

August 30, 2016

TO: Jane Arnold, Senior Environmental Scientist
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Coastal Conservation Planning
Region 1

FROM: Wes Stokes, Environmental Scientist
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SUBJECT: Field notes to Donovan and Peters Property, Mendocino County

On August 9, 2016 I attended a site visit to a property owned by Nancy Donovan at 21451 Highway 128, Yorkville, Mendocino County, 95494 (See Figure 1), Assessor Parcel Number (APN) 049-080-55. CDFW staff visited this property at the request of State Water Resource Control Board (SWRCB), Division of Water Rights (Division) staff for activities proposed under Water Right Application A0300926 (Project). The following individuals were also in attendance during the site visit:

- Kyle Wooldridge, SWRCB
- Chuck Arnold, SWRCB
- Shay Richardson, SWRCB
- Stephen Peters, WR Applicant
- Nancy Donovan, WR Applicant

The purpose of the site visit for me included the following objectives: 1) inspect vineyard and water diversion infrastructure that may affect streams and sensitive habitats that support fish and wildlife resources, 2) document indicators used to support stream classification and 3) investigate Project compliance with Fish and Game Code (FGC) sections.

During the site visit, Ms. Donovan and Mr. Peters were extremely cooperative. Mr. Peters offered a detailed account of work he performed at the property over the previous decades, including the following:

- 1) construction of two on-stream reservoirs and related structures (e.g., dams, rock-rip channel armoring);
- 2) installation of sub-surface collection plumbing to effectively drain saturated hillslopes and wet areas into the reservoirs and promote viticulture soil conditions;
- 3) use of heavy equipment to push fill into a stream channel to improve road access and support vineyard development;
- 4) installation of a horizontal well to improve water production from a "homestead," era spring to provide water to an on-stream reservoir; and
- 5) terracing a hillside to support vineyard crops.

Mr. Peters disclosed CDFW was not consulted for permitting requirements for any of the work described above.

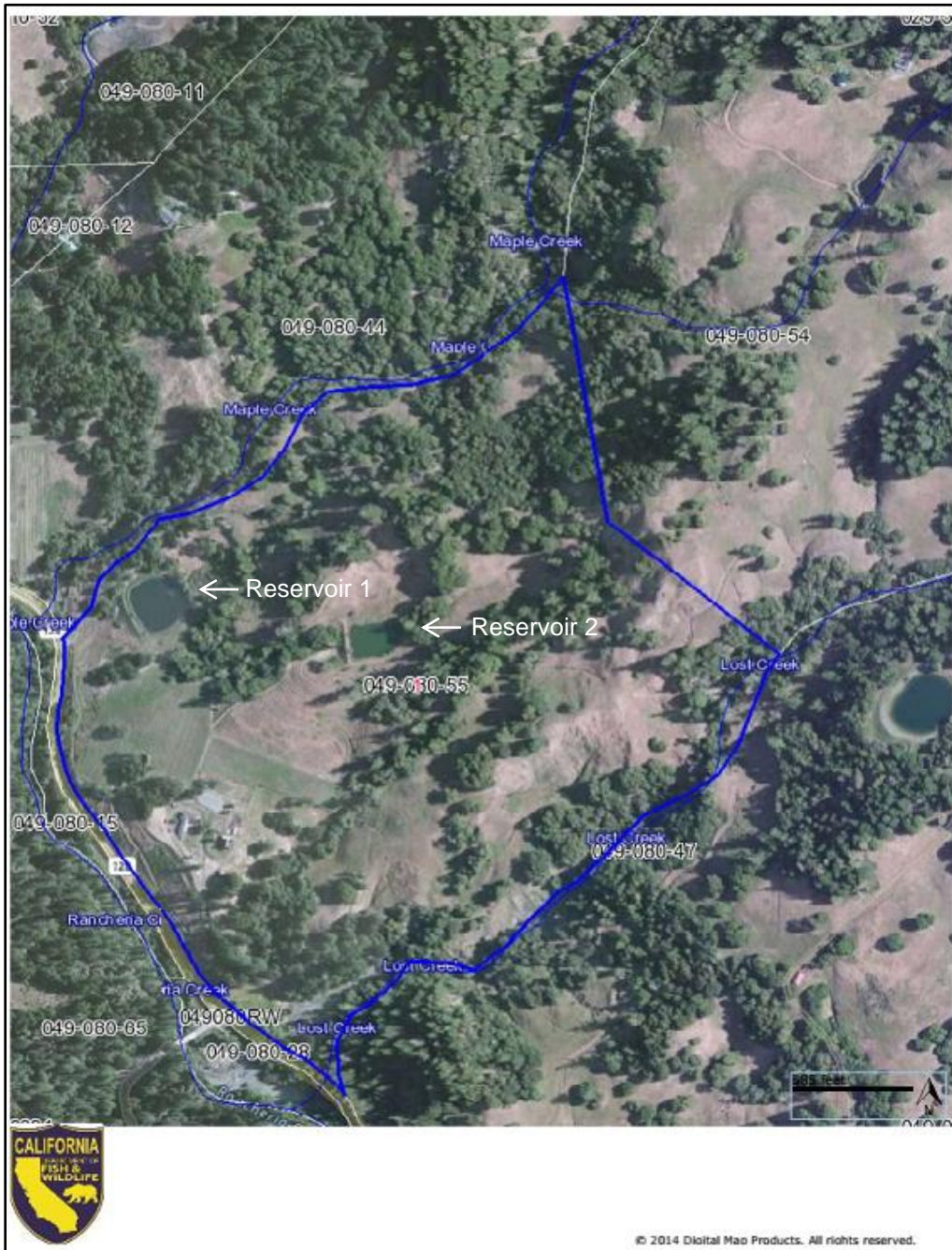


Figure 1. The Donovan and Peters property is depicted by the blue polygon Landvision (version 2016) and Project on-stream reservoirs shown within.

On-stream Reservoir 2, 38°55'32.32"N, 123°17'25.98"W:

- The reservoir is created by construction of an earthen dam located on an unnamed tributary to Maple Creek and supplied by seasonal surface stream flow.
- Reservoir construction was completed in 1994 without engineering, geologic investigations or seismic considerations (Mr. Peters Personal communication). The reservoir is used as a water supply to produce alcohol crops.
- The reservoir operates via “fill and spill,” through a culvert spillway at the crest of the dam. Hydraulic capacity of the spillway is unknown. It appears if the reservoir were to over-top (i.e., if the culvert plugged) water would be directed over the face of the dam;
- The dam may be greater than 25 feet in height, and may be subject to the jurisdiction of the Division of Dam Safety;
- Drainage infrastructure (i.e., “tile drains”, or “French drains”) have been installed on adjacent hill-slopes, upstream the reservoir that can alter headwater stream network hydrology and reduce wetland vegetation;
- No surface flow was present within a well-defined channel upstream of the reservoir at the time of the site visit, but some wetland vegetation (*Juncus spp.*) were present within the stream channel;
- The volume of water consumptively diverted from the reservoir was unknown at the time of the site visit. Mr. Peters indicated he keeps records of irrigation use and frost protection but does not have a meter installed on the reservoir diversion line(s). Those records were requested during the site visit and Mr. Peters agreed to provide them at a later time;
- Approximately 4-acre feet of water is lost to evaporation each year (Mr. Peters personal communication);
- Adult bullfrogs were immediately detected within the reservoir upon inspection; and
- The reservoir has never been stocked with fish (Mr. Peters, Personal Communication).



Figure 2. Construction of Reservoir 2 has resulted in substantial changes to the bed, bank and channel of a stream, see FGC section 1602. The reservoir interrupts natural stream processes, including transport of sediment and benthic macro-Invertebrates downstream. The affected stream can be discerned in the background of the photo to the upper left.



Figure 3. The dam obstructs the natural surface flow of a stream and only allows bypass flows at times when the reservoir spills, see FGC sections 1602 and 5937. Placement of earth materials into a stream channel from construction of the dam has resulted in placement of deleterious sediment where they can enter waters of the state, which does not comply with FGC section 5650.

On-stream Reservoir 1, 38°55'34.40"N, 123°17'38.75"W:

- The reservoir is created by construction of an earthen dam located on the same unnamed tributary to Maple Creek downstream of Reservoir 2, and is supplied by surface stream flow;
- Reservoir construction was completed in 1994 without engineering, geologic investigations or seismic considerations (Mr. Peters personal communication). Water in the reservoir is not currently used consumptively. The reservoir was built as a back-up water supply to produce alcohol crops (Mr. Peters personal communication);
- The reservoir operates via “fill and spill,” through a culvert spillway at the crest of the dam. Large rock rip-rap has been placed within the stream channel beneath the dam;
- Flowing surface water (estimated 5-10 gallons per minute) was present within a well-defined channel upstream the reservoir. Water flowing into the reservoir appeared cold and clean which is critically important to support downstream state and federally listed, cold water fish species during summer months. No water was observed within the stream channel directly beneath the dam.
- Abundant wetland vegetation (*Juncus spp.*) were present within and adjacent to the stream channel upstream the reservoir;
- The stream channel upstream the reservoir appeared channelized from heavy equipment use; and
- The reservoir has never been stocked with fish (Mr. Peters Personal Communication).



Figure 4. Construction of Reservoir 1 has resulted in substantial changes to the bed, bank and channel of a stream, which does not comply with FGC section 1602. The reservoir can interrupt natural stream processes, including transport of sediment and benthic macro-invertebrates downstream. Placement of earth materials into a stream channel from construction of the dam has resulted in

placement of deleterious sediment where they can enter waters of the state, which does comply with FGC section 5650.



Figure 5. View of the stream channel upstream Reservoir 1. Wetland indicators and surface stream flow are present to support non-fish aquatic life. The dam obstructs the natural surface flow of a stream and only allows bypass flows at times when the reservoir spills, which does comply with FGC sections 1602 and 5937.

Unnamed Tributary to Maple Creek

- Portions of an unnamed tributary to Maple Creek were observed up and downstream Reservoir 1 and immediately downstream of Reservoir 2.
- In between Reservoir 1 and 2 the stream channel was dry. However, habitat indicators were present to support non-fish aquatic life seasonally. Indicators include sufficient channel dimensions and slope, habitat complexity, well developed formations to allow pooling, root wads and logs, instream cover, large rocks and coarse sediment, mature riparian vegetation and canopy cover.
- The unnamed tributary to Maple Creek could not viewed beyond the immediate vicinity of Reservoir 1 for stream class indicators or fish passage barriers due to access and time constraints.



Figure 6. Google earth imagery shows the reach of the unnamed tributary to Maple creek directly beneath Reservoir 1 may have been buried, which does comply with FGC section 1602 and 5650. Maple Creek can be seen in the western portions of the figure.



Figure 7. Photograph of the unnamed tributary to Maple Creek within the reach between Reservoir 1 and 2. The photograph demonstrates conditions of the unnamed tributary that appear relatively intact. Similar conditions could be expected to have extended downstream but have been eliminated by Reservoir 2. Further investigation is needed to determine if Reservoir 2 has eliminated any portions of stream channel that could support fish year round or seasonally, see FGC 5901.

Horizontal Well, Approximately 38°55'31.11"N, 123°17'33.83"W:

- Surface stream flow within the unnamed tributary to Maple Creek (upstream Reservoir 2) was followed to a small pipe and seepage around the pipe within the stream channel. Mr. Peters explained water coming from the pipe was from an improved spring that was developed during the “homestead era.” Flow from the pipe was not measured but visually estimated in the 5-10 gallon per minute range.
- Modifications to the spring included drilling a horizontal well beneath the spring and into the stream bank/riparian corridor adjacent to nearby vineyards.



Figure 8. A small pipe is shown by the red arrow that was described as being connected to a horizontal well. Seepage within the stream channel upstream the pipe indicates not all of the surface flow in the stream can be attributed to water from the pipe.

Fill Placed into the Unnamed Tributary to Maple Creek, Approximately 38°55'30.82"N, 123°17'31.75"W:

- Heavy equipment was used to push earth materials into portions of the stream channel downstream Reservoir 2, (Mr. Peters, Personal Communication);

- Fill materials were estimated to have been placed along an approximate 200 foot reach of the unnamed tributary to Maple Creek beneath Reservoir 2, (Mr. Peters, Personal Communication); and
- Fill materials were placed onto a streambank to an estimated elevation of 10 feet below the top-of stream bank, (Mr. Peters, Personal Communication).



Figure 9. The red polygon depicts where fill was placed into the unnamed tributary to Maple Creek. Placement of fill materials has substantially changed the bank of the stream, see FGC section 1602 and 5650. In addition, tile drains have been installed within the terraced hillside (every 5 terraces, Mr. Peters, Personal Communication) and directly concentrated run-off to the stream channel, see FGC section 1602.

Other Notes

- Mr. Peters reported a spring is located towards the headwaters of Maple Creek on a neighboring property that provides considerable supply of water to landowners. This diversion is not seen by CDFW but is suspected to provide flow to Maple Creek and subject to CDFW permitting requirements.
- Mr. Peters expressed a strong desire to sell his property to vineyard interests, citing all infrastructure is installed and ready for an entity to expand production.
- Mr. Peters was agreeable to removing Reservoir 1 voluntarily at the time of the site visit to mitigate some of the impacts that have occurred as a result of his work activities.