Field Inspection Report

Name and Location of Facility Inspected	Rhys Vineyard, Clarke Ranch, 6501 Branscomb Road, Laytonville, CA		
Inspection Date & Time:	September 29, 2015 0830-1700 Travel time included	**Mendocino County Assessor Parcel Numbers (APN)**	015-050-061 015-050-057 015-050-056 015-050-055 015-050-050 015, 050-051 014-300-019

Names & Titles of On-Site Representatives and Consenting Parties	**Consent[1] Provided?**	**Notified of Inspection?**
Javier Tapia Meza, Ken Seckora	Consent Inspection	☒ **YES**
Property Owner(s):	Rhys Vineyards LLC	
Physical Address:	6501 Branscomb Road, Laytonville, CA.	
Mailing Address:	11715 Skyline Blvd., Los Gatos, CA 95033	
Property Representatives Present:	Javier Tepa Meza, CFO for Rhys Vineyards, and Ken Seckora, Contractor	

Report Prepared By:	
Stormer Feiler, Environmental Scientist (ES), North Coast Regional Water Board (RWB)	
Report Reviewed By:	
Attending Agency Representatives:	
Water Boards	**Ca. Department of Fish and Wildlife (DFW)**
Stormer Feiler, ES, North Coast Regional Water Board	Brandon Rose, DFW Warden
Skyler Anderson, ES, State Water Resources Control Board, Division of Water Rights (Division)	Wesley Stokes, ES, DFW
Stephanie Ponce, Division	**US Army Corps of Engineers**
	Daniel B. Breen

California Integrated Water Quality System (CIWQS) Inspection:	
Photos Taken:	All photographs were taken by Stormer Feiler unless labeled otherwise.
Weather:	Sunny and warm
Facility Receiving Water Names:	South Fork Eel River headwaters and unnamed tributaries, and Ten Mile River and unnamed tributaries

Introduction

On September 23, 2015, Department of Fish and Wildlife (DFW) Warden Brandon Rose notified DFW and Regional Water Board staff of his initial discovery of a large grading and road construction project on the Clarke Ranch off Branscomb Road near Laytonville. Warden Rose requested staff participation in an inspection of the project area. I referred the complaint to staff of the State Water Board's Division of Water Rights (DIV) who expressed interest in attending the proposed inspection. Warden Rose scheduled an inspection for September 29, 2015.

Prior to the date of inspection, I reviewed aerial images of the area of alleged violations to determine what the site may have looked like prior to the reported recent development activities.

Background

The project site is located on the Clarke Ranch (Property), which straddles the divide between the South Fork Eel River and the Ten Mile River watersheds. According to Parcel quest Rhys Vineyard purchased the Clarke Ranch on January 20, 2015. During the September 29, 2015 inspection, we inspected conditions on the portion of Clarke Ranch comprised by Mendocino County Assessor's Parcel Numbers (APNs) 015-050-061, 015-050-057, 015-050-056, 015-050-055, 015-050-050, 015-050-051, and 014-300-019. However, the Clarke Ranch contains many more parcels than those inspected and listed here. Considering the scope of work conducted on the portion of the Ranch we inspected, and the number of existing violations discovered, a full assessment and inventory of the Clarke Ranch road system appears warranted.

The South Fork Eel River and the Ten Mile River are federal Clean Water Act section 303(d)-listed for sediment and temperature impairments. The Clarke Ranch is located within the Laytonville Hydrologic Subarea of the South Fork Eel River, and the Ten Mile River Hydrologic Subarea is within the Mendocino Coast Hydrologic Unit. The United States Environmental Protection Agency approved the Ten Mile River Sediment TMDL on December 16, 1999, and the South Fork Eel River temperature and sediment TMDL in December of 2000. These watersheds are also identified as follows in the two standard watershed identification methods: the Cal Water watersheds (Version 2.2) and the federal Hydrologic Unit Code (HUC) HUC 12 as follows: Ten Mile River watersheds Cal Water 1113.130102 (Patsy Creek) and as HUC 12 180101080101-North Fork Ten Mile River, and South Fork Eel River as Cal Water 1111.330305 (Laytonville) and HUC 12 as 180101060103- Elder Creek South Fork Eel River.

The Ten Mile River TMDL indicates that the primary load reductions required would come from reducing road related surface erosion and road-related landslides.

The South Fork Eel River TMDL load allocation places an emphasis on controlling sediment delivery from roads and is based on an 80% reduction in sediment from roads. The road category included: road surface erosion, road crossing failures and gullies, and skid trails. For temperature, the TMDL hypothesizes that benefits will occur through reducing the sediment loading down to the load allocation, and recommends addressing effective shade on streams, essentially encouraging the management of vegetation along streams to mimic natural shade, which the TMDL identifies as 85% canopy coverage.

Both watershed total maximum daily loads were set to protect the beneficial uses of Cold Freshwater Habitat; Spawning, Reproduction, and/or Early Development; Migration of Aquatic Organisms; and Commercial and Sport Fishing in an attempt to recover endangered salmonids such as steelhead trout, Coho Salmon, and Chinook Salmon. The Ten Mile and South Fork Eel Rivers are within the California Coastal ESU for Chinook Salmon, in which the salmon are listed as threatened by the U.S. Endangered Species Act (ESA). The South Fork Eel River is within the Southern Oregon/Northern California Coast ESU for Coho Salmon, in which they are listed as Threatened by the ESA. The Ten Mile River is within the Central California Coast ESU for Coho Salmon, in which they are listed as Endangered by the ESA. In both the South Fork Eel and the Ten Mile Rivers, steelhead trout are listed as Threatened by the ESA within the Northern California distinct population segment.

<u>Property Information:</u>
As noted above, the Property is located off Branscomb Road, approximately five miles southwest of Laytonville, and is commonly referred to as the Clarke Ranch. Image 1 and 2 below provide a visual of the general location. Prior to the inspection, I reviewed Google Earth imagery and consulted existing topographical maps of the area. The project area is dominated by oak woodland and open meadow, interspersed with forested areas of Douglas fir. During my imagery review, I noted that a stream was visible in historic images in the area that was reported to be undergoing grading and excavation.

Site Map/Imagery

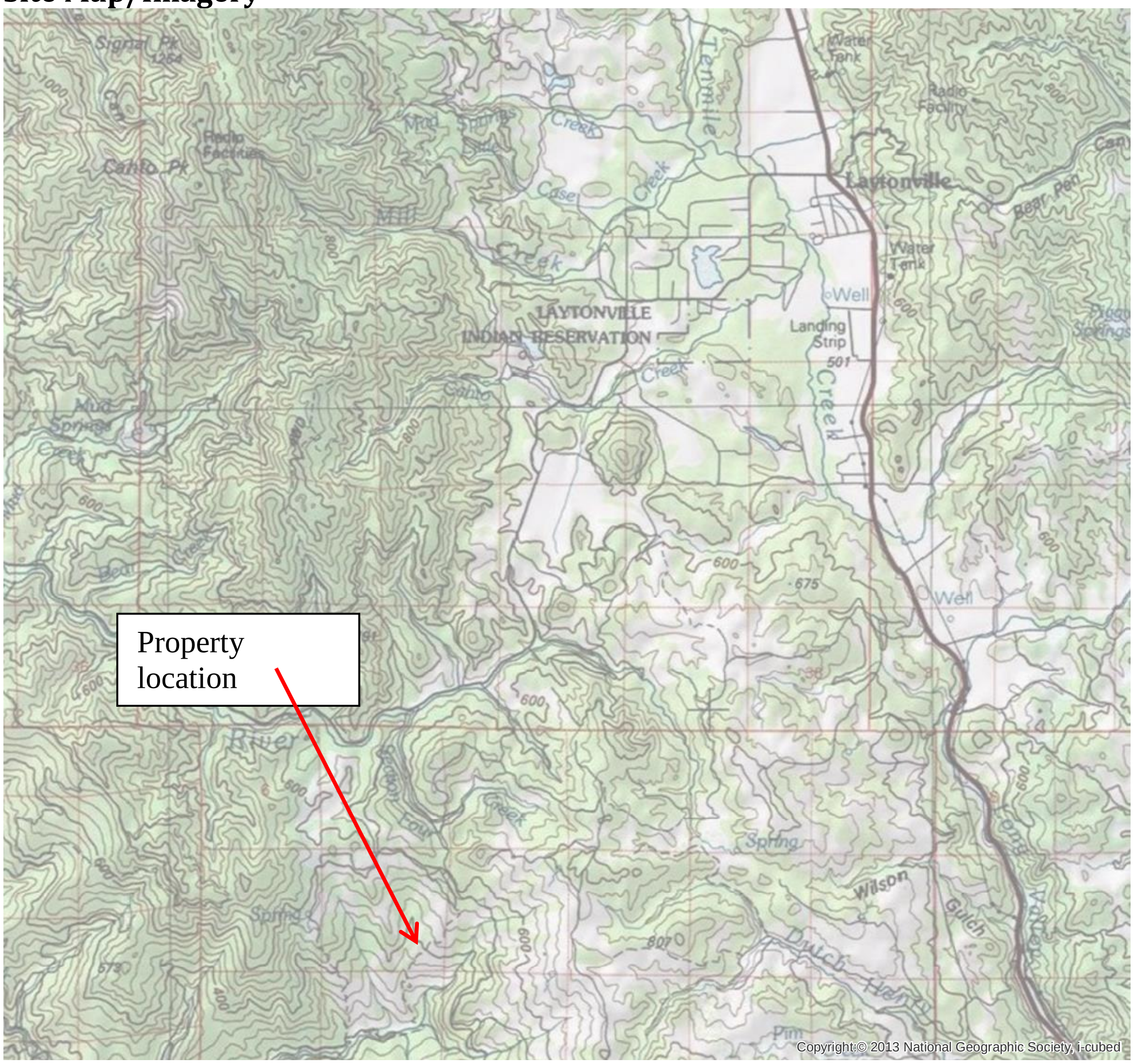

Image 1 – topographic map showing general property location

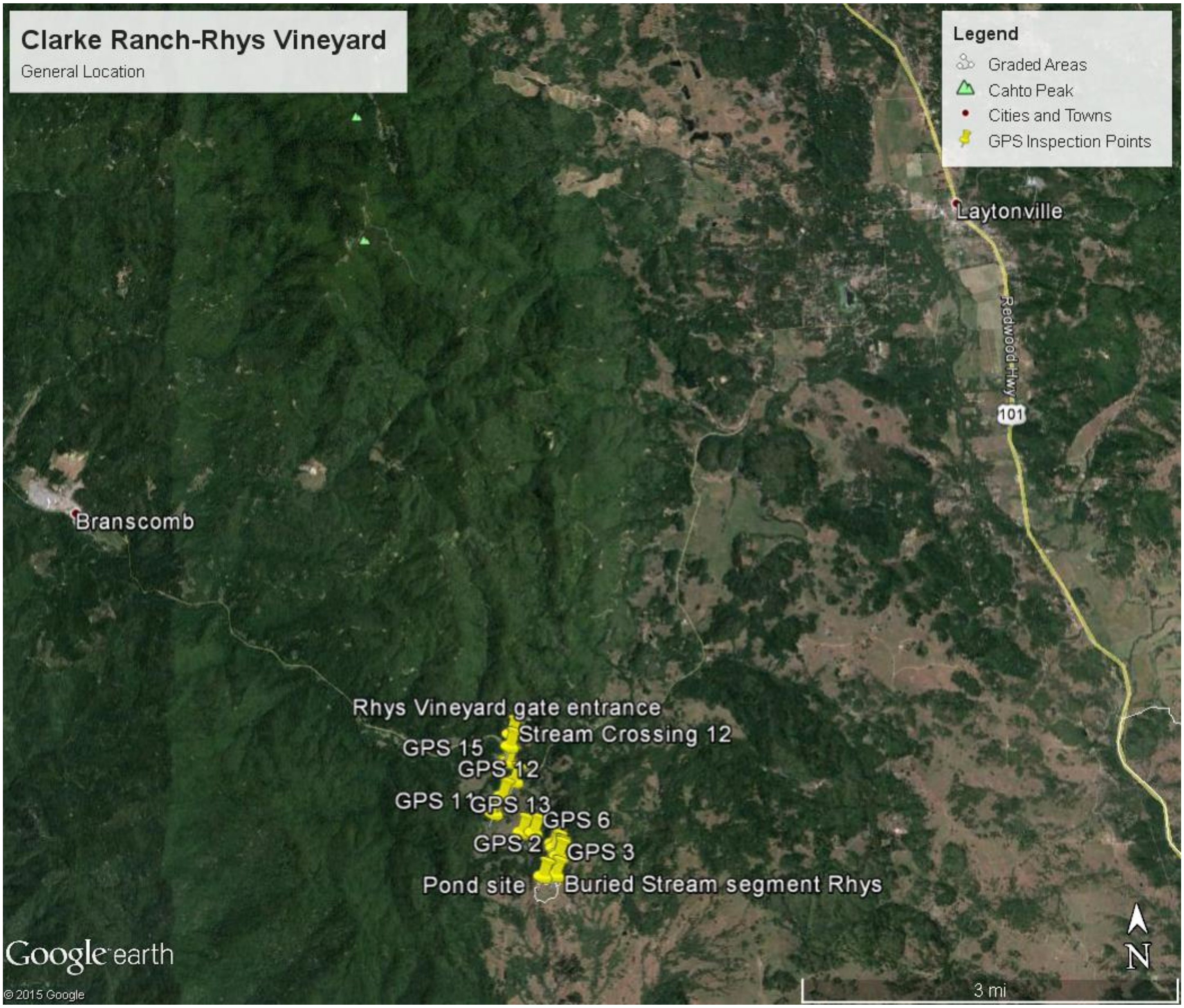

Image 2 – Aerial image from Google Earth showing the general property location; includes inspection points and a rough outline of the graded areas observed.

Images 3-5 below provide closer aerial views of portions of the property inspected. All aerial imagery appears to be dated prior to recent site development. Inspection points and drawn-in features correspond to the points and features discussed in this report. Stormer Feiler made all observations, took all photos, and made all analyses included within this report unless otherwise noted.

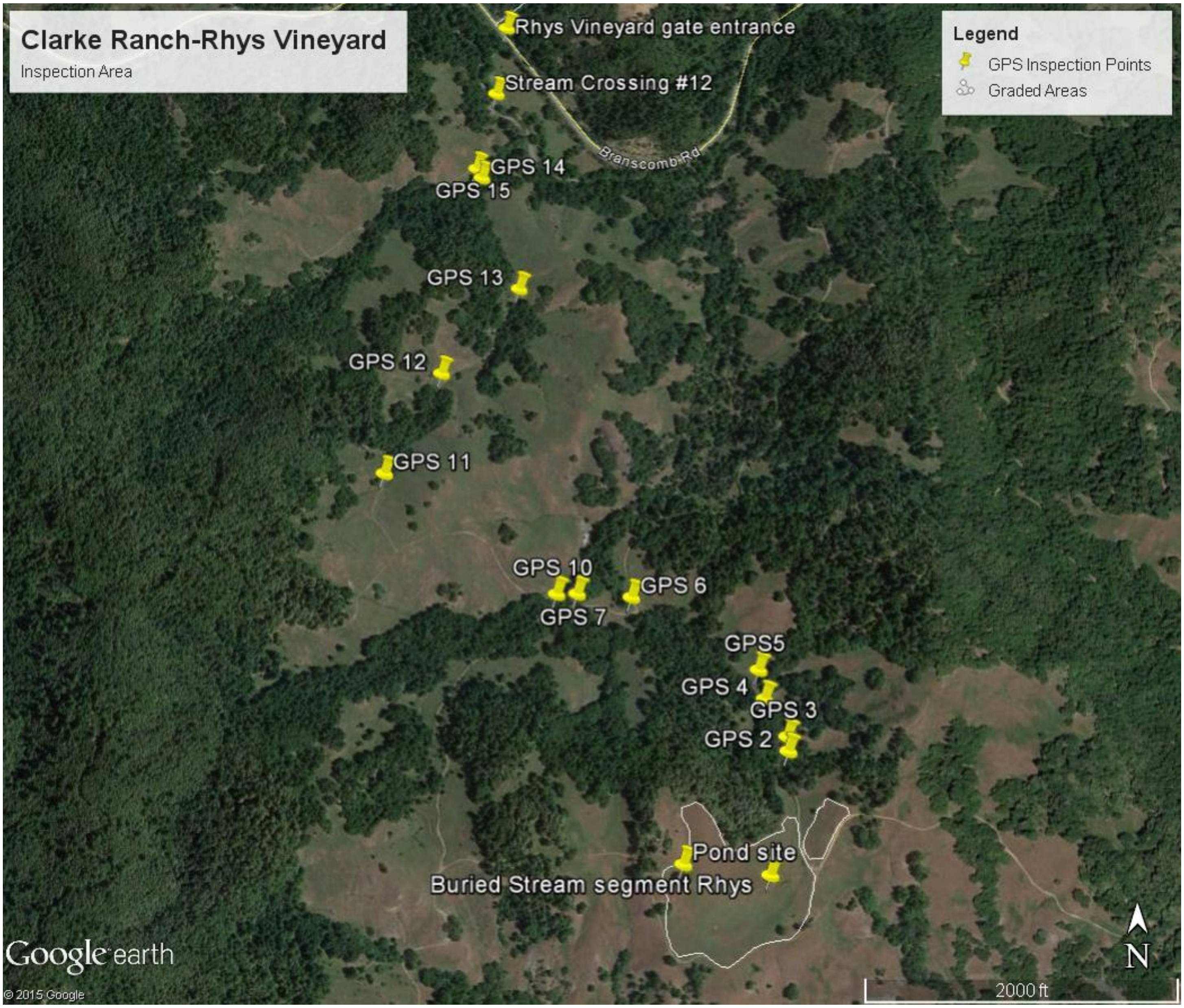

Image 3 - area inspected on September 29, 2015.

<u>Inspection Observations:</u>

On September 29, 2015, at approximately 9:30 am, staff of the Regional Water Board, DIV, DFW, and Army Corps of Engineers met at the Laytonville High School and proceeded to the inspection area.

Upon the arrival of the inspection team to the Property, Ken Seckora of M.B.C. Construction, and Javier Tapia Meza, the Chief Financial Officer for Rhys Vineyards met the inspection team and provided an introduction to the Property and the work that Mr. Seckora had reportedly conducted under the direction of Mr.Tapia. Mr. Seckora provided a survey diagram, entitled Preliminary Vineyard Layout Map at the former Clarke's Ranch, Laytonville, CA, for the stated purpose of showing us site conditions prior to grading. Upon reviewing the diagram, I noted the lack of topography indicating a stream in the areas I had looked at on Google Earth, prior to the inspection. I mentioned the lack of visible surface streams on the diagram to Mr. Seckora, and he denied a stream being present and stated that the diagram reflected pre-disturbance topography of the area graded.

After an initial consultation with Mr. Seckora and Mr. Tapia, we proceeded to the graded area and began our inspection. After reviewing the graded area, and recently constructed pond, we then travelled by vehicle to the existing ponds on the Clarke Ranch. After completing an inspection of the existing ponds, we then traveled by vehicle back to the graded area and proceeded to inspect the Clarke Ranch road that had been recently constructed or reconstructed to access the graded area, as we worked our way back to Branscomb Road. DIV staff departed prior to the conclusion of the inspection of this road segment. This inspection report focuses on the access roads, the recently constructed pond, existing ponds, and portions of the site that have been converted from meadow to vineyard through recent grading activities.

Image 4 – location of large graded area and recently constructed pond, prior to grading and excavation. (Google Earth Pro imagery, image date May 25, 2014)

<u>Site 1: Graded Area and Pond Site Inspection Observations (39°36'26.15"N and 123°33'9.89"W denotes general location)</u>

Image 4, above, shows the recently graded area, prior to grading. In order to estimate the extent of ground disturbance, based upon site observations, I have outlined on this image the approximate areas affected by grading. Using mapping tools to measure the outlined polygon, I measured the graded area delineated on the west side of the access road to comprise approximately 14 acres and the graded area delineated on the east side of the access road to comprise about 1.5 acres.[1]

I observed that the grading and excavation to clear and contour slopes and to create the pond had resulted in the burial of the stream that was visible on 2014 Google Earth images. The length of stream channel buried by the grading is approximately 1480-1650 feet.

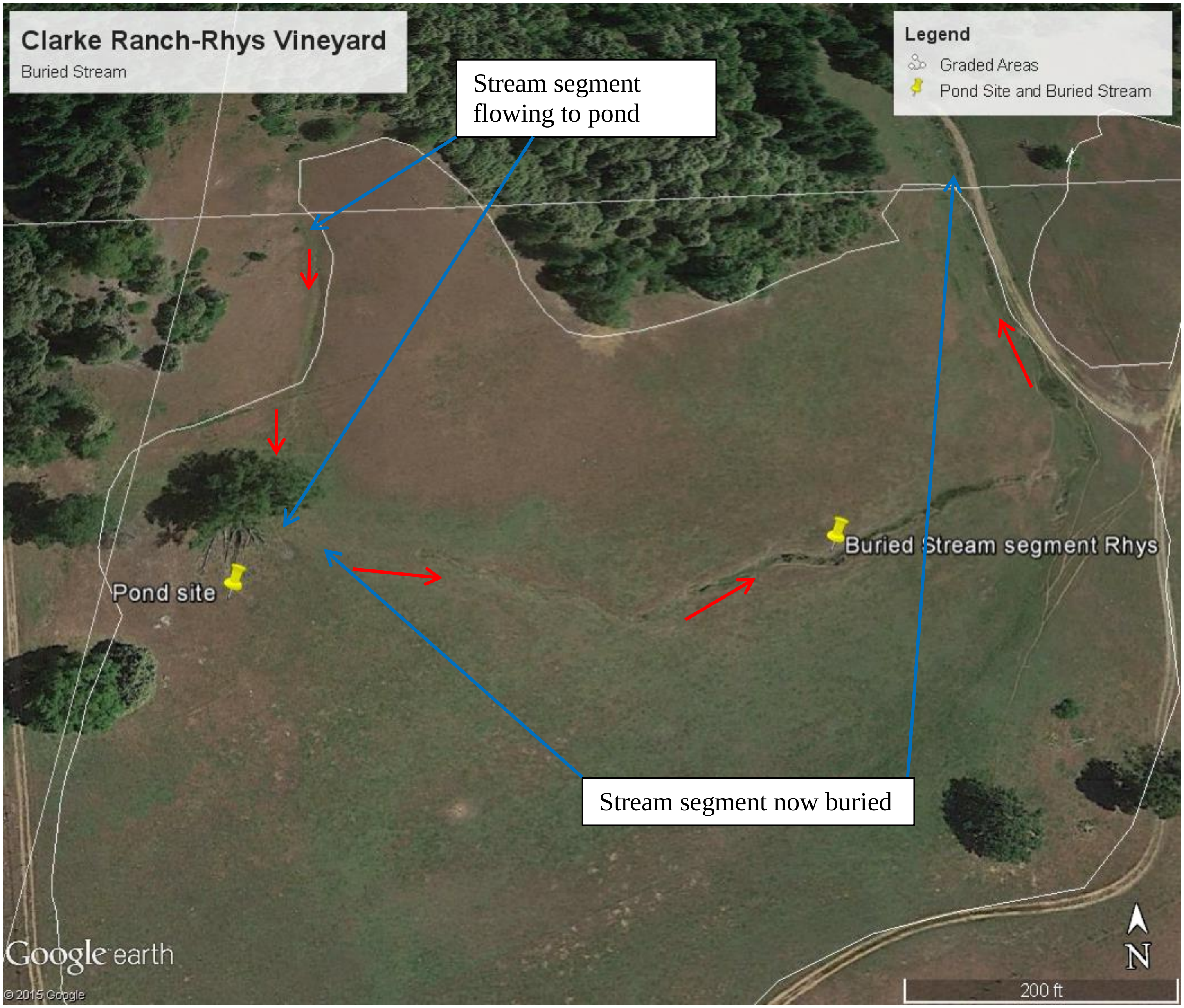

Image 5 - graded area prior to development and pond excavation, showing the affected stream length and area. The red arrows denote flow direction. (Google Earth 5/28/2014 imagery)

During the inspection, I observed that the entire portion of the site delineated in image 5 above had been graded and covered with earthen material excavated to create the new pond. No surface stream was visible leading from the upper slope to the lower slope. The hinge line of the grading above the pond site followed the existing slope contour and created a drainage ditch to the pond along the flow path of the former stream as shown in image 5 above. This flow path was interrupted at the pond and I

[1] https://www.daftlogic.com/projects-google-maps-area-calculator-tool.htm

observed no stream channel below the pond. During the inspection, Mr. Seckora stated that the pond was not a pond, but had been dug out to get at a chert formation to use as road rock on the access road surface. He stated he had decided to leave the hole as a sediment trap to catch rainfall runoff and sediment from the slope and stream above. I observed that the pond did not have a constructed outfall or overflow channel. Upon returning to the office I used mapping tools to estimate the length of filled in channel in order to calculate the approximate volume of fill placed in the channel. Utilizing Google Earth I came up with a Channel length of 1480 -1650[2]. Based on my calculations, I conservatively estimate that 1480-1650 feet of stream channel was filled, with approximately 109 cubic yards of earthen fill placed in the stream channel, as part of the grading and development of this vineyard area.

Following are photographs of the graded area and excavated pond or hole in the ground.

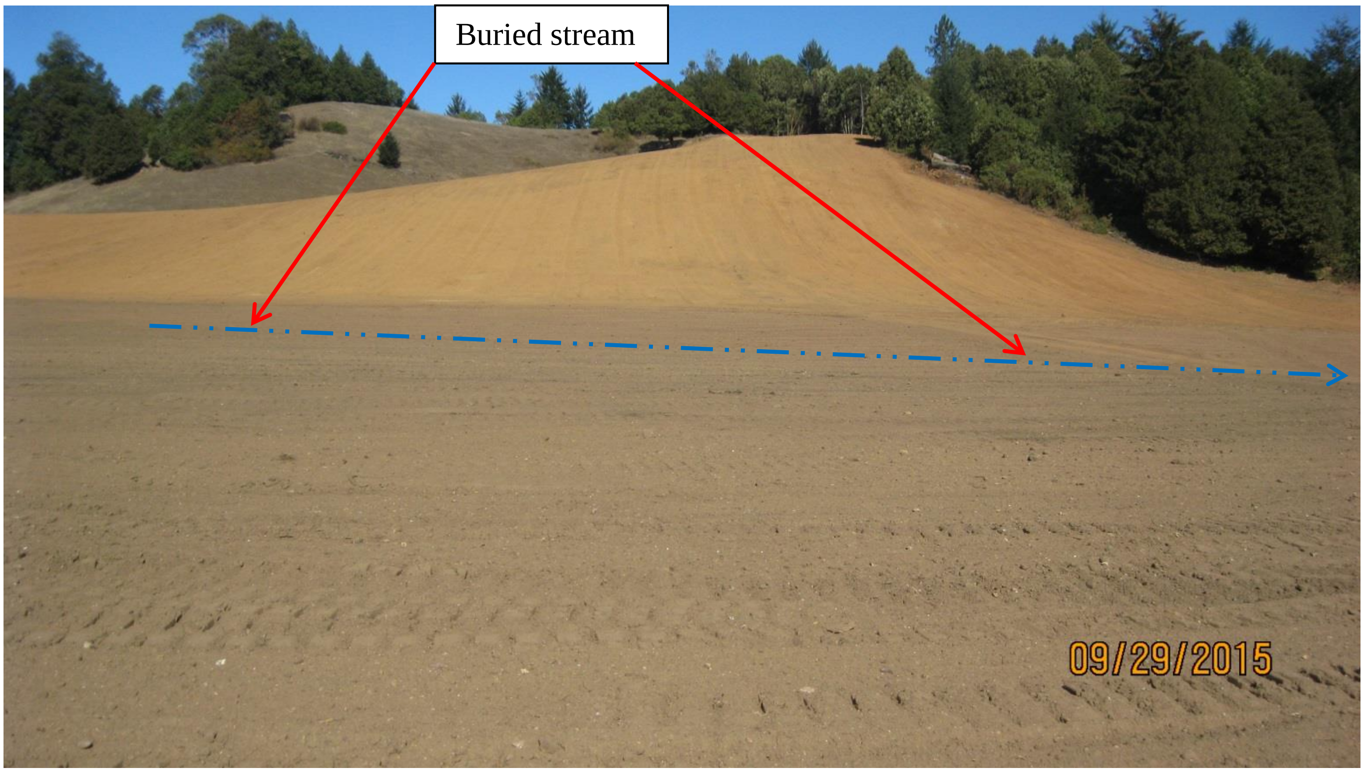

Image 6 shows graded slope to the west of the pond excavation site. Note the two different colors of soils, which is likely a result of spreading the spoils excavated from the pond across the slope and burying the existing stream. (Division of Water Rights inspection photo 0585)

[2] https://www.daftlogic.com/projects-google-maps-distance-calculator.htm

Image 7 shows the hole excavated to extract rock or to develop a pond. Note the stream originally followed the slope contour and flowed down to the meadow area below the pond. Here the drainage has been interrupted and directed to the pond. In addition, the original stream channel has been filled with loose earthen material because of the grading. (Division of Water Rights inspection photos 0587 and 0589 stitched together.)

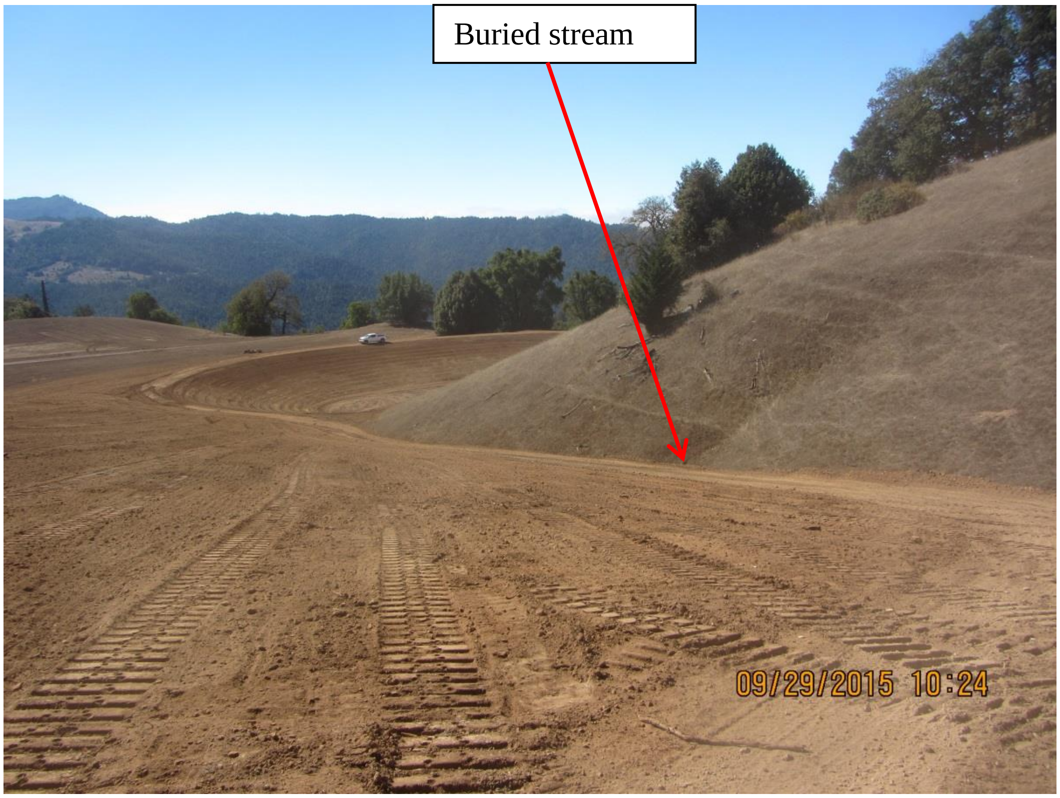

Image 8 shows the pond and the slope contour filled with loose soils leading to the pond from above. (IMG 0208)

Image 9 shows the slope below the pond looking south at approximately the location where I would expect to see the stream visible in images 4 and 5 flowing to the east across the slope and down to the main stream to the north. (IMG 0219)

Image 10 shows an overview of the grading; the pond is visible to the far right. (IMG 0209-0212 and 0214 stitch).


Image 11 shows the equipment observed on site. (IMG 0244 cropped))

In summary, recent grading and excavation activities in this area resulted in disturbance of more than 15 acres of land, burial of approximately 1480-1650 feet of stream channel, and alteration of natural slope drainage patterns.

Access Road

The access road is an older ranch road that had been constructed directly adjacent to a Class I watercourse tributary to the South Fork Eel River. During the inspection, we observed evidence of extensive recent grading and soil disturbance along this road apparently to facilitate access of equipment and workers to the area graded and developed for viticulture. Recent work had not provided for adequate road surface drainage controls and stream crossings were not properly designed or constructed. At numerous locations, stream crossings appeared to consist of earthen material placed directly into stream channels, with no observable drainage structures. I observed multiple locations where runoff from the road surface would flow directly to the stream channel. I observed loose earthen spoils along the edge of the road and perched above the streams where they might easily slump into or be transported by runoff into receiving waters. At stream crossings with culverts, I observed that the culverts were not on grade and appeared undersized when compared to the width of the channel. Image 3 shows the locations of the stream crossings reviewed. The discussions and photos of sites correspond to inspection points identified in Image 3.

With the assistance of DFW and Division staff, I used a 200-foot tape to measure the dimensions of fill that had been placed in streams at stream crossings and the lengths of road segments where earthen spoils had been placed adjacent to the stream at the road edge.

Inspection Feature GPS 2 (39°36’33.84”N and 123°33’8.01”W)

GPS 2 is an approximately 142 foot road segment that has an outboard edge of earthen materials perched above the stream channel. The road surface drains towards these earthen materials and Regional Water Board staff consider the potential threat of delivery of this material to the stream to be high for 100’ of the road length and low for the other 42’.

Image 12 shows the road segment at GPS 2. Note the loose earthen material along the road edge adjacent to the stream. (IMG 0252.)

Inspection Feature GPS 3 (39°36'34.75"N and 123°33'8.05"W

GPS 3 (stream crossing 1) is a location where the road was constructed across a Class II stream, with no culvert or other constructed drainage structure to allow for stable conveyance of stream flows. Earthen material placed in the stream channel at this location represents a discharge of waste to receiving waters.

Based on field measurements and subsequent calculations, I estimate that approximately 18.4 $yds.^3$ or 3717.73 gallons of fill material was placed in the stream channel at GP3.

Image 13 shows the stream crossing at GPS 3. (IMG 0247-0251)

Image 14 shows the stream crossing at the downstream road edge at GPS 3. (IMG 0249)

Inspection Feature GPS 4 (39°36'37.19"N and123°33'9.84"W)

GPS 4 (stream crossing 2) is a location where the road prism was constructed through a large Class II or Class I watercourse. The road fill completely filled the stream channel. I observed a partially visible culvert on the downstream (west) side of the stream crossing but I was unable to find the culvert on the upstream (east) side. Earthen material placed in the stream at this location represents a discharge of waste to receiving waters. Based on my measurements and subsequent calculations, I estimate that approximately 28.45 cubic yards, or 5746.16 gallons of fill material was placed in the stream channel at this location.

Image 15 shows the road fill in the stream channel on the east (upstream) side of the road at GPS 4. Note there is no culvert visible in the road fills placed into the stream channel on this side of the road. A culvert was visible on the downstream side of the crossing. (Stitch of 0253 and 0254)

Image 16 shows the downstream side of the stream crossing at GPS 4. Note the erosion below the culvert outlet, possibly as a result of the drop at the culvert outlet and/or as a result of the culvert being undersized and forcing high flows through at increased velocities. (IMG 0257)

<u>Inspection Feature GPS 5 (39°36'39.05"N and 123°33'10.29"W)</u>

GPS 5 (stream crossing 3) is a location where the road was constructed/reconstructed through a Class I or large Class II watercourse. There was no apparent culvert or other constructed drainage structure to allow for stable conveyance of stream flows. Earthen material placed in the stream channel at this location represents a discharge of waste to receiving waters.

Based on field measurements and subsequent calculations, I estimate that approximately 65.69 cubic yards or 13,268.57 gallons of fill material was placed in the stream at GPS 5.

A Class III watercourse flows from the south along the east side of the road and meets up with the larger watercourse near the crossing. The road is located directly adjacent to a segment of this Class III watercourse and it is likely that sediment from the road surface may discharge into this watercourse during rainfall sufficient to cause overland flows.

Image 17 shows the upstream east side of the filled stream channel at GPS 5. (IMG 0263)

Image 18 shows the downstream west side of the filled stream channel at GPS 5. (IMG 0260_0261 stitch)

Image 19 shows the Class III stream channel along the edge of the road south of GPS 5. (IMG 0259)

Inspection Feature GPS 6 (39°36'43.89"N and 123°33'20.99"W)

GPS 6 (stream crossing 4) is a location where the road was constructed/reconstructed through a seasonal Class I or Large Class II stream. There was no culvert or other constructed drainage structure to allow for stable conveyance of stream flows through the earthen fills placed in the channel during construction. The upstream channel form is a conventional stream channel 14 feet wide; however, at the road/stream intersection, the channel is braided and divides into two streams. For the purposes of conservatively calculating the fill volume placed into the channel, I only calculated the volume of fill in the portion of the braided channel that appeared to be most recently active. Earthen material placed in the stream channel at this location represents a discharge of waste to receiving waters. On the upstream side of the road stream flows run up to the placed fill and then flow south along the fill material. Based on field measurements and subsequent calculations, I conservatively estimate that approximately 104.3 $yds.^3$ or 21,065.89 gallons of earthen material was placed in the watercourse channel at GPS 6.

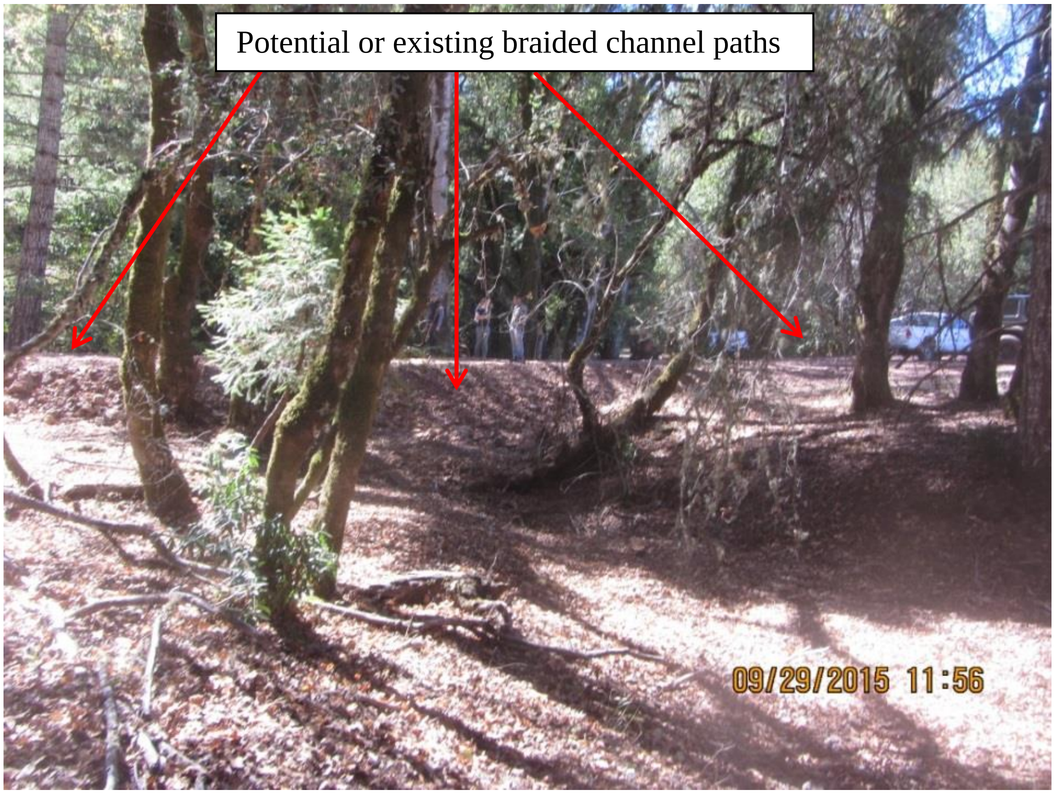

Image 20 shows the road fill in the braided stream channel at GPS 6. The arrows roughly delineate where the channel appears to have flowed in the past. (IMG 0275)

Image 21 shows stream crossing 4 (GPS 6) looking downstream at the roadway crossing through and blocking the stream channel. (IMG 0271)

<u>Inspection Feature GPS 7 (39°33'25.16"N and 123°33'25.66"W)</u>
GPS 7 (stream crossing 5) is an existing 54-inch culvert crossing upstream of GPS 6. The culvert is likely undersized to allow for the unimpeded passage of the expected 100 year flow and debris. I observed that the stream channel was wider than the culvert, an indication that the culvert may be undersized. The inside ditch along the road upstream of the culvert is uninterrupted and appears to function as a stream likely carrying eroded materials from the road surface into the stream at the stream crossing. As I recommend below, the Discharger should engage appropriately licensed/qualified professional(s) to evaluate this stream crossing and inside ditch to determine if the culvert is adequately sized to pass the 100 year flow and debris and to identify appropriate locations to redirect flows from the inside ditch to

reduce the volume of road runoff draining to the stream crossing.

Image 22– upstream of the culvert at crossing 5 (GPS 7) looking downstream at the mouth of the culvert. Note the width of the stream channel as compared with the diameter of the culvert inlet. (IMG 0266)

After completing observations at GPS 7, the inspection group traveled to the existing onsite ponds (Inspection Features GPS 8 and 9, discussed below), in order to inspect these features while the whole inspection group was available on the site, as Division staff needed to leave early to return to Sacramento.

<u>Inspection Feature GPS 8 (39°36’7.38”N and 123°32’29,o1”W) and 9 (39°36’.4.14”N and 123°32’28.08”W) (Ranch ponds)</u>

Inspection Features GPS 8 and 9 are two existing ranch ponds, identified and visible in Image 22 below.

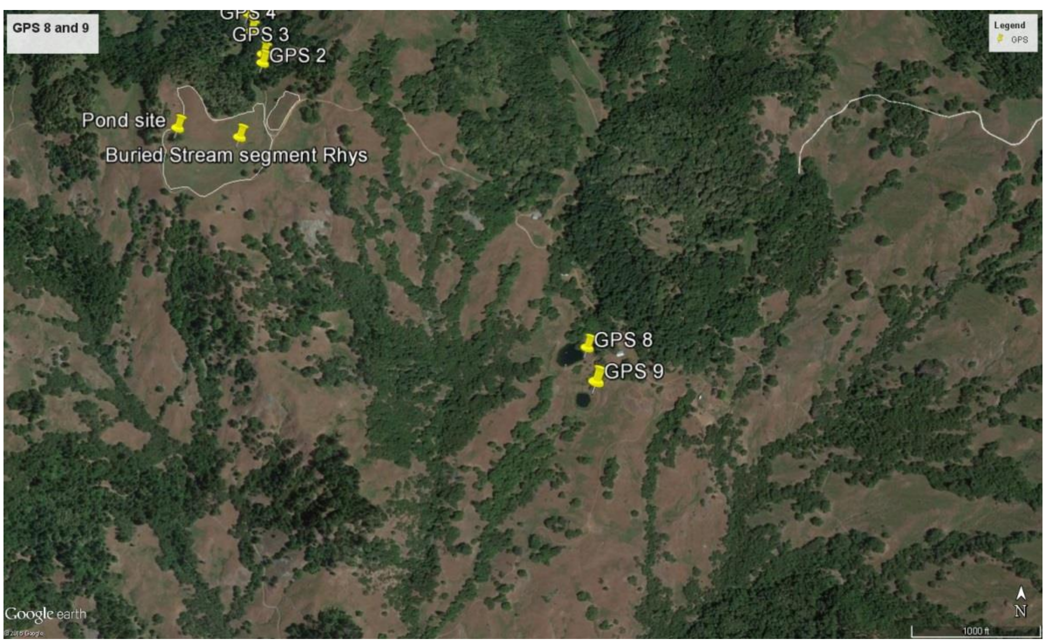

Image 23 - shows the two existing spring-fed ponds

Both ponds are visible in 1998 Google Earth aerial photo imagery. In 1964 aerial imagery available on-line[3], one small pond is visible in the location of currently larger pond (GPS 8), and neither pond is visible in 1948 imagery. Staff were not able to find free aerial photos spanning a longer time frame for Mendocino County. The smaller pond, GPS 9, appears to have occasionally dried out in the past. Both ponds are in-stream, constructed below perennial springs supplying Class II watercourses. During the inspection, staff observed water from the springs flowing in the stream channels and draining into the ponds. While investigating the ponds staff observed chert chips that appeared to have been worked by Native Americans and dark discolored soils where ground squirrels had excavated adjacent to trees and rocks on the site. The area surrounding these perennial streams may have historically and pre-historically been used by Native Americans.

Outflows from the larger of the two ponds (GPS 8) pass through a culvert into a Class II perennial stream channel below the pond. The culvert outlet is exposed and shotgunned. Staff observed signs of significant erosion around and downstream of the culvert outlet, likely on the order of hundreds of cubic yards of soil have eroded while this culvert has served as the pond outlet. The erosion of the dams fill face is potentially compromising the integrity of the downstream berm/dam.

The smaller of the two ponds, GPS 9, also intercepts a Class II perennial stream. The pond outlet flows into a Class II stream. I observed minor evidence of erosion in the stream below the pond; this erosion may be a result of increased winter flows from the pond or may be associated with wild hogs and/or use by grazing animals.

Image 24 shows the overflow culvert from the larger pond (GPS 8). Note the shot-gunned culvert outlet and gully formation in the stream channel below the culvert outlet. The landscape also appears to be heavily grazed; note the difference between vegetation in the foreground and on the other side of the fence. (IMG 0276)

[3] http://www.historicaerials.com/

Image 25 provides another view of the shot-gunned spillway culvert outlet for GPS 8. (IMG 0282).

Image 26 shows the perennial Class II stream flowing into GPS 8. (Division of Water Rights staff took photo IMG_0614)

Image 27 shows the perennial Class II stream upstream of GPS8. (Division of Water rights staff took photo-IMG_0613).

Image 28 shows the outfall from the smaller pond (GPS 9). Note the culvert and half pipe do not appear to be structurally sound; however, the half pipe was carrying flows during the inspection. (IMG_0284)

Image 29 shows an overview of GPS 9. (IMG 0281)

Image 30 shows an overview of the Class II inlet stream to GPS 9. (IMG 0283).

Inspection Feature GPS 10 (N. 39°36'50.4"-W. 123°33'42.7")

GPS 10 (stream crossing 6) is a location where the road was constructed/reconstructed through the headwaters of a small Class III stream. Staff noted juncus growing in the channel. There was no apparent culvert or other constructed drainage structure to allow for stable conveyance of stream flows. Earthen material placed in the stream channel at this location represents a discharge of waste to receiving waters. Based on field measurements and subsequent calculations, I estimate that approximately 4.88 cubic yards, or 987.4 gallons of earthen material was placed in the stream channel at GPS 10.

Image 31 shows GPS 10. (IMG 0290-0291 stitch).

Inspection Feature GPS 11 (N. 39°36'52.4"-W. 123°33'42.4") (Stormer Feiler photo 0292)

GPS 11 (stream crossing 7) is a location where the road was constructed/reconstructed through the headwaters of a small Class II/III stream. Staff noted juncus growing in the channel, often an indicator of sufficient annual saturation to support non-fish aquatic species and Class II habitat. There was no apparent culvert or other constructed drainage structure to allow for stable conveyance of stream flows. Earthen material placed in the stream channel at this location represents a discharge of waste to receiving waters. Based on field measurements and subsequent calculations, I estimate that approximately 12.2 cubic yards, or 2,468.57 gallons of earthen material was placed in the watercourse channel at this location.

Image 32 shows the upstream channel at GPS 11 as it intersects the constructed/reconstructed road. (IMG_0294)

Image 33 shows the downstream channel at GPS 11. (IMG 0296)

Road segment between GPS11 and GPS12

Staff observed that the road segment between GPS 11 and GPS 12 was constructed along a stream channel with several locations where earthen fills were placed along the road edge with immediate access to the stream channel in the event of rainfall. As I recommend below, the Discharger should engage appropriately qualified/licensed professional(s) to review all roads on the Property and identify locations requiring modifications in order to eliminate or prevent impacts to water quality and beneficial uses. Work along this segment should include removal of perched fill and reshaping as necessary to ensure evenly dispersed surface flows and to prevent concentration of water on the road surface and erosion of road surface fines. It may also be appropriate to rock this segment to reduce the potential for sediment discharges from the road to the adjacent stream.

Inspection Feature GPS 12 (N. 39°36'59.3"-W. 123°33'37.5")

GPS 12 (stream crossing 8) is a location where the road was constructed/reconstructed through the headwaters of a small Class III stream and Class II wetland. Staff noted juncus growing in the channel and downstream of the road crossing filling the channel. Staff observed evidence of recent grazing sufficient to crop most grasses and other vegetation at the stream crossing. There was no apparent culvert or other constructed drainage structure to allow for stable conveyance of stream flows. Earthen material placed in the stream channel at this location represents a discharge of waste to receiving waters 52 cubic yards, or 10,502.64 gallons of earthen material was placed in the stream and wetland at location GPS 12.

Upstream of the wetland stream crossing staff observed perched fill along the road edge directly above the stream channel, at a location where it is likely to fall into or be transported via runoff into the stream. Roadwork to eliminate/prevent impacts to water quality and beneficial uses should include removal of perched fills along this road segment, modifying/reshaping the road as necessary to avoid concentrating surface flows into the adjacent stream channel.

Image 34 shows stream crossing 8 (GPS 12). (IMG 0301_0302stitch).

Image 35 shows the grazed wetland area at stream crossing 8 (GPS 12). (IMG_304)

Image 36 shows the perched fills directly above the stream channel south of stream crossing 8 (GPS 12). (IMG_0303)

Inspection Feature GPS 13 (N. 39°37’05.0”-W. 123°33’30.6”)
GPS 13 (stream crossing 9) is a location where the road was constructed/reconstructed through a large Class II stream. There was no apparent culvert or other constructed drainage structure to allow for stable conveyance of stream flows. Earthen material placed in the stream channel at this location represents a discharge of waste to receiving waters. Road fill material is also perched above the stream along both the upstream and downstream edges of the road at this crossing, threatening to discharge into the stream channel.

Given the proximity of the perched material to the stream crossing, and the high likelihood that it would deliver, I included the volume of the perched material in my calculations for volume of fill placed in the stream at this location. Accordingly, based on field measurements and subsequent calculations, I estimate that approximately 190.5 cubic yards or 38,487.26 gallons of fill material was placed in the stream channel or at a location threatening imminent delivery. Arguably, this volume of materials may be lower. Due to the significant amount of material observed in the stream, I chose to use the values above to provide a relatively accurate representation of the amount of earthen material in the stream at this location.

Image 37 shows the recent road construction/reconstruction in and adjacent to the stream that resulted in the placement of earthen fill materials in the stream and in locations where such materials can pass into the stream in the event of rainfall at GPS 13. (IMG 0306_0307stitch)

Image 38 looking upstream shows the earthen fills in the stream channel cross sectional area; note the fill failure visible on the road fills and no evidence of a culvert in place to pass stream flows through the earthen fills at GPS 13. (IMG 0316)

Image 39, looking downstream over the top of the earthen material placed in the stream channel at GPS 13; note the looseness of the materials. (IMG_0314).

<u>Inspection Feature GPS 14 (N 39°37’13.2”-W123°33’34.0”)</u>
GPS 14 (stream crossing 10) is a location where the road was constructed/reconstructed through a large Class II stream. There was no apparent culvert or other constructed drainage structure for stable

conveyance of stream flows. Earthen material placed in the stream channel at this location represents a discharge of waste to receiving waters. Based on my measurements and subsequent calculations, I estimate that approximately 74.44 cubic yards, or 15,034.94 gallons of fill material was placed in the stream channel at GPS 14.

There is also a secondary road in the stream channel at this location.

Image 40 shows the secondary road in the stream channel and the road fill in and adjacent to the upstream channel placed during the recent road construction at GPS 14. (IMG 0321).

Image 41 shows the road fills in the stream looking upstream at the crossing at GPS 14. (IMG 0323).

<u>Inspection Feature GPS 15 (N 39°37'14.2"- W 123°33'34.4")</u>

GPS 15 (stream crossing 11) is a location where the road was constructed/reconstructed through a large Class II stream. There was no apparent culvert or other constructed drainage structure to allow for stable conveyance of stream flows. Earthen material placed in the stream channel at this location represents a discharge of waste to receiving waters. In addition, I observed evidence of rill erosion off the road surface into the stream, resulting from concentrated road surface runoff. Based on my measurements and subsequent calculations, I estimate that approximately 58.9 cubic yards, or 11,896.26 gallons of fill material have been placed in the stream channel at location GPS 15.

Image 42 shows stream crossing 11 (GPS 15). (IMG 0324_0325 stitch).

Image 43 shows the upstream channel as it reaches the earthen fills in the road at GPS 15. (IMG 0326)

Image 44 shows the downstream channel at stream crossing 11 (GPS 15). (IMG 330)

Stream Crossing 12

Stream crossing 12, marked on Image 3, is a wet ford crossing on a Class I river, the South Fork Eel River. The ford is the first crossing on the access road off of Branscomb Road. There was no fill placed in the stream at this location and the crossing did not show evidence of recent construction/reconstruction. The crossing is located on a broad flat floodplain that appears to experience flows during a significant portion of the year. The use of this crossing should be avoided or minimized when water is flowing in the channel at this location. I did not take any pictures of this crossing.

Post Inspection Photo Record December 19, 2015, and January 24, 2016 DFW warden inspections

On December 22, 2015, I received an email from Wes Stokes of CDFW, which included a report of inspection observations made by Warden Brandon Rose, and photographs he took, during a December 19, 2015 follow up inspection of the Property. Warden Rose reported that on December 19, 2015, (in between two large storm events) he walked the road at the Rhys Vineyard where CDFW staff had specifically instructed Rhys to remove any new fill and apply for a Lake or Stream bed Alteration Agreement (LSA). Warden Rose collected GPS coordinates for 27 culverts/stream crossings. He states that many of the smaller culverts were half filled with silt/debris. Following are some of the photos Warden Rose provided as attachments to the email. From the GPS points provided by Warden Rose it is apparent that some of the areas photographed on December 19, 2015, likely overlap or are very close to sites discussed above. Warden Rose and Warden Donald White conducted a second inspection of the road system on January 24, 2016. With the data I have, I am unable to correlate these secondary inspection points and reference photo points observed and documented by the wardens with inspection points identified in the body of this report. However, I have reviewed the data and see evidence in the photographs of additional violations occurring as the result of rainfall on the additional construction work conducted.

I have added captions describing visible violations and issues of concern where applicable.

Image 45 shows the new pond now partially filled with water. (Brandon Rose, photo146).

Image 46 shows a recently installed culvert and the sediment deposits at the outlet of the culvert; also note the evidence of possible erosion from slopes above and behind the culvert. (Brandon Rose photo 016).

Image 47 shows the outlet of a recently installed culvert delivering into a stream. Note the sediment deposits in the culvert reducing carrying capacity and providing evidence of upstream erosion, sediment delivery and transport. (Brandon Rose photo 118).

Image 48 shows a recently installed culvert. Note the sediment deposited along stream banks and on the culvert bottom. (Brandon Rose photo 093).

<u>Summary of Water Quality Violations</u>

<u>Basin Plan Violations</u>

Basin Plan Violations

The Water Quality Control Plan for the North Coast Region (Basin Plan)contains specific standards and provisions for maintaining high quality waters of the state that provide protection to the beneficial uses listed above. The Basin Plan's Action Plan for Logging, Construction and Associated Activities (Action Plan) includes two prohibitions (Page 4-29.00 of the 2011 Basin Plan):

i. <u>Prohibition 1</u> - "The discharge of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited."

ii. <u>Prohibition 2</u> - "The placing or disposal of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities which could be deleterious to fish, wildlife, or other beneficial uses is prohibited."

Clean Water Act Violations

Section 301(a) of the Clean Water Act provides that subject to certain exceptions, "the discharge of any pollutant by any person shall be unlawful." 33 U.S.C. § 1311(a). One of the exceptions allowed for under the Clean Water Act is the discharge from a dredge and fill activity under the auspices of § 404 and 401 of the Clean Water Act. 33 U.S.C. § 1342. The Clean Water Act prohibits the discharge of any pollutant from a point source into waters of the United States without a section 404 dredge and fill permit and a section 401 state water quality certification. Regional Water Board staff observed multiple areas where deposits of earthen material had been placed in streams or wetlands, including ten stream crossings comprised of fill placed in stream channels with no constructed conveyance to allow for passage of stream flows. Staff also observed evidence that approximately 1480-1650 feet of stream channel had been removed or buried as part of development of the large graded area and pond/hole.

Water Code section 13376 requires any person discharging or proposing to discharge pollutants to waters of the United States to file a report of the discharge.

Water Code Violations

Water Code section 13376 requires any person discharging or proposing to discharge pollutants to waters of the United States to file a report of the discharge. The Discharger violated Water Code section 13376 by discharging earthen materials into waters of the United States, and by maintaining a road system with failing and undersized stream crossings, without first filing a report of discharge.

The unpermitted site development and onsite conditions created by that development work represent violations of the Basin Plan, federal Clean Water Act, and the California Water Code.

Violations Summary
During the inspection on September 29, 2015, I observed numerous locations where earthen material had been placed in or where it could enter waters of the State and U.S.

As described and discussed above, those include, but are not limited to:

- 15+ acres of cleared/graded area with no apparent erosion/drainage controls
- 1480-1650 feet of fill in a stream channel in the graded area
- Ten locations where stream channels had been filled in as part of road construction/reconstructio
- Undersized and buried culverts
- Several road segments with loose fill perched directly above watercourse channels
- Poorly installed and/or maintained outfalls from the two existing instream ponds, with erosion an sediment delivery in the downstream watercourse channels
- Eroded dam below the larger of the two ponds

During the inspection on September 29, 2015, I observed sixteen (16) locations where direct discharge had occurred or was threatened to waters of the State and U.S.

On December 19, 2015 Warden Brandon Rose's investigation of the property identified 27 locations where work had recently been constructed in stream channels; many of the photographs Warden Rose provided from this investigation appear to represent active water quality violations. The evidence provided by Warden Rose of additional work conducted appears to indicate that the landowner continued work on the property after verbally being informed of active water quality violations on September 29, 2015.

Violation impacts
Steelhead trout and salmon have a similar natural history and life cycle characteristics. The main exception is that steelhead may spawn more than once in a lifetime, whereas salmon die after spawning. This difference in life history traits is discussed to recognize differences and to compare similarities in physiological requirements of fresh water rearing and spawning. It is of note that these fish species do best under those conditions that are optimum to survival (homeostasis). When those conditions are compromised in a stream, fish must work harder to survive, which can lead to a reduction in growth, increased physiological stress, and in the worst case, mortality.

Steelhead trout and coho salmon both spawn and rear in freshwater with the resulting offspring spending from 1-3 years in the freshwater system before returning to the ocean to grow to adults of spawning size. This life cycle begins in the stream sediment bottom, and is dependent upon adequate freshwater spawning and rearing habitat. The life cycle begins with the advent of fall rains causing the rise of streams and rivers and triggering the migration of these species. Steelhead trout and Coho salmon begin life as an egg deposited in a nest (redd) in the stream bottom. The female develops the redd by digging with her tail in rapid thrusts as she turns on her side and winnows out the fine sediments leaving behind a depression in the stream bed where eggs are deposited. The redd, after excavation generally consists of larger cobbles in the bottom matrix with fines mounded in a half circle downstream. The upstream shelf of the redd is rather steep and the downstream end moderates in steepness out of the redd. This structure is important to the development and survival of the eggs and emerging fish larvae (alevins). The winnowing of fine sediment in the redd and the creation of a shelf in the forefront of the redd increases flows through the gravel, ensuring an adequate supply of fresh water and oxygen through the redd to the eggs. The construction of the redd also serves as a blanket for the eggs. As water flows over the top of the redd, it is arrested briefly by the rear half circle of gravels, causing a light back pressure on the water in the redd, keeping the eggs and gravel matrix in place. The success of egg survival in the redd is dependent upon many parameters several of which are, intragravel flows, water flow, and sediment size and deposition rate. Fine sediment at high levels in redds leads to very low embryo survival (Magee 1996).

Intragravel flow is required to ensure that the eggs and alevin (emergent fish with egg sac attached) receive adequate oxygenation and that metabolic wastes are transported out of the redd. The permeability of the redd is an important factor influencing intragravel flow and the productivity of spawning beds. As fine sediment increases in the substrate, permeability declines (McNeil 1964). McNeil (1964) found that the most productive spawning beds had the highest permeability. Redd development decreases the propensity of fine sediment in the gravel substrate (Phillips et. al. 1975), this change in the gravel substrate increases intragravel flows (Vaux 1962). Increases of fine sediments in redds reduces survival of eggs and alevin (McCuddin 1977) and have also been shown to lead to premature emergence of alevin, which can lead to increased mortality through predation and decreased growth (Harvey 2009). Large amounts of fine sediment decrease intragravel flows and increase mortality in eggs and alevin, fine sediment (<.84mm) was the most detrimental (Reiser 1988). The impacts of excess sediment in a stream environment can cause impacts to aquatic habitat throughout the year. Large sediment loads lead to a loss of pool volume and increases in riffles as pools are filled in and channel aggradation occurs (Lisle 1992(1)). The resulting reduction in pool depth can lead to increased water temperatures.

Increased water temperature leads to physiological stress through increased metabolic demand, and indirect effects like decreased disease resistance and increased susceptibility to parasites (Cairns et. al. 2005). High sediment loads can cause small streams to aggrade, degrade, and decrease in channel roughness resulting in increased sediment routing efficiency (Lisle 1992(2)). This can lead to increased sediment transport and deposition in redds, as increased routing efficiency leads to increased deposition on falling limbs of storms. Fine sediment increases in streams through the process of erosion. Fine sediment is easily transportable as suspended solids and is visible as muddy water. Increases in fine sediment affect juvenile rearing through habitat modifications that reduce pool volumes, and change bed load composition by increasing the amount of fine sediment (Lisle 1982). These changes also affect food sources such as aquatic macroinvertebrates, and increase turbidity; this in turn increases physiological stress, causes gill damage, increases predation, and decreases feeding effectiveness. Korstrom et al. (2006) found that Chinook salmon exposed even to relatively brief (48 hours) of suspended sediment had an impaired ability to effectively escape to cover with a significant reduction in cover seeking responses. Fine sediment from 2mm to 4mm in size at a 25% loading in the substrate affected emergence and increased physical entrapment of rainbow trout (Fudge et. al. 2008). Evidence of increased fine sediment loads is visible and measurable as turbidity and as deposition in the flood zone of the stream, and on the stream bottom in pools and riffles. The higher the sediment load or discharge, then the more sediment deposition is readily visible in riffles and pools, and the greater the potential for turbidity.

Turbidity is a term used to describe the clarity of water. Turbidity is measured by measuring the amount of light scattering in water. Standard units and methods of measuring are Nephelometric Turbidity Units (NTU) and Jackson Turbidty Units (JTU or JTJ). The results are comparable; the different terminology refers to instruments used; i.e. either a Nephelometric or Jackson instrument is used. Large amounts of suspended particles may affect the light wavelengths used by fish, and in a chronic turbidity environment, as little as 25 NTU has been shown to reduce fish growth (Sigler 1984). A chronic source occurs frequently over a long duration. Periods of high turbidity may be sufficient to cause fish to move to clearer water (Bisson 1982). Reactive distances changed significantly in rainbow trout from 80% to 45% respectively in 15 NTU and 30 NTU turbidities (Grossman 1992). The amount of fine sediment stored in a stream may substantially influence the total available habitat for vertebrates in a watershed (Harvey 2009). Due to characteristics of sediment transport and deposition in a fluvial process, small streams generally offer the least risk to spawning because of low bed load transport rates (Lisle 1989).

In circumstances where the water flow is decreasing, canopy is removed, and habitat is modified from pool infilling (sediment); it is likely that water temperatures are rising, available refugia habitats are reduced and food sources are scarcer. This translates to a reduction in physiological efficiency for juvenile salmonids, which can mean reduced growth due to increased respiratory needs and a lack of food sources leading to increased energy usage to maintain life. Fine sediment deposition in streams decreased juvenile steelhead growth and survival; and resulted in declines of available macro invertebrates as macroinvertebrate species composition shifted to burrowing taxa that were unavailable as prey (Suttle 2004). In the worst cases this means mortality to young of the year. It can also relate to smolt size and smolt success. Larger smolts have been demonstrated to be more successful in the ocean environment (Trush 2001).

The sediment deposition in streams on the property is likely increasing annual sediment inputs, which in turn can lead to impacts to fisheries as described above.

Recommendations

Staff recommend that the Discharger engage licensed professional(s) with experience in road design and mitigation and stream restoration to perform the following work:

A. Inventory/assess roads, stream crossings, and graded areas and develop a remediation work plan and time schedule to ensure that:
i) roads, stream crossing, and graded areas are where possible relocated out of and away from watercourses and wetlands and reshaped to prevent and minimize erosion of road surfaces and the volume of road-related runoff that discharges or that may discharge into surface waters;
ii) all stream crossings are properly sized, designed and installed so as to pass flows of a 100-year storm and associated debris; and
iii) all road surfaces are hydrologically disconnected from streams
iv.) at each stream crossing provide an assessment of the delivery potential of the existing fill volumes.
v.) Where it is not possible to remove the road bed from the wetland or stream crossings cannot be restored provide designs and a time schedule for work required in accordance with i)-iii) above, including a list and discussion of any necessary permits from other agencies.

B. Map and delineate onsite wetlands and watercourses, and identify those that have been altered, buried, or otherwise disturbed as a result of site development, provide an accounting of the surface area of impacts, and prepare a plan and schedule to restore impacted waters.

Any activities in surface waters (streams or wetlands) require a Water Quality Certification from the Regional Water Board or waste discharge requirements, through a formal application process. Permits may also be required from other agencies (local, tribal, state, and/or federal, for work associated with carrying out the recommendations, and should be secured prior to beginning work.

Enforcement Discretion

The observations in this report will be assessed for violations of the California Water Code. The Regional Water Board and the State Water Board reserve the rights to take any enforcement action authorized by law.

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