


MEMORANDUM

To: Jose Lopez, Project Manager, SDG&E
From: Jing Liang 
Date: 6/10/2010
Re: Mitigation Measure H-8a: Scour and Erosion Protection at Creek Crossings

RESPONSE TO MITIGATION MEASURE, H.8a: **BURY POWER LINE BELOW 100-YEAR SCOUR DEPTH.**

This memorandum is to respond to the CPUC data request dated on 3/23/10. The followings are detailed requests and responses:

1. **Data Request:** Please confirm that the basis of design for the transmission line crossing considered the structural design and integrity of the existing culvert and that the culvert crossing was engineered to operate and function for flows equaling the estimated 100-yr discharge event.

Response: B&V had discussed with County of San Diego, and confirmed the existing box culvert installed on Alpine Blvd. at approx. 600 feet east of Marshall Road was designed to meet 100-year storm event. B&V confirmed the basis of design for the transmission line does not impact any structural design and integrity of the existing structure.

Data Request: *B&V shall provide a reference for personal communication with the County of San Diego.*

Response: *B&V contacted Kenneth Brazell, Project Manager, County of San Diego, Department of Public Works on 4/13/2010 and 4/16/10. B&V received a Study performed by George S Nolte and Associates, "Comprehensive Plan for Flood Control and Drainage, Zone 2, San Diego County Flood Control District" on 4/16/2010.*

2. **Date Request:** Please confirm that the concrete entrance and exit slabs that extend upstream and downstream of the Alpine Blvd. culvert crossing were engineered in consideration of potential erosive and scour conditions along the creek channel associated with large flow events (100-yr event) as well as, smaller more frequent events.

Response: B&V confirmed that the concrete entrance and exit slabs that extended upstream and downstream at the box culvert were intended and engineered in consideration of the potential erosion and scour protection from large flow events (100-year storm) and smaller, but more frequent events.

Data Request: B&V should reference the source of information, method or personal communication that provided information regarding to the engineering design standards for the culvert.

Response: B&V obtained the as-built drawings of the box culvert from the County of San Diego, Department of Public Works during the engineering phase of the project. From an engineering perspective, the concrete entrance and exit slabs are intended for potential erosion and scour protection. Since the box culvert with the entrance and exit slabs were engineered and constructed to accommodate a 100-year storm event, it is reasonable to assume the original design and construction should meet the design criteria.

3. **Data Request:** Please confirm that the assumed hydrologic (watershed runoff contribution) and hydraulic (flow velocities, depth, and shear stress) conditions used as the basis for design of the Alpine Blvd. culvert crossing are still valid under current watershed and stream conditions.

Response: According to the San Diego County's Recommended Flood Control & Drainage Plan, Zone 2, San Diego County Flood Control District, dated Nov. 1975, the existing double 10' x 6' box culvert was upgraded to accommodate 100-year storm events and meeting the flood capacity of 1,348 cubic feet per second. The areas covered by the box culvert do not contain any development that may impact the watershed and stream conditions.

Data Request: Please confirm that there have not been significant land use changes (e.g. residential and commercial development) in the watershed since 1975 would modify the design discharge for the culvert.

Response: The watershed covered upstream of the box culvert is approx. 1.2 square miles (Per "Comprehensive Plan for Flood Control and Drainage, Zone 2, San Diego County Flood Control District"). The watershed at its present state consists of undeveloped and low density residential land which is a similar description in the "Comprehensive Plan" as "UNDEVELOPED AND LOW DENSITY RESIDENTIAL LAND. It is reasonable to assume there were no major developments between now and 1975 that would increase the design discharge for the culvert.

4. **Data Response:** Please confirm that the existing culvert crossing at Alpine Blvd. is structurally sound and has not experienced any excessive scour or undercutting of its entrance and exit concrete aprons (slabs).

Response: Field inspection was made and verified that there is not any cracking or spalling from existing concrete structure, and there is not any visible excessive scour or undercutting of the entrance and exit concrete slabs.

NO ADDITIONAL DATA REQUEST.

5. **Data Request:** Please confirm that the existing stream course both upstream and downstream of the culvert crossing at Alpine Blvd. is not excessively erosive in nature and that no observable channel knick point exists that may migrate toward the crossing structure.

Response: From field inspection, B&V confirmed that existing stream course both upstream and downstream of the culvert crossing at Alpine Blvd. is not excessively erosive in nature and that no observable channel knick point exists that may migrate toward the crossing structure.

Data Request: B&V should provide a distance for which the stream was inspected in both in the

upstream and downstream direction. B&V should also provide representative photographs of the channel in the upstream and downstream directions.

Response: *B&V inspected approximately 50 feet from both upstream and downstream directions. Photos are included in the Attachment. Due to the heavy vegetation at both upstream and downstream next to the culvert, the erosion conditions can't be clearly seen from pictures. No obvious erosion or scour concerns were noticed. In addition, the heavy vegetation reinforces the soil and helps to prevent erosion and scour of stream beds.*

6. **Data Request:** Please confirm that potential future maintenance of the culvert crossing at Alpine Blvd., including potential sediment removal activities for sediment that may collect in the culvert, will not in any way effect the transmission line ducts, either through use of equipment in the culverts or any other maintenance activity.

Response: B&V confirmed that potential maintenance of the culvert crossing at Alpine Blvd., including potential sediment removal with equipment in the existing culvert would not have any impact to the proposed transmission line.

NO ADDITIONAL DATA REQUEST.

Attachment --- ALPINE BLVD. CREEK PHOTO (UPSTREAM & DOWNTREAM)

ATTACHMENT – PHOTO OF EXISTING CULVERT CROSSING

ALPINE BLVD. CREEK CROSSING



Upstream side of the creek



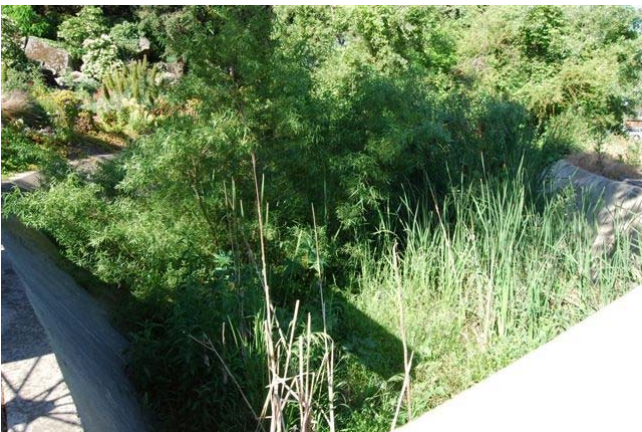
Upstream side of the creek



Upstream side of the creek



Downstream side of the creek



Downstream side of the creek



Downstream side (approx. 100 feet from the culvert)