



January 19, 2010

Mr. Ken Johnston  
Las Pilitas Resources  
P.O. Box 875  
Santa Margarita, CA 93453

Dear Mr. Johnston:

TPG Consulting has reevaluated the sight distance requirements for the project driveway for the proposed Las Pilitas Rock Quarry. A previous sight distance analysis was performed and documented by TPG in letter reports dated June 8, 2009 and July 10, 2009. The previous analysis was revisited to determine if the driveway could be moved farther away from the adjacent residential driveway, located between the proposed driveway and the Salinas River Bridge. During this reevaluation, TPG performed a speed survey for traffic approaching the site from the east. This analysis is limited to the “West Driveway” location described in the initial report since it was previously determined as the recommended driveway location.

The sight distance evaluation was prepared based on the methodology presented in the Caltrans Highway Design Manual (HDM), Chapters 200 and 400. The speed survey was prepared using the guidance provided in the California Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), Section 2B.13. The prevailing vehicle speeds were determined through use of a radar traffic speed meter. Each of the radar speed checks was made from an inconspicuously parked, unmarked vehicle utilizing consultant personnel. An effort was made to insure that the presence of the vehicle in no way affected the speed of the traffic being surveyed.

### ***Sight Distance Analysis***

The previously prepared sight distance analysis was revisited due to the removal of a tree (due to natural forces) located south of State Route (SR) 58, east of the Project site. During field analysis, it was determined that the removal of the tree did not significantly change the available sight distance of any of the previously analyzed driveway locations.

### ***Speed Survey***

As stated in the previous report:

“In the study area, the SR 58 speed limit is unposted, but assumed to have a maximum speed limit of 55 miles per hour (mph). Due to the horizontal and vertical curvature of SR 58, east of West Pozo Road, advisory speed signs ranging from 30 mph and 45 mph are posted on curves along the roadway. No advisory speed signs are currently placed on approaches within the immediate vicinity of the project site. Traffic traveling westbound on SR 58 approaching the project site encounters a series of switchback curves without a posted advisory speed. Traffic traveling eastbound towards the project exit one horizontal curve and enter on a downgrade to the bridge. This analysis assumes an approach speed of 55 mph for all approaches and should be considered a worst-case.”

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The speed of vehicles on the westbound approach were surveyed to determine the actual speed of vehicles exiting the switchback curves and entering the sight distance area for the proposed West Driveway. Due to the horizontal curves, it seemed unlikely that vehicles approaching the proposed driveway would be traveling at 55 mph.

In order to properly account for the approach speed, the following guidelines were incorporated into the survey:

- Vehicles surveyed must be within the available corner and stopping sight distance of the West Driveway
- Surveyed vehicles must not be influenced
  - Observation vehicle parked on opposite side of road
  - No observations used while vehicles approached from opposite direction
- No heavy vehicles or vehicles pulling trailers were surveyed due to abnormally lower speeds

As noted in the previous report, the West Driveway location was determined based on the available sight distance. Since there are no obstructions to the west, the limiting factor became the vertical crest curve on SR 58, east of the West Driveway. Based on the field measurements, it was originally determined that the West Driveway must be placed no more than 375 feet east of the east end of the Salinas River Bridge. This reference point occurs at the point that the bridge deck rests on the abutment. Therefore, the point that the West Driveway loses corner sight distance (605 feet at 55 mph) was determined to be approximately 980 feet (375+605) east of the bridge reference point. Speed surveys were made approximately 775 feet east of the bridge reference point and should be considered a worst-case scenario. This survey point was chosen based on the approximate location of driver acceleration into the straight segment.

Based on the speed survey data collected, it was determined that the 85<sup>th</sup> percentile speed for the westbound approach to the West Driveway is 49 mph. The survey data and calculations are attached. This data should not be considered representative of the entire segment of SR 58. This data was prepared specifically to determine approach speeds to the West Driveway and should not be used for any other assumptions about the roadway operation. No survey of the eastbound approach traffic was performed. Since the required eastbound approach sight distance is more than sufficient for the 55 mph criteria, it is left unchanged.

#### Survey Observations

The majority of vehicles traveling along the Project frontage during the midday time period travel to/from Parkhill Road. Most vehicles traveling westbound at the survey point are beginning to accelerate into the relatively straight and clear segment along the Project frontage and across the Salinas River bridge. Vehicles entering SR 58 from Parkhill Road, traveling WB, do not encounter an advisory warning for the horizontal curves. However, based on the nature of the area, the majority of drivers are likely to be familiar with the roadway characteristics.

#### ***Possible Changes to the Driveway Location***

Based on the observed 85<sup>th</sup> percentile speed, the corner and stopping sight distances for the westbound approach to the West Driveway may be changed. Table 1 shows the change in the required sight distances.

<b>Speed</b>	<b>Required Stopping Sight Distance (ft)<sup>1</sup></b>	<b>Required Corner Sight Distance (ft)<sup>2</sup></b>
55 mph	500	605
50 mph	430	550

<sup>1</sup> Caltrans HDM, Table 201.1

<sup>2</sup> Caltrans HDM, Table 405.1A

As shown in Table, the required stopping and corner sight distances are reduced by 70 and 55 feet, respectively. Since the location of the West Driveway was based on the minimum distance required to meet the sight distances, the new sight distance requirements would logically allow the driveway to be moved some distance to the east.

Since the ultimate obstruction for both the stopping and corner sight distances is the crest vertical curve on SR 58, this is a fixed location. Also, SR 58 is on an incline, west to east, from the West Driveway to the crest. An assumption was made that the ultimate line of sight termination will remain the same if the West Driveway were shifted to the east. This should be correct given that the vertical change is such that sight distance is lost rapidly after the crest of the vertical curve is reached.

Therefore, it has been determined that the West Driveway should be able to shift 55 feet east of the previously proposed location. This will place the Driveway centerline at **430 feet (375+55) east of the east end of the Salinas River Bridge** (as described above). The required corner sight distance for westbound traffic is 550 feet (see Table 1) east of the Driveway centerline. Therefore, the furthest point of line of sight termination is located **985 feet (430+550) east of the east end of the Salinas River Bridge**.

### Conclusions and Recommendations

Based on the speed survey data collected and the previously prepared sight distance analyses, the West Driveway location will meet applicable stopping and corner sight distances for a 50 mph approach speed (for the westbound approach only). The eastbound approach criteria remain unchanged. The potential west driveway location does not require removal of adjacent trees or berms.

Thank you for the opportunity to provide you with this analysis. If you have any additional questions, please feel free to contact me by email ([whutcheson@tpgconsulting.net](mailto:whutcheson@tpgconsulting.net)) or phone (559/739-8072).

Sincerely,

Wally Hutcheson, TE  
Associate Engineer

Attachments: 1



# TPG CONSULTING, INC.

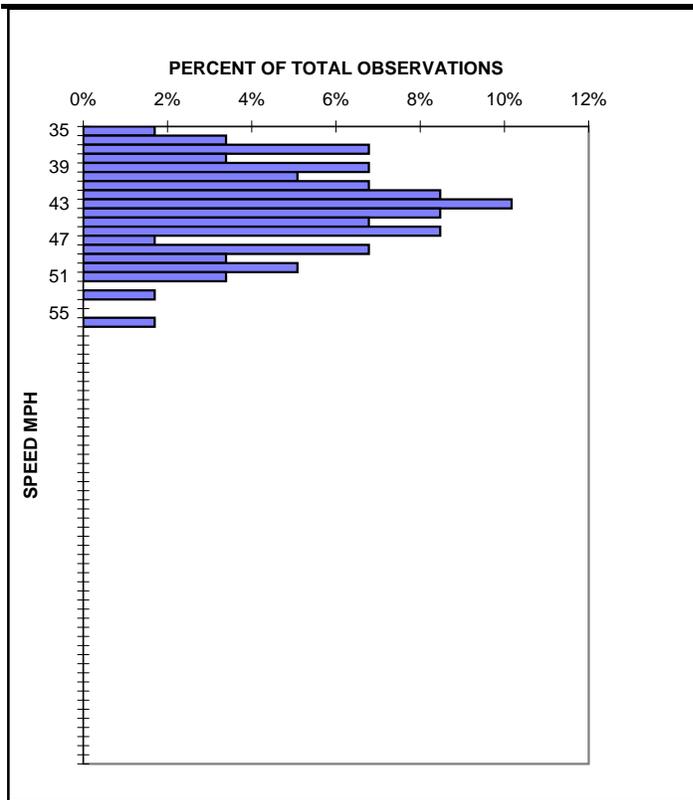
222 N. Garden Street, Suite 100  
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LOCATION: STATE ROUTE 58	EAST OF SALINAS RIVER BRIDGE
DIRECTION: NORTH-SOUTH	DATE: 12/16/2009
ROAD X-SECTION: 2-LANE UNDIVIDED	DAY: WEDNESDAY
PAVED WIDTH: ~20 FT	TIME: 12:00 PM
BUSINESS OR RESIDENCE DISTRICT: NO	OBSERVER: WH

RECOMMENDED SPEED LIMIT	POSTED SPEED LIMIT		10 MPH PACE SPEED	AVERAGE SPEED	CRITICAL SPEED
	55		37 - 46	44	49
	<= 98% >		< IN >		<= >
			5% 71% 24%		85% 15%

COMMENTS/UNUSUAL CONDITIONS Survey taken as vehicles exit a series of horizontal curves and approach the proposed West Driveway for the Las Pilitas Quarry.

**\*\*This survey is not representative of traffic along this segment of SR 58, it is specific to the driveway approach.\*\***



SPEED MPH	FREQUENCY		CUMULATIVE	
	#	%	#	%
35	1	2%	1	1.7%
36	2	3%	3	5.1%
37	4	7%	7	11.9%
38	2	3%	9	15.3%
39	4	7%	13	22.0%
40	3	5%	16	27.1%
41	4	7%	20	33.9%
42	5	8%	25	42.4%
43	6	10%	31	52.5%
44	5	8%	36	61.0%
45	4	7%	40	67.8%
46	5	8%	45	76.3%
47	1	2%	46	78.0%
48	4	7%	50	84.7%
49	2	3%	52	88.1%
50	3	5%	55	93.2%
51	2	3%	57	96.6%
52		0%	57	96.6%
53	1	2%	58	98.3%
54		0%	58	98.3%
55		0%	58	98.3%
56	1	2%	59	100.0%