

**APPENDIX G**

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**EFFECT OF BRIDGE ON HILLSIDE DRAINAGE TTM 47449**





January 6, 2006

**RE: EFFECT OF BRIDGE ON HILLSIDE DRAINAGE  
VTTM 47449**

**To Whom It May Concern:**

In regards to the possible affects of changed drainage patterns caused by the piers and abutments of the new 650-ft bridge connecting San Dimas Avenue to the main body of the tract, we found the following:

1. Because to the placement of abutments at the top of the slopes and the slopes either drain away or parallel to the abutment, essentially there is no diversion of the sheet flow drainage around these abutments.
2. The four column/piers of bridge are placed up on the natural slopes well clear of any natural water courses.
3. The four column/piers of bridge are placed up on the natural slopes and subject only to small amounts of sheet flow from the slope above the column/pier.
4. The amount of sheet flow is further reduced by the shading of the bridge.
5. There is essentially no chance of damage to the bridge footings due to this small amount of water sheeting around the footing cap because of the thickness of the cap and that the cap is bridged on caissons that are drilled deep into the natural bedrock of the hills.
6. Only a very small amount of sheeting water would be diverted by the columns because of the small size and shape of the column (2-ft square) and the fact that the cap will be buried below grade.
7. The water diverted by the columns would be back to normal sheet flow within a few feet downhill of the column due to the steepness of the slope and the irregularities of the slope.

**Conclusion:** There is essentially only a miniscule if any affect on the sheet flow of the drainage around and under the bridge.

  
Gary M. Gantney, PE  
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