copy of the pest control advisor's recommendations will be supplied to the RWQCB upon request.

Below Grade Pipe and Coating Inspections. Below grade pipe and coating inspections are conducted as a result of low pipe-to-soil electrical potentials (the low readings may occur in one spot or be several miles in length), or from internal inspection equipment. An excavation for this purpose would disturb an area 1,000 to 2,000 square feet in size (less than 0.05 acre).

Leak Excavations. Excavations are necessary in order to repair leaks reported as a result of leakage surveys. The affected pipeline segment will be isolated and the pipe segment will be cleared of residual natural gas. An excavation for this purpose would disturb an area of approximately 1,000 to 2,000 square feet (less than 0.05 acre).

Installation of Magnesium Anodes. Magnesium anodes are installed near the pipeline at its approximate depth. Installation of the magnesium anodes is normally done as a result of isolated low pipe to soil electrical potentials discovered through routine cathodic protection surveys. There will be typically three to six magnesium anode installations each year. An excavation for this purpose would disturb an area of approximately 10 to 20 square feet (less than .0005 acre).

Pipeline Excavation and Recoating. Excavation of pipe segments will occur if subsurface inspections indicate failed coating. When over 100 square feet of coal tar pipe wrap that may contain asbestos is present, asbestos abatement contractors will remove the failed coating material and dispose of it in an approved landfill. The area of disturbance depends on the extent of the failed coating. Recent experience has indicated an excavation for this purpose would disturb an area of approximately 1,000 to 2,000 square feet (less than 0.05 acre).

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Pipeline Segment Replacement. Replacement of pipe segments will occur if subsurface inspections reveal severe corrosion. The area of disturbance and the time to complete the task depends on the length of pipeline segment replaced. However, this certification will only apply to pipeline segment replacement of less than 200 linear feet. Replacement pipe will be hydrostatically tested with water. Segments greater than 80 feet will be tested in the field. A Baker tank will be brought on site for water storage during hydrostatic tests, if needed.

Pipeline Protection with Concrete Mats. The use of articulated concrete mats and ungrouted riprap bank protection has proven to be very effective as a method for protecting exposed pipelines in waterways. Exposed pipeline projects will involve excavating a section of exposed pipeline to inspect for damage, repairing the pipe wrap, and installing pipeline protection structures including articulated concrete mats and riprap/bank protection. These projects will be designed to avoid and minimize impacts to waters of the U.S. to the maximum extent practicable. Permanent impacts will be tempered due to the methods and materials used, allowing incorporation of the design with the in-stream habitat. Vegetated riprap will be installed with the intent of increasing the stability of the re-configured bank and to create vegetated habitat. The articulated concrete mats also will allow for vegetated habitat. The average size for an articulated mat (20 locations) is approximately 1,485 square feet.

Activities Outside of Pipeline Area or Access Roads. Some projects could extend outside of the existing pipeline area or maintenance road including placement of cathodic protection units, (deep well, shallow well and horizontal well); creating staging/lay-down sites; equipment stockpile areas; spoils pile deposition areas; repairing large pipeline washouts; road improvement actions; and emergency excavation and repair. The extent of disturbance outside of the existing pipeline area would vary with the project, depending upon pipeline width, topography, layout, and other factors. Waters will be avoided. Typically, less than 0.5 acre outside of a pipeline area would be subject to disturbance per project.

Pipeline Integrity Correlation/Inspection Digs and Repairs. SoCalGas is mandated by DOT and Office of Pipeline Safety (OPS) to internally inspect high-pressure gas transmission pipelines for internal corrosion or other anomalies. This is to ensure continued

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safe, secure and reliable supply of natural gas to customers. Following internal in-line inspections (smart pigging), SoCalGas is required to physically inspect the pipeline and correlate the data provided by the inline inspection tool. To accomplish these inspections/repairs, SoCalGas will excavate the pipeline, remove pipe wrap, and visually inspect the pipeline. If repairs are required, then SoCalGas would perform these repairs while the excavation is open, incurring no further impact to the area. Excavations are generally 40 feet long, by 15 feet wide, to approximately 2 feet below the pipeline. Depending on the depth of the pipeline, either a rubber tire backhoe, or a track excavator would be utilized, along with 2 to 3 pickup trucks, and a crew/gang truck. Recent experience has indicated an excavation for this purpose would disturb an area of approximately 1,000 to 2,000 square feet (less than 0.05 acre) annually.

#### **Schedule**

The Proposed Project includes the currently known pipeline exposure protection locations, pipeline integrity digs, and road repair activities that are expected to be completed over a five-year period from 2009 to 2014. The ongoing routine maintenance activities consist of a series of anticipated ongoing activities to maintain pipeline safety in accordance with DOT and CPUC regulations over an initial five-year period from 2009 to 2014 and beyond for the life of the pipelines. As stated above, the road repairs will occur first within a year of receiving all permit authorizations. Once the road repairs are completed, the remaining currently known pipeline integrity digs and exposure repairs will be completed during the remainder of this five-year period.

#### **Impacts to Wetlands or Other Waters**

Permanent and temporary impacts and fill are required for implementation of the currently known project elements. Ongoing maintenance impacts will be determined on a case-by-case basis. The following summarizes the surface area of permanent and temporary fill into waters of the U.S. and riparian scrub wetlands estimated for the currently known project elements.

Approximately 0.23 acre of wetland (riparian scrub) waters of the U.S. will be permanently filled for road repair and pipeline exposure protection measures. Approximately 0.82 acre of non-wetland waters of the U.S. will be permanently filled for road repair

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and pipeline exposure protection measures.

Approximately 0.10 acre of wetland (riparian scrub) waters of the U.S. will be temporarily filled for construction access to road repair and pipeline exposure protection measures. Approximately 0.98 acre of non-wetland waters of the U.S. will be temporarily filled for construction access to road repair and pipeline exposure protection measures.

These projects have been designed to avoid and minimize for impacts to waters of the waters of the U.S. to the maximum extent practicable. Permanent impacts are tempered due to the methods and materials used, allowing incorporation of the design with the in-stream habitat. Vegetated riprap is installed with the intent of increasing the stability of the re-configured bank and to create vegetated habitat. The articulated concrete mats also allow for vegetated habitat to re-establish.

#### Hydrology and Hydraulic Report

In order to develop a project which would minimize and/or avoid impacts to water quality, a Hydrology and Hydraulics Report (Tetra Tech, October 2008) was developed to provide background hydrology, hydraulics, and geomorphologic characteristics necessary to ensure that the water resources within Sullivan Canyon remain pristine to the maximum extent practicable. The study area included the entire Sullivan Canyon consisting of 1,574 acres. For hydraulic analysis, HEC-GeoRAS was utilized to generate a geo-referenced data file. The geometric data file included existing conditions from a total of 114 selected cross-sectional locations within Sullivan Canyon Creek. The results from the hydraulic analysis demonstrate that Sullivan Canyon will experience severe flooding conditions with flow velocities of 19.1 fps (feet per second) and 22.0 fps under the 10- and 50-year flood events. This severity is worsened in upper reaches where the invert canyon slope is very steep.

A general geomorphologic assessment indicated that in the steeper upper reaches, the creek thalweg was influenced by high flow velocities and limited by steep narrow valley walls. As the creek enters the lower portions of the canyon, it begins to meander as the flow moves to downstream reaches where the gradient is not as steep and the width between the valley walls increases. Aerial

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photograph analysis indicates that the creek may have experienced dynamic lateral movements over the years in the lower reach, and movement of the thalweg is expected to continue to move in future years or with large storm events.

The bulk flow analysis was developed with the Los Angeles County Department of Public Works' Sedimentation Manual. This bulk flow analysis was preferred to determine the higher runoff potential caused by large amounts of debris in runoff. This analysis was important, due the mountainous terrain and having a subject location which is prone to wildfires. Peak runoffs were calculated for 2-, 10- and 50-year burned and bulked flows at Sullivan Debris Basin, which is located at the southern most segment of the project area.

#### Summary of detailed descriptions of project activities at each location:

**E-1 and R-0:** (Northern Farmers Fire Road): The proposed work locations are not located along Sullivan Canyon Creek, itself. These work activities are near one of the major western tributaries to Sullivan Canyon Creek.

**E-1:** A 12-inch diameter pipe is proposed at the end of an existing storm drain pipe. The existing pipe is currently exposed in the air through the scoured road embankment. The new pipe will be comprised of two segments; an upstream vertical segment to route the outlet flow down to the existing swale elevation and a downstream horizontal segment with a 3% invert slope. A new 15-foot long riprap pad is also proposed at the downstream end of existing pipe in order to slow down the flow velocity to an acceptable level. Permanent impacts will consist of an area of 50 sq. ft. Temporary impacts will consist of 110 sq. ft.

**R-0:** A concrete revetment mat (CRM) will be placed over the road and will redirect road runoff to a new downstream riprap low-flow channel. The permanent impact area will consist of 105 sq. ft. and temporary impacts will consist of 100 sq. ft.

**E-2, E-3, and E-4:** Each of these sections is located consecutively and approximately 60 feet apart along Sullivan Canyon Creek. A CRM trapezoidal low-flow channel with a 6-ft wide bottom will be

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created along the thalweg continuously from upstream of E-2 to downstream of E-4. Within this low-flow channel, a low-water crossing will be installed within the existing road provided at the mid-point. Permanent impacts for E-2, E-3 and E-4 will consist of 925 sq. ft. and temporary impacts will consist of 115 sq. ft.

**R-1.3:** The road at this location has been damaged by a local tributary which flows over the maintenance road embankment. At this location, the project will consist of re-grading the existing road to pre-damaged conditions. In addition, the removal of slough at the end of the tributary will re-establish a flow path for the local runoff. For this location, temporary impacts will consist of 200 sq. feet. There will be no permanent impacts associated with work activities at this location.

**E-4.1:** Work at this location will require construction of a CRM low flow channel along the invert of the canyon at the confluence with a tributary. Permanent and temporary impacts associated with this location will consist of 350 sq. ft. and 655 sq. ft.; respectively.

**R-1.4:** The road at this location will require re-grading to construct a concrete gravity wall along the existing road embankment. No permanent impacts will occur at this location.

**R-2 and E-5:** The exposure and road repair, which are about 50 feet apart from each other, will require placement of two rows of 36-inch to 48-inch toe rock along the toe of the existing maintenance road embankment. The permanent impact area will consist of 275 sq. feet (rock riprap) and temporary impacts will consist of 1,390 sq. ft.

**R-3, R-4 and E-6:** The exposure and road repairs will require construction of earthen berms with CRM placed in front of the existing maintenance road at this location. The permanent impacts associated with these locations will consist of 1,065 sq. ft and temporary impacts will consist of 2, 215 sq. ft.

**E-7:** The exposure at this location will require construction of a trapezoidal CRM channel along the invert of the canyon with a v-shape low flow ditch along the easterly edge of the new channel. The channel will also include an inlet for tributary flow from the westerly side. Permanent impacts associated with this location will consist of an area of 3,020 sq. ft. and temporary impacts will consist

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of an area of 815 sq. ft.

**R-5 and E-8:** The exposure and road repair at this location will include re-establishing the existing road embankment along the westerly side of the canyon. Near the upstream end of new embankment, an earthen dike will be constructed to keep a tributary runoff flowing in the direction of the main channel. Permanent impacts have been combined and totaled into impacts for E9, E10 and R-6.

**E-9 and E-10, R-6:** A single trapezoidal low flow channel will be constructed from the E-9 to the E-10 sites. The channel will be made of CRM and provide for a 12-ft wide maintenance road on the easterly side of the channel. A total of 5,121 sq. ft. of permanent impact will occur within this reach and 4,420 sq. ft. will be impacted temporarily.

**R-6.1:** The road at this location will have riprap placement along the edges in order to protect from channel erosion. Permanent impacts will consist of an area of 20 sq. ft.

**R-7:** At this location, the current alignment of the channel routes the flow directly towards the maintenance road; scouring the embankment. The site will require construction of a new CRM maintenance road embankment at least 2 feet above the current ground elevation. Permanent impacts will consist of 1,090 sq. ft.

**E-11.1:** The exposure at this location will require construction of a CRM low flow channel along the invert of the canyon. Permanent impacts will consist of 100 sq. ft. Temporary impacts will consist of 530 sq. ft.

**E-12:** The exposure at this location will require construction of a new maintenance road embankment and placement of CRM along its side slope. Permanent impacts will consist of 815 sq. ft. An additional 715 sq. ft. will be impacted temporarily.

**R-9:** The road at this location will require re-grading to re-establish a 12% slope ramp for the existing maintenance road near the channel. No permanent impacts will result due to this project component.

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**E-12.1 and E-13:** The exposures at these two locations will require construction of earthen berms with a CRM side slope over the exposed pipeline. This berm will minimize further scouring along the channel invert just above the pipeline by keeping the flow away. Permanent impacts will consist of an area of 2,455 sq. ft.

**R-14:** The road at this location will require construction of an earthen berm with CRM placed in front of the existing maintenance road and along the exposed pipeline. The berm will also include a v-shape low flow channel to direct the flow in the downstream direction. No permanent impacts will result due to this project component.

**R-10 and E-15:** The road and pipeline exposure at this location will include a project component to construct a trapezoidal CRM channel to route a tributary flow over the exposed pipeline. The channels will control the direction and containment of local runoff over the pipeline and minimize further damages. Temporary and permanent impacts associated with the proposed project will consist of 400 and 200 sq. ft.; respectively.

**R-11 and R-11.1:** The road at these two locations will require placement of CRM along the low water crossing for the existing maintenance road (along the canyon thalweg) where the flow has damaged the maintenance road embankment. At R-11, the exposed pipeline also crosses the low water crossing. Within these locations, permanent impacts will consist of 1,965 sq. ft. An additional 1,175 sq. ft. of temporary impacts will occur due to this project component.

**E-16:** The pipeline exposure at this location will require construction of a trapezoidal CRM low flow channel. The channel will also act as a low water crossing for the existing maintenance road at the center. A total of 2,095 sq. ft of permanent impact will occur due to this project component.

**E-17 and E-18:** The exposures at these two locations will require a continuous repair measure between the two sites. The measure will include construction of a trapezoidal CRM low flow channel at the bend of the canyon. Because of the alignment of the bend, the channel will cross the existing maintenance road twice; each time



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creating a low water crossing. Permanent impacts will consist of an area of 6,876 sq. ft.

**E-19:** This exposure will require construction of a trapezoidal CRM low flow channel over the exposed pipeline to minimize further erosion. Permanent impacts will consist of an area of 1,085 sq. ft.

**R-12:** The segment through R-12 is a 2,900-ft long reach from RS 10+00 to RS 39+00. This site will be considered a maintenance road restoration site and does not require any hydraulic analysis. R-12 will consist of multiple remediation measures.

First, toe rock will be placed at the outside bend of the low flow channel near RS 10+00 in order to protect the existing maintenance road embankment which is located just behind the bend. Secondly, for the existing maintenance road between RS 16+00 and RS 25+00, the existing low flow channel is currently formed along the approximate centerline of the road. In this area, construction of a low flow channel through the adjacent floodplain to keep the flow away from the existing road may not be sustainable. The dynamic nature of the water course in this reach during a low flow conditions would cause the flow path to meander through this flatter area, making it hard to keep the flow path in a fixed location. The deposition nature of the canyon in this location during a high flow event may fill up any engineered channel with sediment. Also, a new low flow channel will significantly impact the existing vegetation established by the 2006 mitigation effort, creating environmental concerns.

The most suitable restoration measure is to repair the existing road in the existing alignment and to bolster erosion control to keep the low flow path away from the road to minimize future damages to the site. The road embankment will be re-graded to the original shape with engineered fill material and may involve over-excavation of the existing material. Also, low earthen water bars will be placed along the top of the re-established road at 100-ft intervals (a total of 10 water bars) with each water bar placed at a skew to keep the runoff directed towards the existing channel to the east. Thirdly, near RS 37+25, the existing thalweg, which flows east of the road, briefly intrudes into the road and returns back to its normal course. Also, between Station RS 38+10 and RS 38+80, the existing thalweg intrudes into the road again for a distance of approximately 70 feet and returns back to its normal course.

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Imported competent material will be used to fill the two areas over the road. For the area between RS 38+10 and RS 38+80, a new CRM low flow channel will be excavated next to the road to keep the flow away from the road and will eventually route the flow across the road at RS 37+90. This water will be allowed to flow downstream along a floodplain west of the road. Then, earthen water bars will be placed from RS 34+80 and RS 37+80 at 100-ft intervals (a total of 4) at a skewed angle to the road alignment to direct any surface runoff towards the low flow channel west to the road. The permanent impact area will consist of 385 sq. feet and temporary impacts will consist of 1,380 sq. ft.

8. Federal Agency/Permit: U.S. Army Corps of Engineers  
Individual Permit
9. Other Required Regulatory Approvals: California Department of Fish and Game  
Streambed Alteration Agreement
10. California Environmental Quality Act Compliance: The proposed project is Categorical Exempt from CEQA pursuant to the CEQA Guidelines, Section 15302 (Replacement or Reconstruction).
11. Receiving Water: Sullivan Canyon Creek (Hydrologic Unit No. 405.13)
12. Designated Beneficial Uses: MUN\*, REC-1, REC-2, WARM, WILD  
\*Conditional beneficial use
13. Impacted Waters of the United States: Federal jurisdictional wetlands: 0.10 temporary and 0.23 permanent acres  
Non-wetland waters (streambed): 0.98 temporary and 0.82 permanent acres  
Impacts include up to 0.5 acres of staging area within non-wetland waters of the U.S.