

APPENDIX B
2019 GRCSD ROWD



29 January 2019

Waste Discharge Requirement Unit
Central Valley Regional Water Quality Control Board
364 Knollcrest Drive, Suite 205
Redding, CA 96002

Transmitted Via Email: centralvalleyredding@waterboards.ca.gov

RE: Report of Waste Discharge
Grizzly Ranch Community Services District
Portola, CA

To Whom It May Concern:

Pursuant to recent meetings and correspondence with Central Valley Regional Water Quality Control Board staff, which included Mr. George Low, P.G. Senior Engineering Geologist and also included Plumas County Environmental Health representatives, regarding proposed changes to the Grizzly Ranch Community Services District's (District) Wastewater Treatment/Water Reclamation Facility (WRF) and discharge, we are submitting this Report of Waste Discharge (ROWD) as requested by Mr. Low.

Planned changes to the WRF include modifying the existing treatment process to accommodate actual wastewater flow volumes and loading; and more realistic flow projections. And elimination of planned NPDES winter effluent disposal and modifications to water recycling that more effectively manages effluent discharge based on current conditions. Planned changes, proposed improvements and discharge modifications are described in more detail herein.

By way of this submittal, we request the current setback between golf course water features and water wells be reduced from 150 feet to 100 feet. The proposed setback is in compliance with the latest update of June 18, 2014 to Titles 22 and 17 California Code of Regulations California Department of Health's Recycled Water Regulations item C, which allows the 100' setback. This request was previously made by the District in the ROWD submittal dated 10 February 2015, a copy of which is included with this 2019 ROWD.

Please feel free to contact me at (775) 329-5559 or steve@shawengineering.com if you have any questions or need any additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read "Steve Brigman", is written over a horizontal line.

Steve Brigman, PE (C61005)
Project Engineer

Cc: Aaron Corr, General Manager Grizzly Ranch Community Services District
Daniel Smith, Project Manager Grizzly Ranch Community Services District
Jerry Sipe, Plumas County Environmental Health

Enclosures: Form 200
Report of Waste Discharge

20 Vine Street
Reno, Nevada
89503

Telephone:
775.
329.5559

Facsimile:
775.
329.5406

Email:
www.shawengineering.com



APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



I. FACILITY INFORMATION

A. Facility:

Name: Grizzly Ranch Wastewater Treatment/Water Reclamation Facility			
Address: 169 Spring Meadow Drive			
City: Portola	County: Plumas	State: CA	Zip Code: 96122
Contact Person: Aaron Corr		Telephone Number: 615-519-2459	

B. Facility Owner:

Name: Grizzly Ranch Community Services District			Owner Type (Check One)	
Address: 4456 Grizzly Rd.			1. <input type="checkbox"/> Individual	2. <input type="checkbox"/> Corporation
City: Portola			3. <input checked="" type="checkbox"/> Governmental Agency	4. <input type="checkbox"/> Partnership
State: CA			5. <input type="checkbox"/> Other: _____	
Zip Code: 96122				
Contact Person: Aaron Corr		Telephone Number: 530-832-4716	Federal Tax ID: 81-3573377	

C. Facility Operator (The agency or business, not the person):

Name: Grizzly Ranch Community Services District			Operator Type (Check One)	
Address: 4456 Grizzly Rd			1. <input type="checkbox"/> Individual	2. <input type="checkbox"/> Corporation
City: Portola			3. <input checked="" type="checkbox"/> Governmental Agency	4. <input type="checkbox"/> Partnership
State: CA			5. <input type="checkbox"/> Other: _____	
Zip Code: 96122				
Contact Person: Aaron Corr		Telephone Number: 615-519-2459		

D. Owner of the Land:

Name: Grizzly Ranch Community Services District			Owner Type (Check One)	
Address: 4456 Grizzly Rd.			1. <input type="checkbox"/> Individual	2. <input type="checkbox"/> Corporation
City: Portola			3. <input checked="" type="checkbox"/> Governmental Agency	4. <input type="checkbox"/> Partnership
State: CA			5. <input type="checkbox"/> Other: _____	
Zip Code: 96122				
Contact Person: Aaron Corr		Telephone Number: 615-519-2459		

E. Address Where Legal Notice May Be Served:

Address: 4456 Grizzly Rd.			
City: Portola	State: CA	Zip Code: 96122	
Contact Person: Aaron Corr		Telephone Number: 615-519-2459	

F. Billing Address:

Address: 4456 Grizzly Rd			
City: Portola	State: CA	Zip Code: 96122	
Contact Person: Brandy Allingham		Telephone Number: 530-832-4716	



APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



II. TYPE OF DISCHARGE

Check Type of Discharge(s) Described in this Application (A or B):

[X] A. WASTE DISCHARGE TO LAND

[] B. WASTE DISCHARGE TO SURFACE WATER

Check all that apply:

<input checked="" type="checkbox"/> Domestic/Municipal Wastewater Treatment and Disposal	<input type="checkbox"/> Animal Waste Solids	<input type="checkbox"/> Animal or Aquacultural Wastewater
<input type="checkbox"/> Cooling Water	<input type="checkbox"/> Land Treatment Unit	<input checked="" type="checkbox"/> Biosolids/Residual
<input type="checkbox"/> Mining	<input type="checkbox"/> Dredge Material Disposal	<input type="checkbox"/> Hazardous Waste (see instructions)
<input type="checkbox"/> Waste Pile	<input type="checkbox"/> Surface Impoundment	<input type="checkbox"/> Landfill (see instructions)
<input checked="" type="checkbox"/> Wastewater Reclamation	<input type="checkbox"/> Industrial Process Wastewater	<input type="checkbox"/> Storm Water
<input type="checkbox"/> Other, please describe: _____		

III. LOCATION OF THE FACILITY

Describe the physical location of the facility.

1. Assessor's Parcel Number(s) Facility: WWTF 028-020-004 Discharge Point: GR Golf Course	2. Latitude Facility: REC-001 (GC Pond) Discharge Point: 39°50'42"N	3. Longitude Facility: REC-001 (GR Pond) Discharge Point: 120°20'10"W
--	--	--

IV. REASON FOR FILING

<input type="checkbox"/> New Discharge or Facility	<input type="checkbox"/> Changes in Ownership/Operator (see instructions)
<input checked="" type="checkbox"/> Change in Design or Operation	<input checked="" type="checkbox"/> Waste Discharge Requirements Update or NPDES Permit Reissuance
<input checked="" type="checkbox"/> Change in Quantity/Type of Discharge	<input type="checkbox"/> Other: _____

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Name of Lead Agency: Grizzly Ranch Community Services District

Has a public agency determined that the proposed project is exempt from CEQA? Yes No

If Yes, state the basis for the exemption and the name of the agency supplying the exemption on the line below.
 Basis for Exemption/Agency: _____

Has a "Notice of Determination" been filed under CEQA? Yes No

If Yes, enclose a copy of the CEQA document, Environmental Impact Report, or Negative Declaration. If no, identify the expected type of CEQA document and expected date of completion.

Expected CEQA ocuments: Completed June 2000; State Clearinghouse #97072003 and #89051521

EIR Negative Declaration

Expected CEQA Completion Date: _____



APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



VI. OTHER REQUIRED INFORMATION

Please provide a COMPLETE characterization of your discharge. A complete characterization includes, but is not limited to, design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any Best Management Practices (BMPs) used, and a description of disposal methods. Also include a site map showing the location of the facility and, if you are submitting this application for an NPDES permit, identify the surface water to which you propose to discharge. Please try to limit your maps to a scale of 1:24,000 (7.5' USGS Quadrangle) or a street map, if more appropriate.

VII. OTHER

Attach additional sheets to explain any responses which need clarification. List attachments with titles and dates below: Grizzly Ranch Community Services District Report of Waste Discharge 2019

You will be notified by a representative of the RWQCB within 30 days of receipt of your application. The notice will state if your application is complete or if there is additional information you must submit to complete your Application/Report of Waste Discharge, pursuant to Division 7, Section 13260 of the California Water Code.

VIII. CERTIFICATION

"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name: AARON CORR

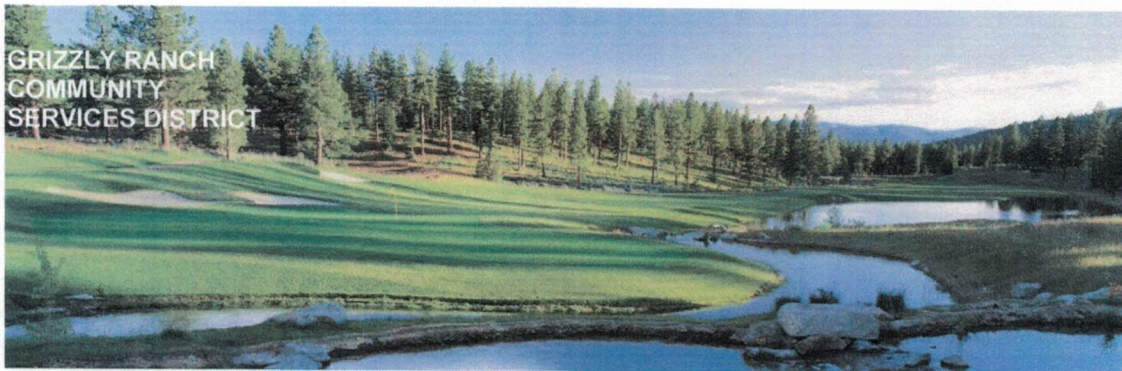
Title: GENERAL MANAGER

Signature: [Handwritten Signature]

Date: 1/29/19

FOR OFFICE USE ONLY

Table with 4 columns: Date Form 200 Received, Letter to Discharger, Fee Amount Received, Check #.



Report of Waste Discharge

Prepared for the:
**Grizzly Ranch
Community Services District**

And the:
California Regional Water Quality
Control Board

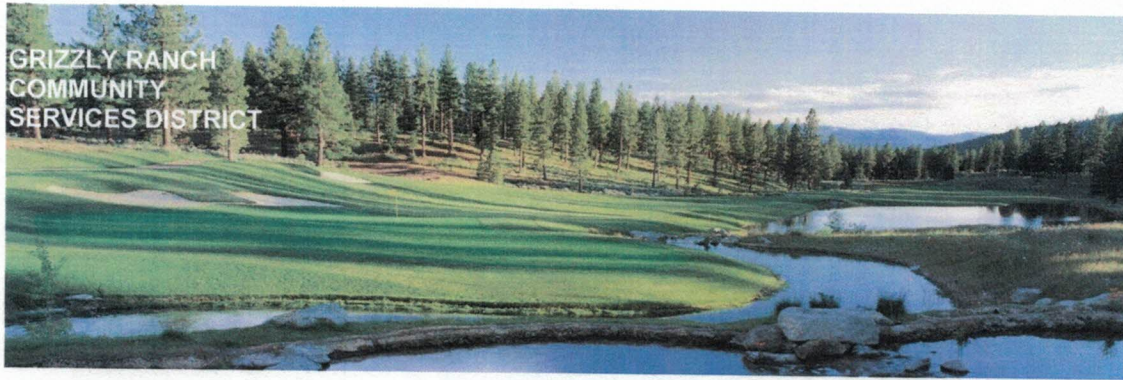
And the:
Plumas County Public Health Agency
Environmental Health Division

Prepared by:



20 Vine Street
Reno, NV 89503

January 2019



Report of Waste Discharge

January 2019



01/29/19



SHAW
ENGINEERING
20 Vine Street
Reno, Nevada 89503
775.329.5559
775.329.5406 (Fax)

Table of Contents

A.	General Information.....	Page 1
B.	Wastewater Facility and Discharge.....	Page 4
C.	Planned Changes in the Facility and Discharge.....	Page 4
D.	Local and Site-Specific Conditions.....	Page 16
E.	Antidegradation Analysis.....	Page 20
F.	Industrial Storm Water Permit.....	Page 20
G.	General WDR's for Sanitary Sewer Systems.....	Page 20
H.	Department of Water Resources Well Standards	Page 20

List of Figures

1	Districts System.....	Page 3
2	Process Flow Schematic.....	Page 9
3	Treatment Plant Site Plan.....	Page 10
4	Terrain and Site Drainage Map.....	Page 18

Appendix

A	2015 ROWD
B	County Planning Memorandum
C	AX-Max Information / O&M
D	Tables 4.1 & 4.2 from 2013 ROWD
E	Pond Analysis Worksheets and Pond Figures

A. General Information

1. Background Information

The Grizzly Ranch Community is located in Plumas County, California, approximately 2.75 miles east and 2.25 miles north of Portola, California. The community is accessed from Grizzly Road. It currently has 54 residential homes, 3 commercial offices, and an 18-hole golf course and club house facility. The community was originally planned and developed for 380 single-family home sites. The Grizzly Ranch Golf Club (GRGC) owns and operates the golf course and the Grizzly Ranch Community Services District owns, operates and maintains the community water and wastewater systems.

Initial construction of the community began in 2004 and water and wastewater infrastructure was completed and ready for service in 2007. The wastewater system includes an advanced SBR Water Reclamation Facility (WRF, treatment plant), a pressure sewer system with individual residential grinder pump stations, and effluent pumping and piping infrastructure to recycle effluent to the golf course or surface discharge to Big Grizzly Creek in the winter. However, wastewater flows sufficient to start-up treatment plant operation have never materialized. Subsequently, all wastewater in the District, which is discharged into one of the WRF process tanks for holding, has been hauled away by pumper truck from and discharged to another permitted treatment facility outside the District. The existing WRF treatment plant, including the effluent filtration and recycled water system, has never been put into operation. At the current rate of growth within the District, which is much slower than planned, minimum wastewater flow volumes required to operate the WRF may not occur for many years to come. A new approach to local wastewater treatment and water reclamation needs to be implemented.

The District has developed a plan to eliminate the inefficient vault and haul of wastewater. The proposed plan is to retrofit the existing idle WRF to receive STEP effluent, which will require the addition of a new unit process at the WRF and abandonment of the existing SBR treatment process. Furthermore, the District plans to eliminate the maintenance intensive residential grinder pump stations and replace with conventional septic tank effluent pump (STEP) systems. Additional information regarding these proposed improvements are discussed further on in this report.

2. Waste Discharge Requirements

In June of 2003 a Report of Waste Discharge (ROWD) that addressed wastewater collection, treatment, and effluent disposal; and the disposal of water treatment filter backwash was prepared and submitted to the California Regional Water Quality Control Board (RWQCB). Effluent disposal was planned for recycling of treated wastewater to the Grizzly Ranch Golf Course during fair weather months and discharge to Big Grizzly Creek in the winter. Concurrently, a Title 22 Engineering Report for the Production, Distribution, and Use of Recycled Water, also dated June 2003, was submitted along with the ROWD. Order No. R5-2005-0170 (NPDES

CA0085162) (the original discharge permit) was subsequently adopted by the RWQCB. Later (early 2007) the RWQCB adopted Order No. R5-2007-001 Water Recycling Requirements for Grizzly Creek Golf Club LLC (GRGC), a private entity, the User of recycled treated effluent produced by the District.

A 2010 discharge permit renewal application resulted in RWQCB Order No. R5-11-0081 (NPDES No. CA0085162), which supersedes R5-2005-0170. Recycled water use continues to be regulated by the separate permit for Grizzly Creek Golf LLC (R5-2007-001).

A 2015 ROWD was prepared at the request of the RWQCB. The 2015 ROWD, prepared on behalf of both the District and the GRGC, provided an update of recent results of water filter backwash characterization and addressed sources of waste discharge to land within the District and GRGC service areas. This updated ROWD provides much information regarding the current state of ownership and responsibility, facilities and operation, and waste treatment and disposal. The 2015 ROWD will be referred to frequently in this ROWD. A copy of the 2015 ROWD is included in Appendix A.

3. Other Related Permits

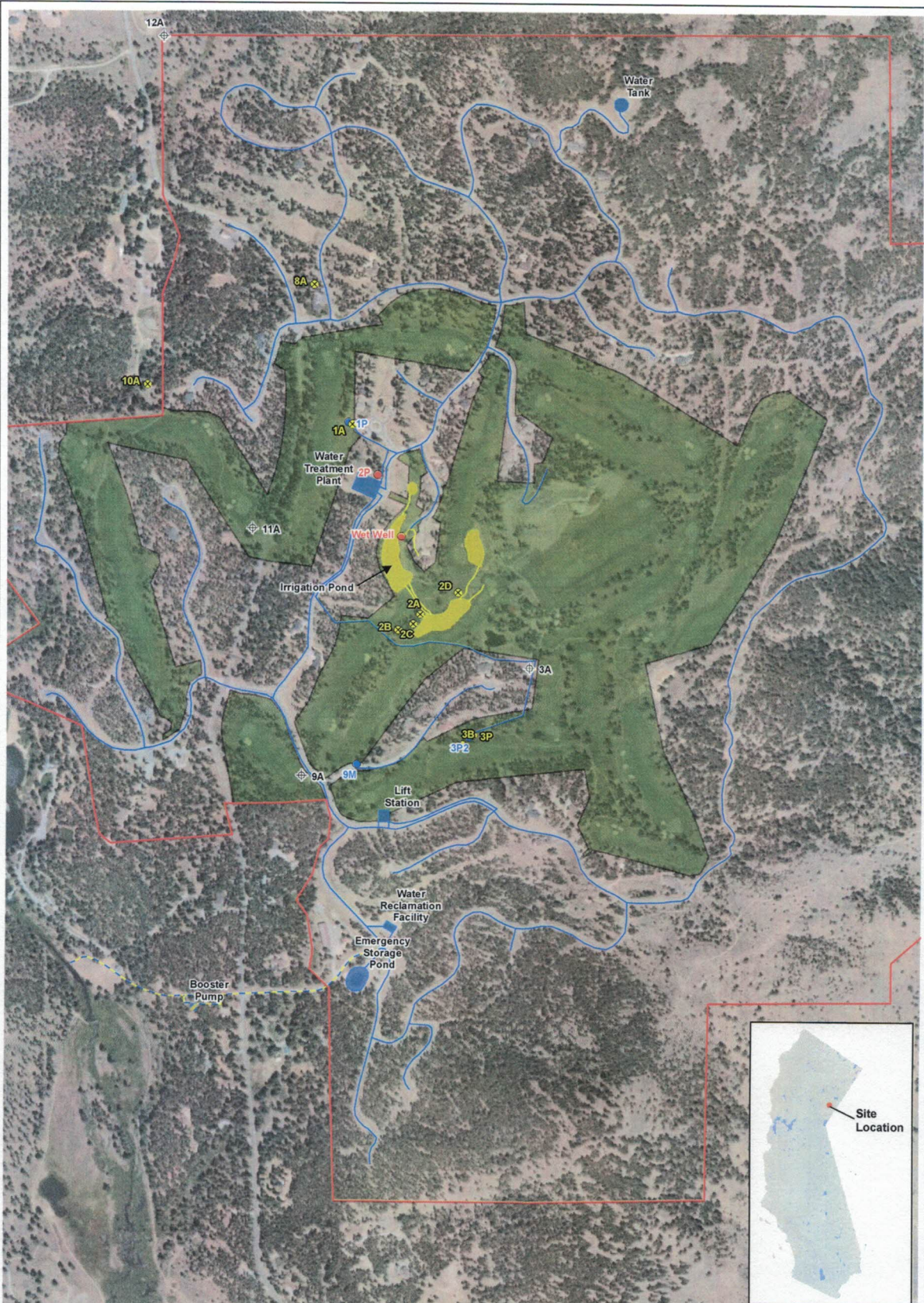
Plumas County Environmental Health is the regulatory authority of the Grizzly Ranch public water system pursuant to Water System Operating Permit #14-32-02A.

On 28 June 2000, Plumas County certified the Environmental Impact Report (EIR) for the Wastewater Treatment Facilities Improvement and Reclamation Project in accordance with the California Environmental Quality Act (CEQA). The County determined that use of recycled water for this project would not have a significant impact on the environment (State Clearinghouse #97072003 and #89051521). The RWQCB considered the EIR and concurred that the water recycling project will not result in significant impacts to water quality.

On 4 December 2018, Plumas County provided a memorandum that stated the proposed changes in wastewater treatment, the subject of this ROWD, appears to be consistent with previously approved environment documentation. A copy of this memorandum is included in Appendix B.

4. Overview of System Map

The Districts system is illustrated in Figure 1, taken from the 2015 ROWD.



⊗	Abandoned Monitoring Well	—	CSD Responsibility Pipeline	■	GRGC Responsibility Area (Golf Course Water Feature)
●	CSD Responsibility Well	—	GRGC Responsibility Pipeline	▨	CSD/GRGC Responsibility
●	GRGC Irrigation Well	- - -	CSD/GRGC Responsibility Pipeline	■	Grizzly Ranch Golf Course
⊕	Inactive Monitoring Well	■	CSD Responsibility Area	■	Grizzly Ranch CSD Boundary

SOURCE: MICROSOFT 2010

 0 325 650 1,300 Feet

FIGURE 1
 GRIZZLY RANCH CSD
SHAW REPORT OF WASTE DISCHARGE
 ENGINEERING JANUARY 2019
FIGURE 1
SITE MAP pg.3
 GRIZZLY RANCH
 PLUMAS COUNTY, CALIFORNIA

B. Wastewater Facility and Discharge

As discussed in the Introduction, the existing WRF, which was constructed to approximately ninety-nine percent complete and was all but ready for operation, was never started-up or put into operation. The existing WRF and planned discharges were the subject of several previous reports and RWQCB Orders. The issues that are prohibiting start-up and operation of the existing facility (as well as initiating effluent discharge activities pursuant to permitted discharge conditions) are many; these include slow community growth, differing residential occupancy demographics not considered in original planning, insufficient wastewater flow required for minimal WRF operation, and the overall operational complexity of the existing WRF system as needed to accommodate current conditions and future growth.

Rather than re-iterating existing WRF and discharge information in this section as outlined in the ROWD guidance document, it may be more beneficial to the reader to discuss relevant existing information along with planned changes together in Section C below. Planned changes include:

- Providing updated wastewater influent volumes and projections that differ significantly from planned conditions.
- Provide updated growth information that more realistically projects future wastewater loading.
- Address proposed changes to the WRF to modify the existing treatment process to accommodate influent flows that differ significantly from planned conditions.
- Discuss proposed changes to effluent disposal and water recycling that more effectively manages water resources based on current conditions.
- Eliminate winter disposal of treated wastewater to Big Grizzly Creek and store recycle water (along with water treatment plant filter backwash water) in the lined irrigation pond from November through March.

C. Planned Changes in the Facility and Discharge

1. Wastewater Sources

- a. The Grizzly Ranch community was designed and constructed for 380 residential lots; currently there are 54 existing residential homes discharging wastewater into the sewer system. About 2-3 homes are constructed annually. At this growth rate it will take more than 20 years to double the number of residential homes in the community, which will be less than 30% of the build-out capacity of the development; and will still not generate enough wastewater to sustain year round operation of the existing WRF.
- b. There are 3 commercial connections to the sewer including 2 small offices and the golf course facility.

c. There are no existing or proposed industrial facilities.

2. Design Influent Flow Rates

Currently, wastewater influent from the 54 residential and 3 commercial units vary from less than 1,400 GPD in the winter, to as high as 5,200 GPD during peak summer weekends. From November thru April, the months when the golf is typically shut down for the winter, wastewater flow averages 2,000 GPD; from May thru October wastewater flow averages approximately 3,800 GPD. These daily loading rates are equal to approximately 40 GPD/ERU and 100 GPD/ERU respectively. These average ERU loading rates are not unreasonable given the seasonable occupancy rates and resident demographic in this resort and vacation home community; however the community does maintain some full-time year round residents. Occupancy can vary as weather varies, but on average 20% of the residences are occupied at times during the winter months; and approximately 40% in the summer months. Adjusting flow rates to account for occupancy yields a more typical loading rate of approximately 200 GPD per occupied ERU. However, the community is anticipated to remain a resort and vacation home destination for the foreseeable future, therefore the loading rates of 40 and 100 GPD/ERU (70 GPD/ERU averaged annually), are applicable (and based on historical flow data) and will be used for updated planning and design. A summary of the design influent flow rates is provided in the Table 1 below.

Table 1: Wastewater Flow Rates						
Flow (Gallons)	Current		20-Year Projected		50-year Projected	
	Winter	Summer	Winter	Summer	Winter	Summer
Average Day	2,000	3,800	4,160	10,400	7,160	17,900
Peak Day	3,000	5,700	6,240	15,600	10,740	26,850
Peak Hour	250	475	520	1,300	895	2,240
Peak Day Factor = 1.5						
Peak Hour Factor = 3.0						

3. Influent Flows

The Table below provides a summary of the volume of wastewater that was received at the WRF for the last five years. For the purpose of keeping track of winter wastewater flow (November thru March) and warm weather wastewater flow (April thru October) independently, a year is considered the sum of winter month flows plus warm season flows. Each season generally coincides with golf course operation, either irrigating or not. However, the golf course may water well beyond the end of October or start watering early in March, or at other winter month times if fair weather is present and ground conditions allow.

Average precipitation reported in Table 2 is from Table 4.1 of the 2003 ROWD.

Month	13/14	14/15	15/16	16/17	17/18	Precip (in)
November	45,600	60,000	57,500	76,800	74,300	2.70
December	85,000	40,600	70,100	60,800	62,200	3.97
January	89,200	45,800	62,800	95,500	59,200	4.40
February	79,200	42,500	71,800	153,300	38,800	3.72
March	40,900	38,200	72,400	128,400	62,000	3.42
Winter Season Total	339,900	227,100	334,600	514,800	296,500	18.21
April	49,100	39,400	62,600	79,000	51,300	1.56
May	75,000	84,700	149,700	99,900	93,200	1.27
June	132,700	96,600	126,600	112,000	119,600	0.75
July	193,400	95,400	137,000	142,900	143,800	0.40
August	139,700	112,100	126,700	149,900	154,700	0.35
September	100,300	94,100	113,400	98,900	155,800	0.37
October	78,100	76,100	102,100	86,200	85,100	1.55
Warm Season Total	768,300	598,400	818,100	768,800	803,500	6.25
Annual Total	1,108,200	825,500	1,152,700	1,283,600	1,100,000	24.46

A pressure sewer system conveys wastewater to the WRF. A pressure system is less prone to I&I than an open channel gravity sewer system, but I&I does occur as reflected in the 2016/2017 flow for the months of February and March. In this case, the increase was primarily attributed to an extended period of unusually wet weather.

4. Facility Description

Section 1.2.3, page 4, of the 2015 ROWD (and previous ROWD and Title 22 Reports) provides a description of the existing idle WRF facility. Going forward, the existing sequencing batch reactor (SBR) treatment process is proposed to be abandoned and a new unit process to treat STEP effluent is planned to be installed. The new unit treatment process proposed is an Advantex AX-Max Treatment System manufactured by Orenco Systems, Inc. The AX-Max system has been installed in similar communities in California and Oregon where recycle of effluent is desirable. Several components of the existing facility will be put into service along with the AX-Max, including the influent lift station, surge basin, disinfection system and filtration system. Existing plant concrete treatment basins will be re-purposed for

influent holding/flow equalization/settling and for additional operational and emergency storage. Additional information about the Ax-Max can be found in Appendix C.

Specifically, an AX-Max 275-42 packaged unit treatment process is proposed. The system, contained in a 42 foot long enclosure, is a packed-bed treatment process using a textile media that is capable of consistently treating wastewater to Disinfected Secondary-23 Recycled Water quality pursuant to Title 22 Section 60301.225 or better. The capacity of the Ax-Max system is 15,000 GPD when receiving primary-treated (STEP) effluent and 5,000 GPD when receiving raw sewage. Concurrent with WRF modifications and installation of the AX-Max, the District will also convert up to 20 residential grinder pump stations to STEP systems; the remainder will be converted through attrition anticipated to occur over a 5 to 10 period. New home construction will be required to have a residential STEP system installed. Initially, approximately 40% of influent flow will be primary-treated, therefore conservatively estimating the capacity of the AX-Max to least 7,500 GPD, which is significantly above the current average summer flow rate of 3,800 GPD. Additional treatment capacity is anticipated as residential grinder pumps are converted to STEP systems. Influent wastewater settling prior to discharge into the AX-Max will also improve treatment capacity. For redundancy, the District is proposing to install two AX-Max units that could operate in series or parallel as conditions warrant.

Wastewater influent will continue be conveyed to the WRF via the pressure sewer system and discharged into the existing lift station wet well. Submersible grinder pumps in the wet well will transfer wastewater to one of two existing 38,000 gallon SBR chambers. Both 38,000-gallon SBR reactor chambers will be re-purposed to provide solids settling time as well as flow equalization to allow for a steady discharge flow rate into the AX-Max. After AX-Max treatment, effluent is sent to the existing surge basin, where the effluent is held until its pumped from the surge basin, disinfected and sent to the golf course irrigation wet well for recycle.

As the District implements the grinder pump replacement program, therefore increasing the amount of STEP influent (and reducing the organic loading) at the WRF, the capacity of the Ax-Max will increase. When all of the residences have been converted treatment capacity of each AX-Max will be 15,000 GPD, enough capacity for 300 homes based on current wastewater loading. At the District's current growth rate, there will be available treatment capacity for 30 years or more of growth. If development rates accelerate or community demographics change in way that increases daily wastewater loading, adequate treatment capacity will be in place via the second Ax-Max system.

a. Facility Location Map

District and GRGC facilities are shown in Figure 1, taken from the 2015 ROWD.

b. Process Flow Schematic

The proposed process flow schematic is illustrated over the previous SBR schematic taken from the 2015 ROWD, which shows new systems proposed and existing systems to be eliminated. See Figure 2 of this Report.

c. Treatment Plant Site Plan

See Figure 3.

d. Limits of WW Treatment, Storage and Disposal Areas Map

As shown in Figure 1, taken from the 2015 ROWD.

5. Source Water Characterization

Water treatment backwash water quality and characterization is described in detail in the 2015 ROWD. Wastewater characterization is provided in the Table 3.

Table 3: Wastewater Characterization			
Constituent	Concentration (mg/l)		
	Current Influent Loading ¹	Future Influent Loading ²	Target Effluent
BOD ₅	170	150	10
Suspended Solids (TSS)	100	40	10
Total Dissolved Solids (TDS)	350	350	350
Total Keldahl Nitrogen (TKN)	50	40	10
Phosphorus (as P)	10	10	5

1. Current wastewater loading with a few residential STEP systems in service.

2. Future wastewater loading with all residences on STEP systems.

6. Description of the Sewer System

A low pressure sewer collection system is in place throughout the community, which transports wastewater from residential package grinder pump units to the WRF. With the approval of the Plumas County Division of Environmental Health (County Health) the District has recently begun a phased program to replace residential grinder pump units with STEP (septic tanks effluent pump) systems. The STEP system will utilize the same low pressure pipeline network currently in service for conveyance.

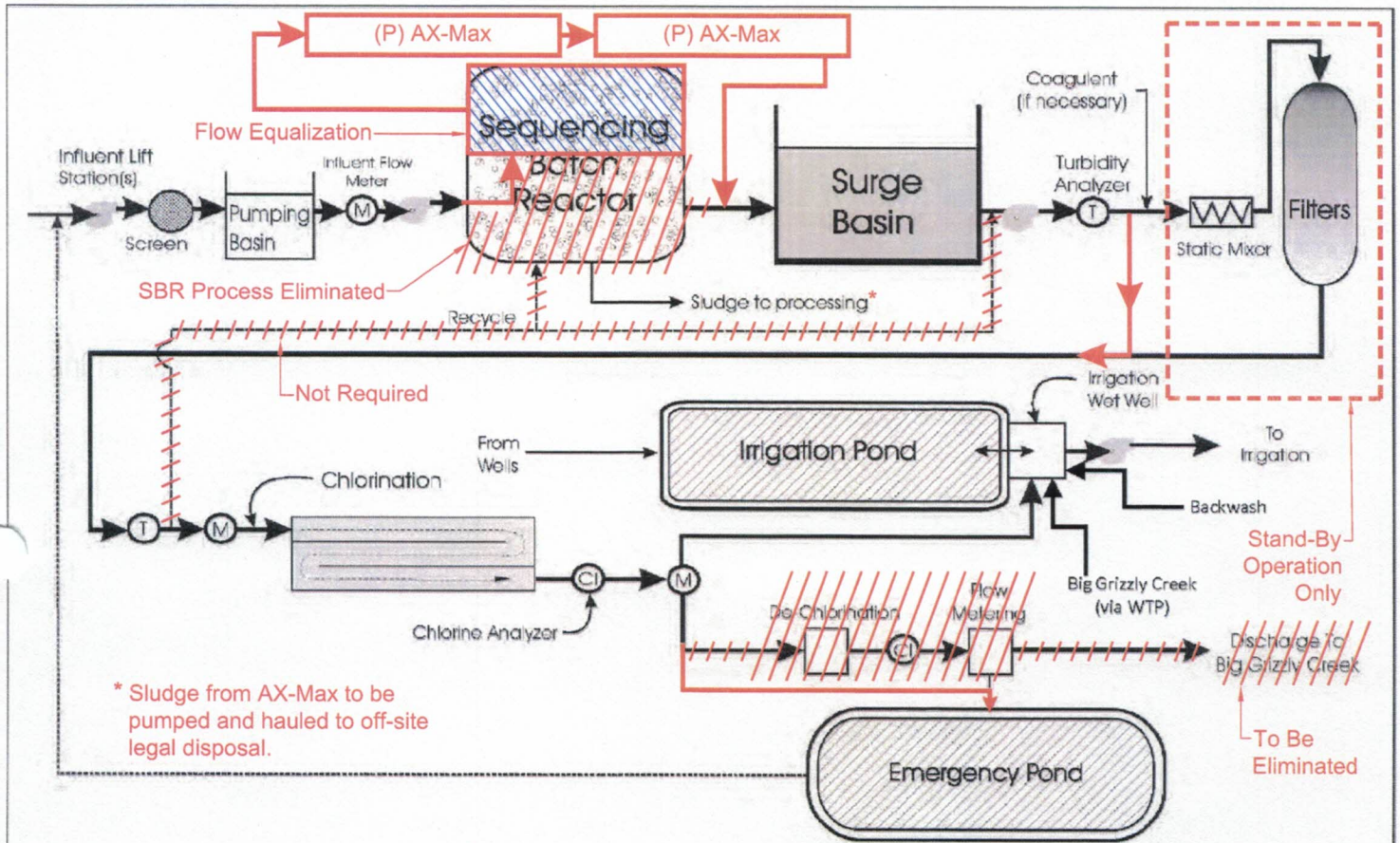
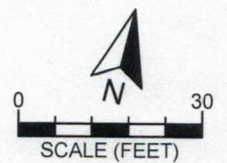
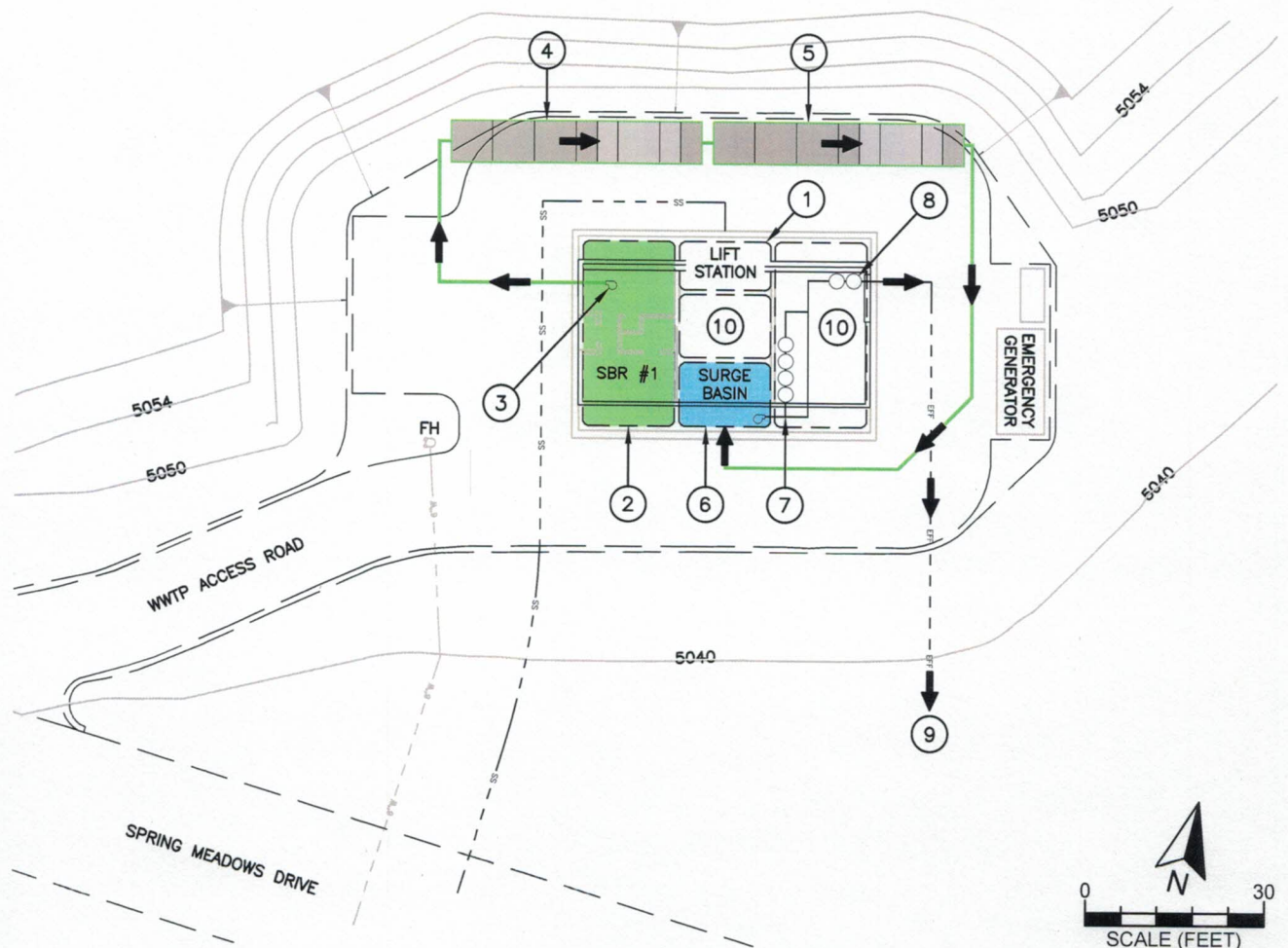


FIGURE 2
 GRIZZLY RANCH CSD
 REPORT OF WASTE DISCHARGE
 SHAW ENGINEERING JANUARY 2019

pg.9

FIGURE 3
 WASTEWATER TREATMENT
 AND RECOVERY FACILITY
 GRIZZLY RANCH
 PLUMAS COUNTY, CALIFORNIA



- ① (E) LIFT STATION TO REMAIN IN SERVICE
- ② CONVERT SBR #1 BASIN TO PRIMARY SETTLING TANK
- ③ PUMP TO NEW AX-MAX
- ④ AX-MAX MODULAR TREATMENT
- ⑤ FUTURE AX-MAX MODULAR TREATMENT
- ⑥ EFFLUENT TO SURGE BASIN FOR HOLDING
- ⑦ (E) FILTRATION
- ⑧ (E) DISINFECTION
- ⑨ DISCHARGE TO IRRIGATION POND
- ⑩ AVAILABLE EMERGENCY STORAGE

WRF SITE PLAN

SHAW ENGINEERING **FIGURE 3**
 GRIZZLY RANCH CSD
 REPORT OF WASTE DISCHARGE
 JANUARY 2019

7. Alarm and Emergency Measures for System Bypass and Overload

Many of the same alarm and emergency functions that were constructed with the original WRF facility will be activated and put into service including tank level alarms, disinfection process (chlorine pump failure and low residual) alarms and filtration (turbidity monitoring) alarms. The Ax-Max system includes a monitoring package that will alarm the operator of equipment failures. The existing SCADA system at the facility will be modified based on new treatment conditions.

8. Preventive and Contingency Measures for Controlling Spills and Accidental Discharges

No changes from that reported in previously submitted ROWD's.

9. Flood and Frost Protection Measures

The existing WRF is currently flood and frost protected. The AX-Max, which is manufactured to be installed outside in extreme weather conditions, will be installed adjacent the existing WRF building, which is out of any flood plain, and will be protected from frost and freezing; all inflow and outflow piping will be either buried or insulated to prevent freezing.

10. Debris, Grit and Screenings, Sludge, and Biosolids

a. Proposed improvements include the conversion of residential grinder pumps to STEP systems. STEP systems provide primary treatment and remove the solids from the raw wastewater. During the interim between initial WRF/AX-Max start-up and completion of community wide STEP system installation, some solids accumulation will also occur in the WRF holding/settling/equalization basin.

b. Solid Disposal Practices

The District will be responsible for operation, maintenance and repair of the residential STEP systems, including monitoring of solids accumulation and pumper truck removal (by a private contract pumper service). Settled solids in WRF basins will also be monitored and removed by pumper service.

c. Sludge Accumulation

Treatment of STEP effluent in the AX-Max results in less accumulation of sludge than conventional raw sewage treatment. At full treatment capacity approximately 1/2-inch of sludge will settle in the plant annually primarily in the

recirculation chamber. Sludge levels would be monitored; with a pump-out frequency of between 5-10 years.

11. Wastewater Impoundments

Wastewater impoundments include an existing lined irrigation pond and the lined emergency wastewater holding pond. The emergency wastewater holding pond, described in Section 2 on page 15 of the 2003 ROWD, has never received any emergency flows, but is in service and ready if an emergency occurs.

The lined irrigation pond is in service; to date the only wastewater discharge to the irrigation pond has been periodic (typically monthly) WTP filter backwash. This backwash is combined with irrigation water and land applied via spray irrigation to the golf course or stored in the pond during winter months.

Water recycling of WTP filter backwash, including waste and source characteristics, irrigation water balance and associated infrastructure were recently updated, reported and was the primary subject of the ROWD dated April 2015. Since recycle wastewater has never been produced, the irrigation pond also never received any treated effluent for recycle. As described herein, the District is proposing to make improvements to the WRF that will allow for recycling of wastewater to finally occur.

12. Subsurface Disposal Systems

None existing or proposed.

13. Recycled Domestic Effluent for Beneficial Use

- a. Ownership and responsibility is the same as described in Section 1.2.1 of the 2015 ROWD.
- b. The effluent disinfection system is already in place at the WRF. It will be put into operation accordingly.
- c. The effluent conveyance infrastructure, as described and illustrated in the 2015 ROWD, is in place and ready for service.
- d. Water recycling and land application areas are limited to golf course turf as shown on Figure 1 from the 2015 ROWD. These areas are controlled to prohibit public access. Irrigation is conducted during periods when the golf course is not being used by golfers. The GRGC is a restricted access golf course in accordance with Title 22 Section 60301.750.

- e. Recycled water will be applied to golf course areas only. The golf course covers approximately 222 acres, however only approximately 133 acres are irrigated.
- f. Recycled effluent will be applied via spray irrigation. Golf course turf is mowed (cropped) frequently and cuttings are mulched and placed in situ.
- g. Expected nutrient loading:

Table 4: Nitrogen Loading (10 mg/l)			
Discharge condition	Average Daily Flow (Gallons)	lbs/day	lbs/acre/day
Current Project Volume	3,800	0.32	0.002
20-year Projected	10,400	0.88	0.007
50-year Projected	17,900	1.49	0.011

Table 5: Phosphorus Loading (5 mg/l)			
Discharge condition	Average Daily Flow (Gallons)	lbs/day	lbs/acre/day
Current Project Volume	3,800	0.16	0.001
20-year Projected	10,400	0.43	0.003
50-year Projected	17,900	0.75	0.006

- h. Expected salt loading:

Table 6: TDS Loading (350 mg/l)			
Discharge condition	Average Daily Flow (Gallons)	lbs/day	lbs/acre/day
Current Project Volume	3,800	11.09	0.083
20-year Projected	10,400	30.36	0.228
50-year Projected	17,900	52.25	0.393

- i. Tail water management as described in Section 1.8, page 7, of the 2015 ROWD.
- j. Storm water management as described in Section 1.8 on page 7 of the 2015 ROWD.
- k. Setback distances from recycled irrigated areas are set forth in Order No. R5-2007-001.

1. Reference Figures 1, 4 and 5 of the 2015 ROWD for exhibits that illustrate items c, d, i, j and k above, which can be found in Appendix A.

14. Title 22 Engineering Report

A Title 22 report was previously prepared and submitted for the facility in June of 2003. Subsequently the RWQCB adopted Order No. R5-2007-001 addressing water recycling requirements for the facility.

15. Project Monthly Water Balance of the Irrigation Pond

The golf course Irrigation Pond was put in to operation in June 2005. During the irrigation season, the pond level has consistently remained stable without any significant drawdown during periods of high irrigation demand. Section 2.0 page 8 of the 2015 ROWD provides additional data and information regarding pond operation. Tables 4.1 and 4.2 of the 2003 Title 22 Report (copies included in Appendix D) provide a detailed water balance summary for both the average annual and 100-year precipitation scenarios.

At normal operating high water level, with 3.5 feet \pm of freeboard above the normal high level water surface, the irrigation pond has approximately 1.22 acres of surface area and a full capacity volume of approximately 2.26 MG (6.8 ac-ft). On average, the golf course uses 600,000 to 800,000 gallons of water daily



Lined Golf Course Irrigation Pond December 2018

when irrigating. Golf Course watering generally occurs during the months of April through October, with periods of daily watering and days where no watering takes place depending on course and ambient weather conditions.

During the irrigation season recycle water from the WRF will typically account for less than 1% of all water used daily to irrigate the golf course; and less than 3% based on projected growth for the foreseeable future. During winter months recycle water from the WRF will need to be stored in the lined irrigation pond. The irrigation pond has more than enough storage capacity to hold recycle water from the WRF from November through March for current flows and for many years of growth. Table 7 and 8 below provides a summary of the November to March storage capacity of the

lined irrigation pond for Average Year Precipitation and 100-Year Precipitation, respectively.

Volume Below Pump Suction Invert	69,900
Direct Precipitation ¹	603,200
Indirect Stormwater Runoff ²	130,500
WTP Filter Backwash	39,000
Subtotal	1,097,200
Full Pond Capacity	2,258,000
Available for Recycle Water Storage	1,415,400

Volume Below Pump Suction Invert	69,900
Direct Precipitation ¹	1,025,300
Indirect Stormwater Runoff ²	252,200
WTP Filter Backwash	39,000
Subtotal	1,386,400
Full Pond Capacity	2,258,000
Available for Recycle Water Storage	871,600

1. Direct precipitation is water that falls on the water surface of the pond.

2. Indirect stormwater runoff is the estimated volume of stormwater that could run into pond from a 7.5± acre runoff basin contributory to the irrigation pond.

The monthly analysis worksheets are located in Appendix E. The pond volumes in the tables above are illustrated in Figure F1 and F2 also in Appendix E.

16. Proposed Flow Limits

The treatment capacity of the existing idle SBR WRF far exceeds current and projected wastewater loading. Some of the existing SBR's unit processes will be put into service with proposed AX-Max improvements, including the lift station, chlorination and filtration systems and concrete basin storage; each of these systems will have plenty of hydraulic and treatment capacity to compliment the proposed AX-Max treatment system.

Each proposed AX-Max will have an initial treatment capacity 7,500 GPD of average day loading, and can handle up to 15,000 GPD of peak day flow. As soon as the District converts all of its residential grinder pump stations to STEP systems, the treatment capacity will double. The second AX-Max will double treatment capacity again.

Table 9: Proposed Flow Limits		
Wastewater Loading Condition	Treatment Capacity	
	Average Day (GPD)	Peak Day (GPD)
Current Loading, few STEPs systems in service.	7,500	15,000
Project Loading all residents on STEP units.	15,000	30,000
Project Loading with 2 nd AX-Max online.	30,000	60,000

17. Operations and Maintenance Procedures

The O&M manual for the proposed AX-Max, provided by Orenco, is included in Appendix C.

18. POTW Operator Information

The WRF will be operated by Grizzly Ranch Community Service District. The Grizzly Ranch Community Service District has an on-site Grade V operator that oversees wastewater operations; and a full-time system operator performing maintenance and operations functions.

19. Privately Owned Domestic Wastewater Treatment Operation Information

The WRF is not a privately owned system.

D. Local and Site-Specific Conditions

1. Neighboring Land Uses

Neighboring land use varies around the property. North and east of the project is zoned as general forest. West of the project is zoned secondary suburban, recreation (3-10 acres), suburban, agriculture preserve. To the south of the project is zoned general forest, rural (10-acre), and secondary suburban.

2. Typical Crops Grown

Grizzly Ranch will use the recycled WW to irrigate fairway, tee box, and putting greens turf and a portion of the “rough” along the golf course. The rough will consist

of various types of trees, shrubs and native vegetation. No agricultural crops will be grown from the recycled water.

3. Irrigation Water Sources, Volume, and Quality

Irrigation water sources are discussed extensively in the 2015 ROWD beginning on page 2, Section 1.2.4, and continuing forward. Water quality is discussed at length in Section 3 of the ROWD beginning on page 9.

4. Terrain and Site Drainage Features

Grizzly Ranch is located in the eastern portion of the Sierra Mountains. It's located within forested hilly terrain with areas of open land where the golf course is located. See Figure 4, also from the 2015 ROWD, for a map of the terrain and drainage features. Also, refer to Sections 1.8 and 1.9 of the previous ROWD, page 7, for additional discussion on the local climate and surface runoff characteristics.

5. Nearest Surface Water Drainage Course

Big Grizzly Creek is located approximately ¼ mile to the west of the golf course and the Middle Fork of the Feather River is approximately 1-½ miles to the south. Refer to Section 1.8 of the 2015 ROWD for additional information.

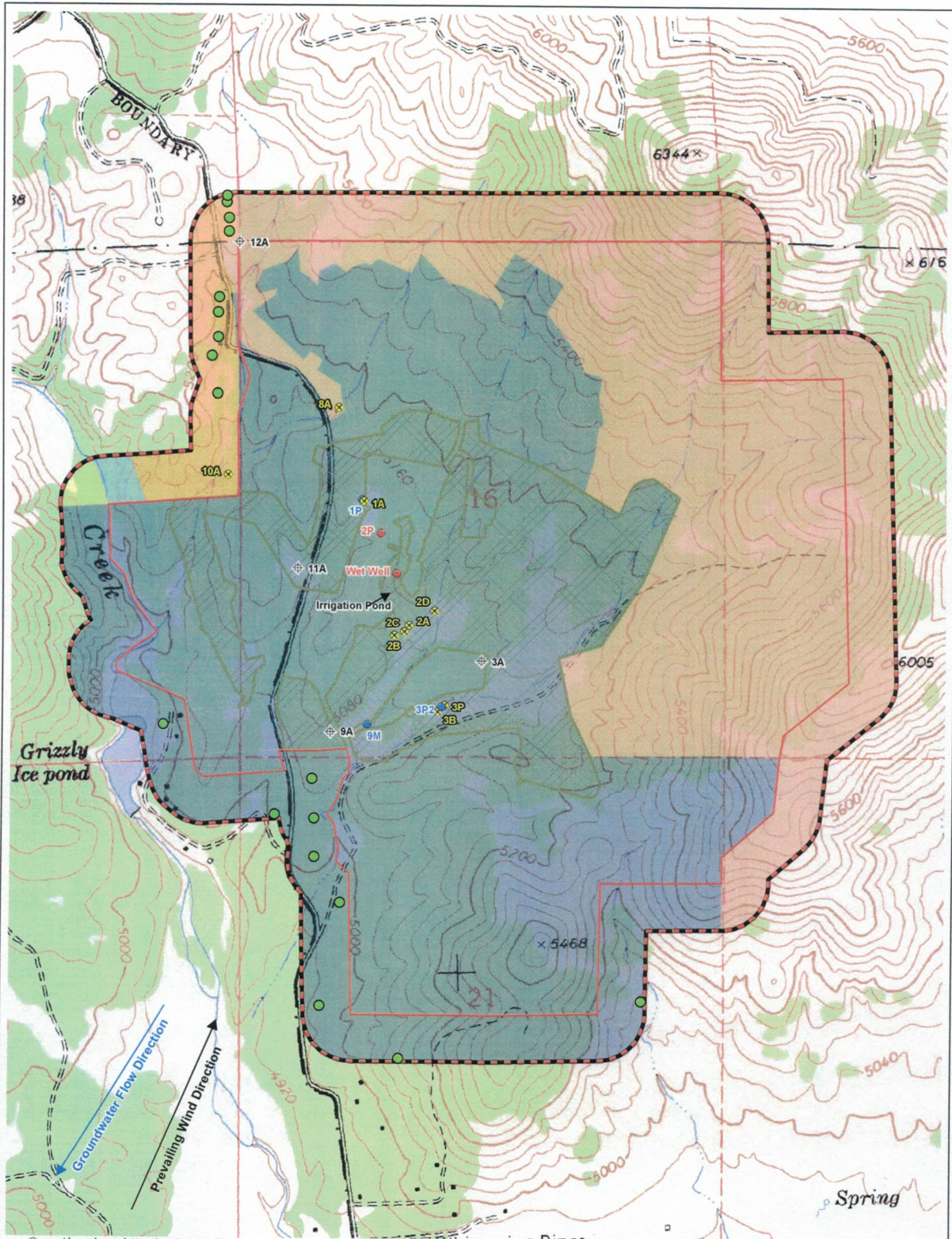
6. FEMA Floodplain Designation

Grizzly Ranch is located within FEMA Zone X, which is designated an Area of Minimal Flood Hazard.

7. Average Annual Precipitation

Provided from Table 4.1 of the 2003 Title 22 Report, as follows:

Average Annual Precipitation, inches (24.46"/yr)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.40	3.72	3.42	1.56	1.27	0.75	0.40	0.35	0.37	1.55	2.70	3.97



- ✕ Abandoned Monitoring Well
- CSD Responsibility Well
- GRGC Irrigation Well
- ⊕ Inactive Monitoring Well
- Residence with Domestic and/or Irrigation Well
- ▭ 500-Foot Buffer Around Grizzly Ranch CSD Boundary
- ▭ Grizzly Ranch CSD Boundary
- ▭ Grizzly Ranch Golf Course (Wastewater Application Area - 222 acres)

- Plumas County General Plan Land Use
- Agricultural Preserve
 - Resort and Recreation
 - Rural Residential
 - Secondary Suburban Residential
 - Suburban Residential
 - Timber Resource Land

FIGURE 4
 GRIZZLY RANCH CSD
 REPORT OF WASTE DISCHARGE
 SHAW ENGINEERING JANUARY 2019



SOURCE: MICROSOFT 2010

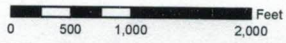


FIGURE 7
 VICINITY MAP
 GRIZZLY RANCH
 PLUMAS COUNTY, CALIFORNIA

8. 100-Year 365-Day Precipitation

Provided from Table 4.2 of the 2003 Title 22 Report, as follows:

100-Year Adjusted Precipitation, inches (41.58"/yr)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7.48	6.32	5.81	2.65	2.16	1.28	0.68	0.60	0.63	2.64	4.59	6.75

9. Reference Evapotranspiration

Provided from Table 4.1 of the 2003 Title 22 Report, as follows:

Evapotranspiration, inches (35.25"/yr)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	1.24	4.07	4.30	4.95	6.26	5.85	4.24	2.64	0.70	0.29

10. Pan Evaporation

Provided from the Western Regional Climate Center, Boca Station, which is the nearest data collection station, which is located in a similar Sierra environment, but at an elevation approximately 500 feet higher than the Grizzly Ranch golf course; data as follows:

Pan Evaporation, inches (45.25"/yr)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.00	0.00	0.00	0.00	6.83	8.52	10.01	9.09	6.48	4.32	0.00	0.00

11. Soil Types and Depths Underlying Ponds/Effluent Disposal Areas

A discussion of soils is in the 2015 ROWD, page 6, Section 1.6.

12. Hydrology and Groundwater

Hydrology is discussed in Section 1.8 and 1.9, page 7, of the 2015 ROWD. Groundwater is discussed in Section 1.7, page 6.

E. Antidegradation Analysis

As discussed in detail in the Fact Sheet pursuant to Order No. R5-2011-0081 (NPDES No. CA0085162), 'the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and Resolution No. 68-16. Also, pursuant to paragraph 27 of Order No. R5-2007-0001, regarding use of recycled water, 'Regional Board staff believes the discharge is a low threat of groundwater degradation', based on items identified therein.

Section 4.0 of the 2015 ROWD provides additional antidegradation analysis information.

F. Industrial Storm Water Permit

There are no industrial activities within Grizzly Ranch.

G. General WDR's for Sanitary Sewer Systems

The District is covered under the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Order 2006-0003-DWQ).

H. Department of Water Resources Well Standards

The GRCSO has a few abandoned and inactive monitoring wells within its service area; see Figure 4. These monitoring wells were constructed in accordance with DWR well standards.