

May 1, 2019

Job No.2018-015

Frank Leahy and Rachel Guant  
120 Morning Sun Ave  
Mill Valley, CA 94941

**Re: Site evaluation for two-driveway intersections with Vision Road. For a residential development APN 084-150-032, Vision Road, Inverness, CA**

Dear Mr. Leahy and Ms Guant,

As you are aware, we have concluded the study of the sight distance for both of the driveway intersections with Vision Road as described in the incompleteness memo from Jason Wong Marin County Public Works Department. The County prescribed that the sight distance for your driveway intersections must be evaluated to determine if the necessary sight distances are met. AYS has performed a sight distance survey of the two driveway accesses proposed in your development plans.

Vision Road has a posted speed of 25 miles per hour (mph). The topography of the road in the areas of the intersections is gently rolling hills with the road rolling along a fairly straight alignment.

Based on Caltrans guidelines for sight distance we have to look at both stopping sight distance of the traffic along Vision Road in both directions that would be impacted by a driver entering the roadway from your proposed driveway intersections and corner sight distance for drivers entering the roadway from your proposed driveway intersections to safely see far enough to enter Vision Road.

Stopping sight distance is described as the safe distance from the driver's eye to an obstacle 6" high in the road to allow emergency stopping. This distance is based on the speed of the traffic, in our case 25 miles per hour, with a corresponding distance of 150 feet.

Attached is the layout for the existing roadway and the proposed circular driveway.



## Stopping sight distance East Driveway Intersection



The picture below is taken of a traffic cone with a white line, 6" up from the base, placed at the intersection of the centerlines of the proposed driveway and Vision Rd. The camera is held at a height of 3.5 feet from grade and taken from 150 feet from the cone. This picture is from the West looking toward Sir Francis Drake Boulevard.



The picture below is taken of the same traffic cone as above at the intersection of the east driveway intersection and the centerline of Vision Road. The camera is held at a

height of 3.5 feet from grade and taken from 150 feet from the cone. This picture is from the East looking away from Sir Francis Drake Boulevard toward Cameron Street.



The white line on the cone is easily visible in each of the pictures for the East driveway intersection showing more than adequate stopping sight distance for eastbound and westbound traffic for the 25 mph posted speed.

### West Driveway Intersection



This same setup is done for the West intersection this one from the West toward Sir Francis Drake Boulevard.



This same setup is done for the West intersection this one from the East toward Cameron Street.



The white line on the cone is easily visible in each of the pictures for the East driveway intersection showing more than adequate stopping sight distance for eastbound and westbound traffic.

### **Corner Sight Distance**

Corner Sight Distance is described by Caltrans as the safe distance required for a driver at an intersection to make a safe decision to turn into the lanes of traffic from an intersection. The sight triangle uses a driver's eye (3.5' from grade) 15 feet back from the edge of the road. The required distance is based on the amount of time the driver





Unfortunately, this sight corridor is obscured by vegetation largely on the neighboring property as well at the bank of the road cut also on a neighbor's property to the east of this property toward Sir Francis Drake Blvd. The brushy undergrowth could be removed making the corner sight distance from the east intersection looking East better but I could not determine if this would allow the full sight distance corridor required.

Another picture was taken closer to the edge of the road as a driver might do in a intersection with less than adequate sight distance to see more of the road and oncoming traffic. The picture below shows the target cone 378.5 feet but with the eyeline 4 feet from the edge of the road looking east for a turn out of the easterly leg of the driveway.



The traffic cone target was moved to the point of a clear sight corridor below. The target is placed 152 feet easterly along the centerline from the east intersection with the eye line at 3.5 feet and 15 feet back from the edge of pavement of Vision Road.

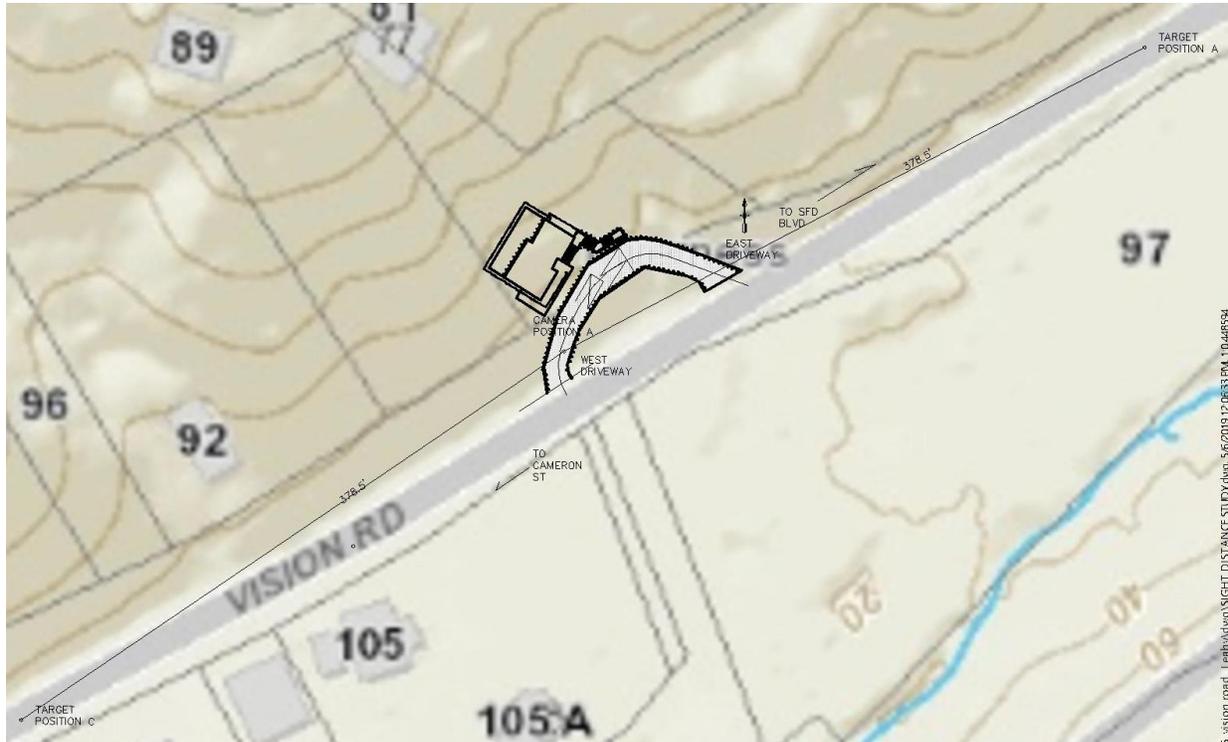


The target was moved 378.5 feet from the intersection with the East leg of the driveway looking to the West with the same setup as previous.



Sight distance corridor is more than adequate but could be improved by clearing brush between the traveled way and the edge of the ROW

### The West Intersection corner sight distance



Same setup as the East intersection for corner sight distance looking west with target 378.5 feet from intersection.



West Intersection looking east 378.5 feet to target.



We used the left hand turn distance 378.5 for these pictures as the from the worst case pictures it can be seen that the lesser right turn distance of 238.8 has a clear sight line saving us some effort in doubling the set ups. The brush although sparse should be cleared from the edge of the road to the right of way line.

### **Recommendations and conclusion**

The sight distance study we have conducted shows more than adequate stopping sight distance for all directions for both of the driveway legs for a 25 mph posted speed limit. The pictures demonstrate clear line of sight of more 150 feet in both East and West directions allowing traffic traveling along Vision Road to stop safely should a car stall after leaving either of the driveways.

The corner sight distances for the West leg of the driveway looking both East and West shows more than adequate distance (for 25 mph posted speed limit) for a car in the driveway to see with adequate distance for their car to pull out into Vision Road going either direction.

The corner sight distance for the East leg of the driveway shows adequate sight distance to the West for entering the eastbound lane but does not show adequate sight distance to cross the westbound lane. The sightline to the East is obscured by the neighbors vegetation and possible the road bank itself for the full sight distance of 378.5 feet. It may be possible to remove the brushy vegetation in this sight corridor to make the situation better but I could not tell if it would be enough to get the full required distance. I also looked at the idea of a vehicle parked at the east leg of the driveway partially nosing out into the traveled way which did allow the full sight distance but with the eye of the driver 4 to 6 feet away from the pavement instead of the prescribed 15

feet listed in Cal-trans manual. I also mocked up the real sight distance for this leg of the driveway using the 15 feet and 3.5 for eye position and show approximately 152 feet of clear sight distance with the vegetation as it was found.

The owner should utilize the East leg of the driveway for entering the property and the West leg of the driveway for exiting the property to maximize the sight distance and safety for the owner and visitors to the property. Adequate stopping sight distance for traffic along Vision Road has been demonstrated so traffic along Vision Road should not be overly impacted and the corner sight distance has also been demonstrated to be more than adequate for the West leg of the driveway.

It also seemed that the reviewer at the County was concerned about our retaining walls designed along each leg of the driveway. These walls are less than 1' high at the eyeline prescribed and are lower than the driveway surface (driveway grade higher than existing grade at sight line) and as such will not impede the view corridor for either leg of the driveway in either direction.

Please contact me if you have any questions or comments.

Sincerely,

Troy Pearce, P.E.  
Civil Engineer

Cc: Jason Wong

