

Shasta Springs Ranch

Site Plan Agreement between Emmerson Investment, Inc., NOAA's National Marine Fisheries Service (NMFS), and California Department of Fish and Wildlife (CDFW) for the Template Safe Harbor Agreement for Conservation of Coho Salmon in the Shasta River

A. Introduction

This Site Plan Agreement for the Template Safe Harbor Agreement for Conservation of Coho Salmon in the Shasta River (Agreement), which is intended to provide conservation benefits for the Southern Oregon and Northern California Coast (SONCC) Evolutionarily Significant Unit (ESU) of coho salmon (the Covered Species), is between the Emmerson Investment, Inc. (Permittee), NOAA's National Marine Fisheries Service (NMFS), and the California Department of Fish and Wildlife (CDFW).

This Site Plan Agreement, combined with the provisions of the Agreement, may serve as the basis for NMFS to issue a federal enhancement of survival permit (ESP) to the above named Permittee pursuant to section 10(a)(1)(A) of the Endangered Species Act of 1973, as amended (ESA). The joint and respective responsibilities of NMFS, CDFW, and the Permittees are detailed in the Agreement. This Site Plan Agreement is subject to terms and conditions set forth herein and in the Agreement and ESP. The definitions included in Section 2 of the Agreement are incorporated herein by reference.

In accordance with Section 5.1 of the Agreement, this Site Plan Agreement includes the following:

- General description of the Enrolled Property, including map and water rights (Section B below);
- Description of Routine Agricultural Activities carried out on the Enrolled Property (Section C.1 below), applicable Avoidance and Minimization Measures (AMMs) (Section C.2 & G.1 below), and Beneficial Management Actions (BMAs) to be implemented by the Permittee, including a schedule and other terms and conditions for implementation (Section E below);
- Description of Baseline Conditions on the Enrolled Property (Section D below) and Actions Required to Maintain Baseline Conditions (Section E.1 below);
- Description of Elevated Baseline Conditions on the Enrolled Property if applicable (Section E.2 below) and description of Other Beneficial Management Activities on the Enrolled Property (Section E.3 below);
- Monitoring and reporting activities that the Permittee agrees to carry out

- (Section G below);
- Description of potential and existing funding sources and timeline for the Permittee to carry out BMAs, AMMs, and monitoring and reporting requirements (Section E, F, & G below); and
- Other information consistent with the terms and conditions of the Agreement and ESP (Section F, H & I below).

The AMMs, BMAs, and associated monitoring and reporting protocols described below derive from Appendix 2 and Appendix 3 of the Agreement. In the event there is any conflict between the AMMs, BMAs, and associated monitoring and reporting protocols as described below and as described in the appendices to the Agreement, the appendices to the Agreement control.

B. Enrolled Property

B.1 General narrative and map describing the Enrolled Property

The Enrolled Property is located north of Edgewood, California, and east of Interstate 5. The headquarters are accessed from Slough Road, which roughly approximates the west boundary, though the easement is not exclusively on or associated with the property line (Figure 1). The Permittee's other properties, the Hole in the Ground and Seldom Seen ranches, share boundaries to the north and northeast. One other private landowner borders the Enrolled Property to the east, south, and west.

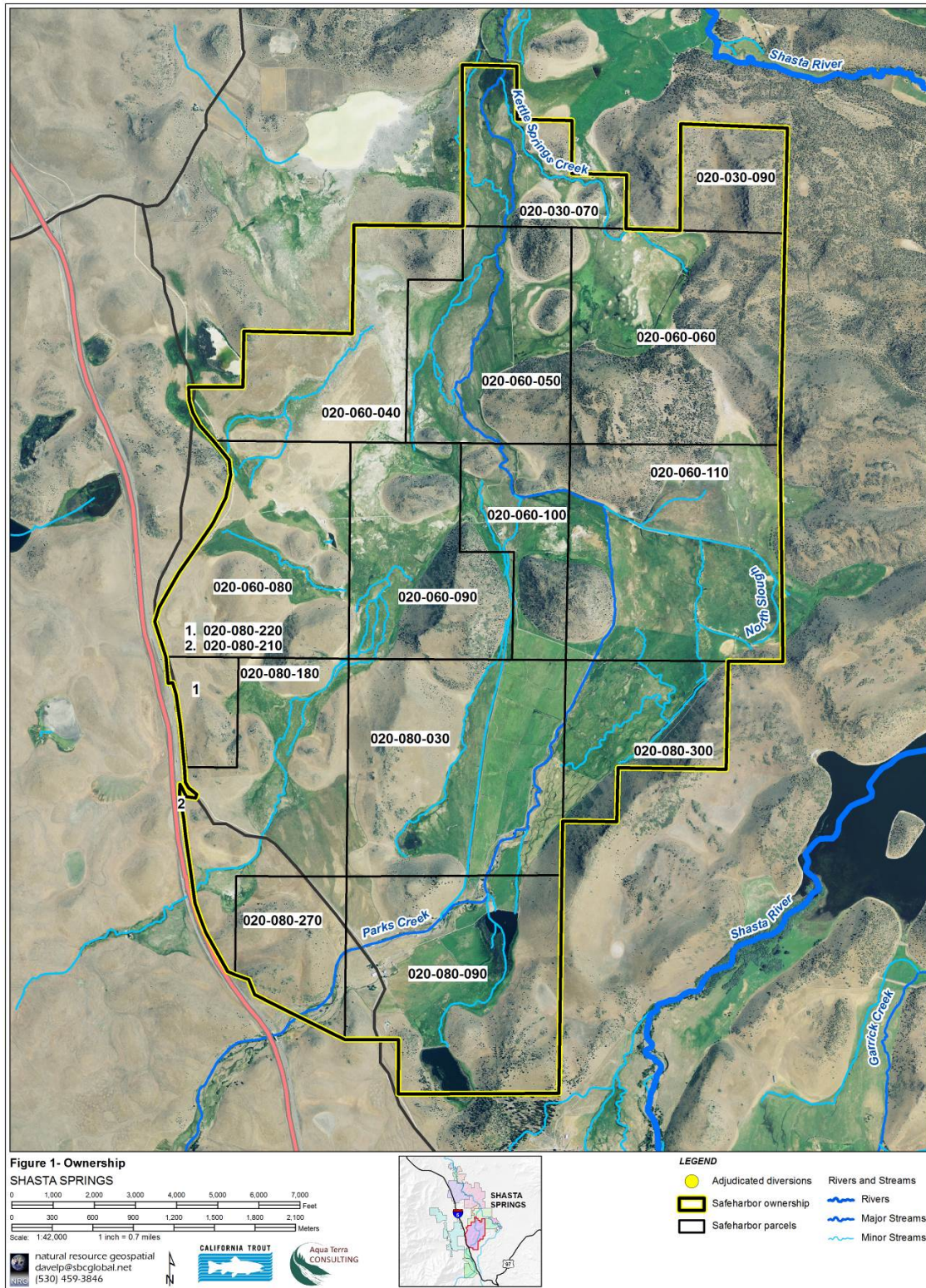
Parks Creek and Kettle Springs Creek flow through the Enrolled Property. Significant springs, two of which are sometimes referred to as Black Meadow and Bridge Field, emerge at the west margin of the ridge between Lake Shastina and the Enrolled Property. The water from these and other unnamed springs is collected in manmade and natural channels, eventually flowing into Parks Creek, approximately 4.5 miles upstream of the confluence with the Shasta River.

For the purposes of this Safe Harbor Agreement, activities on the Enrolled Property have the potential to influence the mid- and Lower Parks Creek sub-reaches.

B.2 Legal Description of the Enrolled Property

APN	ASSESSED ACRES	OWNER	REFERENCE
020030070	240	EII	SHASTA SPRINGS
020030090	160	EII	SHASTA SPRINGS
020060040	390	EII	SHASTA SPRINGS
020060050	440	EII	SHASTA SPRINGS
020060060	640	EII	SHASTA SPRINGS
020060080	456	EII	SHASTA SPRINGS
020060090	400	EII	SHASTA SPRINGS
020060100	240	EII	SHASTA SPRINGS
020060110	640	EII	SHASTA SPRINGS
020080030	642	EII	SHASTA SPRINGS
020080090	600	EII	SHASTA SPRINGS
020080180	437.2	EII	SHASTA SPRINGS
020080210	0.1	EII	SHASTA SPRINGS
020080220	104.3	EII	SHASTA SPRINGS
020080270	199.5	EII	SHASTA SPRINGS
020080300	283	EII	SHASTA SPRINGS

Figure 1-Shasta Springs Ranch: Property Ownership Description



B.3 Description of Water Rights and Usage

The Enrolled Property uses a combination of adjudicated, appropriative, and riparian rights to water for irrigation of permanent pastures and stock watering (Table 2).

The adjudicated water rights to the use of the natural flow of Parks Creek and various springs are described in paragraphs 89 through 99 of the Shasta River Adjudication Proceeding, Judgement and Decree entered December 30, 1932 (Shasta River Decree). The Shasta River Decree establishes the relative rights of the various claimants according to the doctrine of prior appropriation.

The Enrolled Property's adjudicated rights on Parks Creek range in priority date from 1854 to 1889 with a combined flow rate of about 16 cfs and a period of use from March 1st through November 1st each year. Actual use under these rights usually begins sometime after March 1st depending on spring weather conditions. However, because these rights tend to be of lower priority relative to other upstream Parks Creek rights, streamflow onto the Enrolled Property generally only lasts until late May or, on occasion into July, dropping off sharply as snowmelt diminishes and upstream senior diverters take their share. Whether sufficient flow to divert from Parks Creek lasts into the spring or early summer is based on hydrologic conditions each year.

There are five actively managed diversions (POD) on Parks Creek (Figure 2 and Table 2). Historically, at the time of the adjudication, the Enrolled Property used as many as ten separate PODs off the stream. Between the current Parks #4 and Parks #5, five PODs are not actively managed, meaning there is currently no functional infrastructure to divert water at those PODs and the right is used at active PODs, per the provisions of the Decree. The present-day configuration of the PODs and ditches is not necessarily the most efficient but reflects a compromise between the cost of replacing diversions susceptible to destabilizing flood flows, as often occurs in a snowmelt dominated stream like upper Parks Creek, and the value of a water supply that diminishes to un-divertible before the middle of the growing season.

There are three adjudicated POD from spring sources on the Enrolled Property (Figure 2 and Table 2). An unnamed spring is part of the water held in Upper Dennis Reservoir, east of Parks Creek in the south half of Section 8 (T42N, R05W). The reservoir did not exist at the time of the adjudication and the water right for up to 0.45 cfs (from DWR POD #223) was conveyed in a ditch to irrigate pasture in Section 8. Currently, Upper Dennis Reservoir captures the flow of the unnamed spring and impounds it with the waters of an unnamed tributary, proximate the spring source. The role of the reservoir will be further described below in a description of the post-1914 appropriative water rights for the Enrolled Property.

The Duke Spring is a small spring for which the Enrolled Property has an adjudicated right of up to 0.05 cfs for irrigation in the period between March 1 and November (DWR

POD #234). In most years, the spring doesn't flow. Despite the blue line seen on USGS topographic maps, no surface flow connects the spring to Parks Creek.

The third adjudicated right to spring flow is for up to 1.15 cfs, March 1 to November 1, from an "unnamed spring" (DWR POD #234A) that emerges in the northeast quarter of Section 28 (T43N, R05W). This source is also known as "Kettle Springs". The spring flow is captured by an earthen dike. Historically, over a period of 3-4 days, using the head gate at the inlet of a culvert connecting the impoundment to Kettle Springs Creek, the outflow is reduced only enough to allow the impoundment elevation to inundate either the north or south ditch inlets. Irrigation of the pastures, north and south of Kettle Springs Creek, usually does not start until late May, and in years with abundant precipitation into late spring, the initiation of the irrigation cycle may not be until sometime in June. Irrigation ceases sometime mid-October or before November 1.

In 2017, with a SWRCB 319h grant through the Shasta Valley Resources Conservation District, a new spring source management structure was constructed at the outlet of the impoundment of Kettle Spring. The new structure provides a constant, priority discharge of 1 cfs of water to Kettle Springs Creek. In addition to this dedicated flow, valves distribute water to new pipelines that parallel the old ditches to irrigate the pastures. As Kettle Springs is documented to fluctuate seasonally in discharge, the structure includes an adjustable flow control valve that passively (i.e. not requiring operator input) and automatically discharges any spring flow in excess of the irrigation right and the 1cfs priority flow to the Creek, and all spring flow to the Creek during periods of non-irrigation.

The Enrolled Property water rights include a post-1914 appropriative right (License #11609) for winter and spring diversion and storage of the amount of water actually beneficially used for the stated purposes of irrigation, stock watering, and recreational uses and shall not exceed 106 acre-feet of the water from two unnamed tributaries to Parks Creek. The season of collection is from October 1 to May 31 of the succeeding year. The maximum withdrawal in any one year shall not exceed 94 acre-feet from both Upper Dennis and Dennis reservoirs.

The most upstream Shasta Springs diversion on Parks Creek, Parks#1 (the same POD as DWR POD #221), is used in the winter under a riparian claim to provide stock water on the east side of the stream. Approximately 0.25 to 0.5 cfs is diverted from November 1 to March 1 of the succeeding year. The Statement of Use is filed with the State Water Resources Control Board, Division of Water Rights (SWRCB-DWR) through the eWRIMS and bears Appl ID S023971.

There is a diversion on the right bank of the North Slough used to flood wetland habitat for waterfowl in the fall to mid-winter period. Under a riparian water right claim (eWRIMS S025771), approximately 73 acres of wetlands are inundated to an

approximate 1.5 feet in depth and maintained in that condition, with diverted water or accumulated precipitation, until the end of January.

Two unnamed springs are diverted under a riparian claim for irrigation and stock watering (eWRIMS S018099 & S018105). These springs are often referred to as Bridge Field and Black Meadow springs. These are important sources of mid- and late season irrigation water as the flow of Parks Creek, as described above, is usually too low to divert for irrigation after June.

Bridge Field Springs emanate along the east edge of the valley floor in the north half of Section 04 (T42N, R05W). The springs flow at a rate that varies seasonally and annually with the highest flows generally emerging in summer. From October 2009 through September 2010, the 12-month period for which data is readily available (Davids Engineering, 2011), the rate ranged between 1.3 cfs in November to 5.7 cfs in August.

An earthen dike holds most of the spring flow and controls the water elevation for use at any one of their points of diversion for irrigation. The downstream-most POD is a culvert with a head gate that controls the flow at the head of what is sometimes called Bridge Field Springs Creek. Another head gate (south of the POD just described) controls the outflow at roughly midway along the length of the impoundment for diverting water to another network of ditches at a slightly higher elevation from the outflow. The third outlet is the intake of a portable diesel pump that pumps the water upslope through approximately 5000 feet of pipe for irrigation to the highest fields on the east side of Parks Creek south of Dennis Reservoir. The decision to use this pump is made on an annual basis based on the water year, estimated stocking rates, and the price of diesel. It has not been used since 2011. Water from Bridge Field Springs is also re-diverted at Parks #5 (eWRIMS S019847) to irrigate the fields served by that POD.

Approximately one acre-foot is diverted from November 1 to March 1 for winter stock watering.

Black Meadow Spring emanates in the SE of the SE of Section 33 (T43N, R05W), approximately 500 feet northeast of the downstream POD of the Bridge Field Springs and is diverted (eWRIMS S018105) north or west to irrigate pastures and provide stock water. Less than an acre-foot is diverted for winter stock watering.

All of the above described water rights for the Enrolled Property are presented in Table 2. Active and not actively managed PODs are listed. The table displays the water right amounts, points of diversion, and irrigated acres served by those rights on the Enrolled Property. The information presented in Table 2 is a good-faith effort to present the irrigation and stock water management by the Permittee for the purpose of understanding the possible changes through time and space from the ranch stewardship and the context for improving aquatic habitat conditions for the Covered Species. It may not be suitable

for any other purpose. The variables displayed in the table are a compilation of data and estimates from a variety of sources and through a range of hydrologic conditions.

Figure 2 illustrates the irrigation infrastructure on the Enrolled Property. These are the POD and ditches for the water rights described above. The map included below illustrates the place of use as stipulated in the Shasta River Decree and the DWR irrigated acreage coverage.

Table 2. Shasta Springs Ranch – Water Rights, Amounts, Timing, Acres Irrigated, and Days Used by Diversion

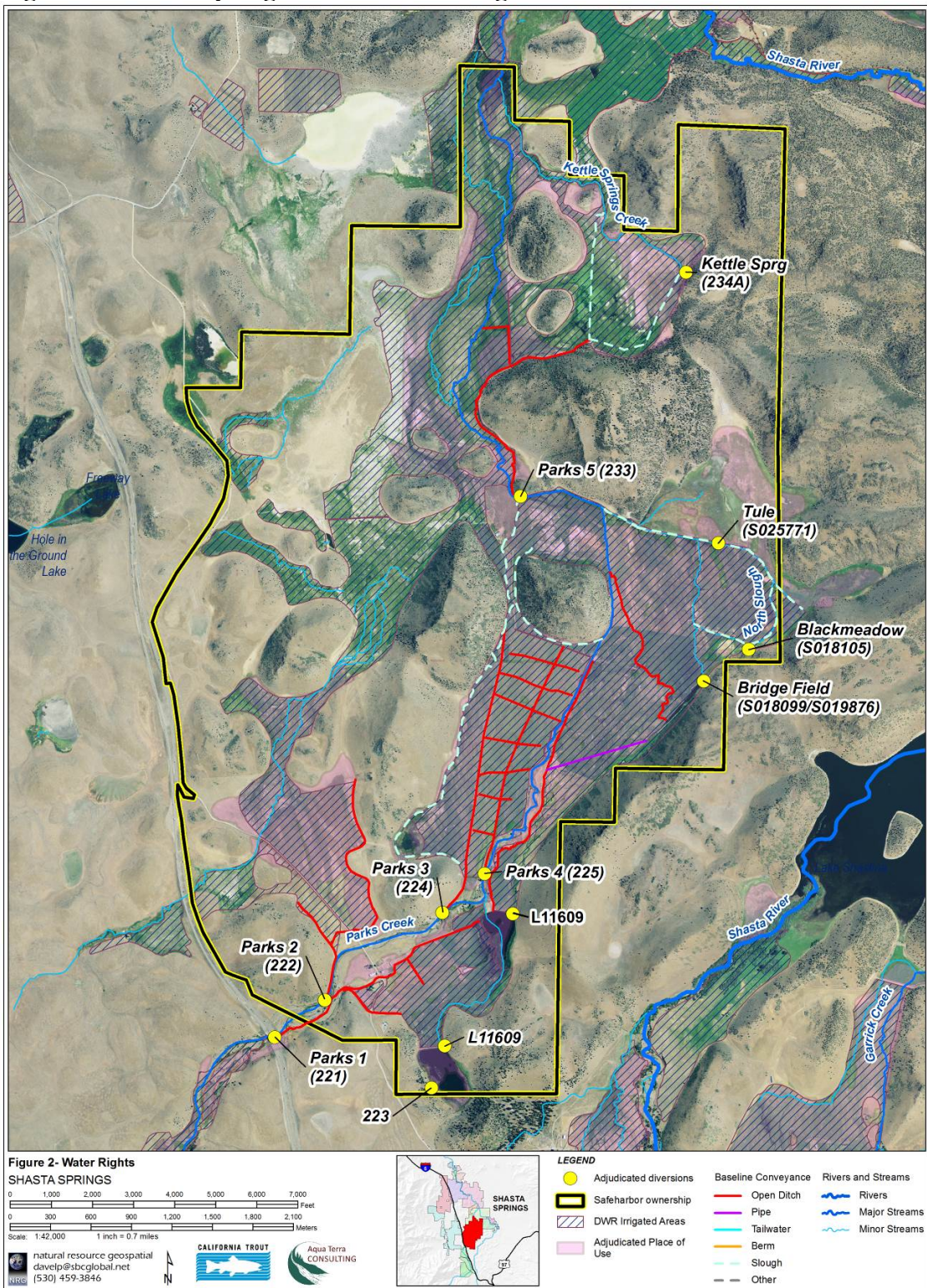
Note: The information presented in this table is an estimate of potential use, is presented for the purpose of understanding how habitat conditions will be enhanced, and is not intended for any other use. The data below are a compilation of estimates from a range sources and hydrologic conditions.

Report	Diversion #/Water Source	Description	Season	Licensed, Riparian, or Adjudicated Amounts (cfs)	Approximate Ac-Ft per Season Diverted	Approximate Days per Season Diverted	Approximate Acreage Irrigated with Diversion ¹
Watermaster	221/Parks Creek	Parks 1	Summer (March 1-Nov 1)	2.25	510	244	230
Watermaster	222/Parks Creek	Parks 2		2.5	350	122	230
Watermaster	223/unnamed spring	unnamed spring		0.45	215	244	125
Watermaster	224/Parks Creek	Parks 3		1.3	500	140	170
Watermaster	225/Parks Creek	Parks 4		1.65	110	60	185
Watermaster	226,228/Parks Creek	non-active; Div226 POD is opposite Parks 4		5.3	-	-	-
Watermaster	227,230/Parks Creek	non-active		1.2	-	-	-
Watermaster	231/Parks Creek	non-active		0.85	-	-	-
Watermaster	233/Parks Creek	Parks 5		0.8	518	183	128
Watermaster	234/Duke Spring	non-active		0.05	-	-	-
Watermaster	234A/unnamed spring	Kettle Springs		1.15	185	75	100

¹ Some diversions include Stock Watering as a Summer Season use

S018099	unnamed spring (divert)	Bridge Field Spring		1.8	900	244	365
& S019847	& 233 (redivert)						
S018105	unnamed spring	Black Meadow Spring		0.9	382	214	243
License 11609	Upper Dennis Reservoir & Dennis Reservoir/ two unnamed streams tributary to Parks Creek	Licensed use for irrigation, stockwater, and recreation	Oct 1-May31	NA	106	212	254
S025771	Tule Patch/North Slough	Fish & Wildlife, Preservation & Enhancement	Sept 1-Jan 31	NA	294	153	75
S023971	221/Parks Creek	Parks 1	Winter (Nov 1- March 1)	0.5	120	121	Stockwater
S018099	unnamed spring & Div233/ Parks Creek	Bridge Field Spring		0.7	168	121	Stockwater
S018105	unnamed spring & Div233/ Parks Creek	Black Meadow Spring		0.35	64	121	Stockwater

Figure 2- Shasta Springs Ranch: Water Rights



C. Routine Agricultural Activities

The Enrolled Property consists of 5900± acres. The Enrolled Property is managed as a cow-calf operation running about 400-500 pairs. Together with replacement heifers and bulls, the Enrolled Property carries about 650 to 800 head. Calving typically begins in early October and lasts through December. Calves are weaned, beginning at the end of July and shipped in August and September before the next round of calving, with some heifers kept each year for replacements.

Cattle graze irrigated (actively and sub-) pastures and dry land range (See Table B4) supplemented by hay. Supplemental feeding begins about the end of November and lasts through the end of March, by which time pasture and range conditions are sufficient to sustain the herd.

The irrigated acres are grass pasture. Three-quarters of the 2100 acres are flood irrigated while approximately 500 acres are sub irrigated. Diverted water (including a small amount of stock water) is conveyed principally in open, unlined ditches.

As discussed above under Description of Water Rights, there are also two ponds with a combined total of ±106 acre-feet, with a licensed use for irrigation, stock water, and recreation. They are used, as well, to create head to deliver water to fields on the east side of Parks Creek and/or catch tailwater for re-use. Wildlife, especially waterfowl, also use the reservoirs. Two smaller impoundments (Bridge Field and Kettle Springs) are not for storage but for management of spring flows.

In the fall and winter, approximately 73 acres are flooded and kept inundated to create wetland habitat for overwintering waterfowl.

There are four rocked ford vehicle crossings on the Enrolled Property, for crossing Parks Creek. These are also used as stock crossings. Three additional rocked fords across Parks Creek are used for stock and ATVs only. All wet crossings serve as stock watering access as well. There are five crossings over culverts -- one across Bridge Field Springs Creek, one across Kettle Springs Creek, one across Parks Creek, and two across the North Slough. All five are used for livestock, ATVs, and vehicles, including heavy equipment over Parks Creek and Kettle Springs Creek, by which all the property west of the river may be accessed. One additional piped crossing (at Kettle Springs POD) is for livestock and ATV use, only. There is one stock watering access lane that is not a crossing. Management and maintenance of crossings and watering lanes are further addressed in the section regarding Avoidance and Minimization Measures.

There is one county road right of way, Slough Road, which includes a bridge over Parks Creek.

C.1 Present Routine Agricultural Activities

Irrigation Management

- Positioning and repositioning head gates for irrigation and stock watering throughout irrigation season (and to a lesser extent through the winter season) as crop demand, stock water needs, and water supply dictate.
- When used, place portable pump at south end of Bridge Field Springs Impoundment, start pump, refuel pump.
- Ongoing maintenance, management, and repair of boulder weirs.
- Maintain measuring device(s).

Irrigation Maintenance

- Diversion intake maintenance and cleaning;
- Operation and maintenance of diversion measuring devices;
- Board or tarp removal/placement in ditches;
- Pump maintenance;
- Ditch cleaning and maintenance;
- Tailwater berm maintenance;
- Pipeline maintenance.

Pasture Grazing Management

Activities: None currently. See *Beneficial Management Activities* for proposal to implement riparian pasture grazing in two areas.

Riparian Fence Maintenance

- Maintain narrow-corridor riparian exclusion fencing;
- Install and maintain temporary electric fencing for riparian pasture boundaries;
- Install fixed fencing for riparian pasture boundaries;
- Maintain panels and/or fencing in riparian zone to limit livestock access to channel at water gaps, crossings, and property boundaries;
- Remove and/or replace panels and/or fencing at water gaps for high stream flow events.

Road Maintenance

- Use and maintain four vehicle fords across Parks Creek, and six piped (CMP) crossings.
- There are approximately 2.3 miles of road segments within 150' feet of Parks Creek on the Enrolled Property. Except for crossings the balance of the road segments are much

further from any perennial or seasonal stream. 1500 feet of road are on the east side of Parks Creek and used to access, maintain, and operate the Parks #5 diversion. The longest road segment is approximately 2 miles road running roughly parallel to Parks Creek from about the Parks #4 diversion to the crossing downstream from Goat Hill in the NW ¼ of Section 33 (T43N R05W). Another road segment access the Kettle Springs POD. These, like all of the internal roads on the Enrolled Property, receive light use, primarily by ranch ATVs or, occasionally, pickups or a backhoe. Use of the road paralleling Parks Creek has increased significantly over the last ten years to accommodate personnel conducting fisheries and water quality investigations. Traffic is not expected to increase above current levels. Traffic is nevertheless light and the side slope between the road and the river is almost flat and covered with perennial grasses or riparian vegetation with very little sign of erosion. If used by heavier trucks or equipment, it would be to implement a Beneficial Management Activity and likely therefore not used during the wet season, except in an emergency.

Crossing Maintenance

- Use and maintain four vehicle fords across Parks Creek.
- Periodic use of wetted fords for crossing cattle at seven designated crossings (inclusive of four vehicle fords).
- Crossings will be maintained for crossing vehicles and watering and crossing livestock.
- One instream stock watering only point will be maintained using panels or other effective livestock management equipment to limit access to approximately twenty-five linear feet of wetted channel to meet watering needs for up to 250 pairs.

Herbicide/Fertilizer/Pesticide Use

- Periodic use of herbicide by the Permittee or the County, with the permission of the Permittee.
- The use of fertilizers is not a current practice, but the Permittee chooses to retain the opportunity to use fertilizers at a future date by including AMMs for this activity in this agreement.

C.2 Avoidance and Minimization Measures

The Permittee has agreed to carry out and monitor AMMs that are relevant to their Routine Agricultural Activities as specified in Table G1 (Section G below) and as detailed in Appendix 3 of the Agreement.

D. Description of Baseline Conditions

Baseline Conditions means the habitat conditions for the Covered Species on the Enrolled Property when NMFS approves this Site Plan Agreement. The Enrolled Property is within the mid- and Lower Reaches of Parks Creek reach of the Covered Area. Baseline Conditions for the Enrolled Property are the conditions described in Appendix 2 of the Agreement for this reach.

Elevated Baseline Conditions are certain Baseline Conditions improved as a result of certain Beneficial Management Activities. Elevated Baseline Conditions for this Site Plan Agreement include reducing tailwater impact on Kettle Springs Creek, upgrade screening and passage as part of the mid-Parks Creek project, and increased riparian grazing management.

Table 2 summarizes the Beneficial Management Activities required to maintain Baseline Conditions and to achieve Elevated Baseline Conditions on the Enrolled Property for the term of the Site Plan Agreement. The Beneficial Management Activities implement habitat enhancement actions recommended in the Agreement (Appendix 2) for the mid- and lower reaches of Parks Creek. Section E describes the activities on the Enrolled Property in more detail. All Beneficial Management Activities stipulated below will be implemented per relevant AMM's included in Appendix 3 of the Agreement.

Table 2-Baseline, Elevated Baseline and Other Beneficial Management Activities for the Enrolled Property

Habitat Parameter	Beneficial Management Activities		
	Present Baseline Conditions (Section E1-Maintain)	Elevated Baseline Conditions (Section E2-Restore; Implement and Maintain)	Other Beneficial Management Activities (Section E3-Restore; Measures to Avoid and Minimize Impacts)
Hydrology/ Water Quality	<ul style="list-style-type: none"> -Cattle access to the channel will be excluded or restricted to crossings and/or limited season/stocking/duration that conserves water quality, per riparian grazing plan developed with UCCE (<i>Shasta Springs Section E.1.d.; Attachment</i>) -Continue maintenance of tailwater berms -Continue irrigation practices to minimize/eliminate tailwater -Continue to operate and maintain new (2017) Kettle Springs spring source management structure, as designed -Collaborating with UCCE in research testing applicability of soil moisture monitoring technology to improve irrigation efficiency 	<ul style="list-style-type: none"> -Agree to conduct evaluation of water quality conditions in and in the vicinity of the road crossing over Kettle Springs Creek and implement projects to diminish/eliminate impacts from irrigation or pasture management. <i>Time Frame: Within 2 years of ESP issuance</i> -Agree to construct enhanced tailwater berm if applied irrigation is found to still be creating tailwater returning to Kettle Springs Creek as surface water <i>Time Frame: Within 5 years of permit issuance</i> 	<ul style="list-style-type: none"> -Agree to further evaluation to determine feasibility of getting spring water on east margins of fields east of the Mid-Parks Creek to alcoves or reconfigured Mid- Parks reach (Mid- Parks Creek Project) <i>Time Frame: 5 years from permit issuance with projects or Meet & Confer to follow</i> -Participate in, including bypassing flow from Upper reach, Parks Creek Flow Strategy <i>Time Frame: for duration of ESP</i> -Agree to bypass (leave instream) >=1 cfs of Bridge Field Springs for 5 year interim period to complete Mid- Parks Cr Project feasibility study. <i>Frame: 5 years from ESP issuance</i> -Agree to include additional pastures in Study Area to research applicability of soil moisture monitoring technology and incorporate into irrigation management where appropriate <i>Time Frame: Within 5 years of ESP issuance</i> -Agree to take part in project to improve Parks#4 POD to be able to divert on both sides of Parks Creek and leave irrigation demand, normally diverted at Parks #1, instream, depending on water quality objectives prescribed by annual implementation of Parks Creek Diversion Management Strategy <i>Time Frame: Within 5 years of ESP issuance</i>

<p>Passage/ Mitigation/ Screening</p>	<p>-Continue to maintain and operate Parks#5 improved POD infrastructure, complying with current CDFW requirements for passage, bypass flows, and screening</p> <p>-Continue to conduct redd/spawner surveys</p>	<p>-Agree, as part of Mid- Parks Creek Project, to upgrade spring channel POD to current CDFW screening and fish passage standards <i>Time Frame: Within 10 years of ESP issuance</i></p>	<p>-Agree to conduct water quality investigation of Bridge Field Springs Creek and the North Slough <i>Time Frame: Within 2 years of ESP issuance</i></p> <p>-Agree to continue cooperation in project to eliminate potential salmon migration barrier on upstream landowner (Parks Cr under I-5) <i>Time Frame: Underway; Completion Estimated within 2 years of ESP issuance</i></p> <p>-Agree to re- evaluate for possible improvement to screen & fish bypass configuration at Parks #3 diversion <i>Time Frame: funding for design and implementation will be sought within 5 years if ESP issuance</i></p> <p>-Agree to develop and implement beaver management plan to alter or provide access around potential migration barriers at dams (Section E.3.d.) <i>Time Frame: Within 5 years of ESP issuance.</i></p>
<p>Instream Habitat Complexity</p>			<p>-Collaborate with NMFS and CDFW for Mid-Parks Creek Project, this may include projects in this category. <i>Time Frame: Within 10 years of ESP issuance</i></p> <p>-Agree to develop and implement beaver management plan (Section E.3.d.) <i>Time Frame: Within 5 years of ESP issuance</i></p> <p>-Collaborate with NMFS and CDFW for Mid-Parks Creek Project, which may include projects in this category <i>Time Frame: Within 10 years of ESP issuance</i></p>

<p>Riparian Condition</p>	<p>-Agree to maintain existing riparian exclusion fencing or, if modified, riparian pasture fencing with associated grazing plan developed in consultation with UCCE Range Conservation Specialists</p> <p>-Permittee agrees to monitor survival of riparian plantings At Parks#5 and replace damaged beaver enclosures until cuttings are established</p> <p>-Will replace, out-of-pocket, up to 20% of riparian fencing damaged by high flow events and seek additional funding if necessary to complete repairs</p> <p>-Seven livestock/vehicle crossings/watering access lanes will be maintained as rocked fords (<i>Section E.1.d.</i>) One instream stock water only access point will be maintained with rock and panels, minimizing erosion potential to bank</p>	<p>-In the sub-reaches of Parks Cr. without exclusion fencing, Cattle access to the channel and riparian zone will be restricted to crossings and/or limited season/stocking/ duration that conserves habitat quality, consistent with recommendations of UCCE Range Conservation Specialists (<i>Attachment Tate & Rivers, 2016</i>) <i>Time Frame: Within 2 years of ESP issuance</i></p>	<p>-Shasta Springs Ranch will temporarily or permanently fence the Wheat Field pasture, if necessary, to achieve the stated management goals. <i>Time Frame: Within 5 years of</i></p> <p>-Collaborate with NMFS and CDFW for Mid-Parks Creek Project, which may include projects in this category. <i>Time Frame: Within 10 years of ESP issuance</i></p> <p>-Post-alteration of Cardoza's POD, agree to work collaboratively with NMFS and CDFW on riparian enhancement projects in lower Mid-Parks Creek Reach (<i>Section E.3.d.</i>) <i>Time Frame: Within 5 years of completion of diversion alteration project</i></p> <p>-Agree to develop and implement beaver management plan (<i>Section E.3.d.</i>) <i>Time Frame: Within 5 years of ESP issuance</i></p>
<p>Substrate Quality</p>	<p>-Seven livestock/vehicle crossings/watering access lanes will be maintained as rocked fords (<i>Section E.1.c.</i>)</p> <p>-One instream stockwater only access point will be maintained with rock and panels, minimizing erosion potential to bank</p>		<p>-Collaborate with NMFS and CDFWfor Mid-Parks creek Project, this may include projects in this category. <i>Time Frame: Within 10 years of ESP issuance</i></p>

E. Beneficial Management Activities

This section provides a detailed description of Beneficial Management Activities to be implemented on the Enrolled Property for the benefit of the Covered Species.

E.1 Actions Required to Maintain Baseline Conditions

This section details the actions required to maintain Baseline Conditions. This includes any Covered Activities that are being implemented, or have been implemented, on the Enrolled Property that benefit the Covered Species and will be maintained over the duration of the Agreement.

E.1.a. Hydrology/Water Quality

Increased delivery and irrigation efficiencies (Completed and Sustained)

- With funding provided by the Pacific States Marine Fisheries Commission under a grant from NOAA in cooperation with CDFW, undertook and irrigation efficiency study.
- Cooperated in more than seven years of CDFW studies of juvenile salmonid distribution and habitat use with direct observations, PIT tag technology, water temperature and flow monitoring, etc.
- Permittee has completed project to design and construct a spring source management structure at the head of Kettle Springs Creek, including replacing 2300 feet of open ditch with pipe and alfalfa valves. Permittee agrees to operate and maintain the Kettle Springs Irrigation Management Structure that by design leaves flow in excess of water right instream.
- Permittee is cooperating with UCCE to experiment with the use of soil moisture sensors and related technology to optimize applied water, which may result in a reduction of diversion and, ideally, improved instream water quality. Permittee agrees to implement modified irrigation practices if so informed by the findings of the research.

Tailwater Reduction (Completed and Sustained)

- Permittee repaired and will continue maintaining tailwater berms at the low side of irrigated pastures.
- Permittee agrees to continue to refine irrigation practices that minimize applied water accumulating at the low side of fields.

Participation in reach-wide Diversion Management Plan (Completed)

- Participated in 2016 flow/diversion experiments in Parks Creek to evaluate alternative diversion coordination scenarios.
- Cooperated in McBain and Trush, Big Springs Complex Interim Instream Flow Needs study with access and data.

Upgrade/repair/maintain diversion facilities (Completed and Sustained)

- Ceased using Kettle Springs impoundment and outlet as a drain for the slough to the south.

- Permittee has completed redesign and upgrade of diversion structure at the head of Kettle Springs Creek to 1) provide uninterrupted flow of water from Kettle Springs, 2) preclude fish from swimming into ditches while still being able to irrigate, 3) increase efficiency, allowing more water to be kept instream for summer rearing habitat. Permittee agrees to operate and maintain the structure and pipelines.

E.1.b. Passage/Migration/ Diversion Screening

Research (Completed)

- Conducted for one year and participated in, for several years, spawner surveys for all reaches with suitable spawning habitat.
- Cooperated in more than seven years of CDFW studies of juvenile salmonid population estimates, distribution, and habitat use with direct observations, PIT tag technology, water temperature monitoring, flow monitoring, etc.

Remediation of identified on-site barriers (Completed and Sustained)

- With grant from USFWS Partners in Fish and Wildlife Program, and a match from the NRCS, modified Parks #5 Diversion from a flashboard dam to a roughened channel, eliminating a potential barrier to juvenile Covered Species springtime distribution.
- Permittee cooperated in studies to reconstruct fish migration barrier located upstream of the Enrolled Property (under the I-5 bridge) with closest access through the property and agrees to continue cooperating to completion and for monitoring.

E.1.c. Instream Habitat Complexity

None proposed.

E.1.d. Riparian Function

Riparian Fencing

- Permittee, with matching funding from USFWS Partners in Conservation Program and NFWF, has fenced 60% of Parks Creek, 100% of Kettle Springs Creek, and 80% of Bridge Field Springs Creek to exclude cattle grazing.
- Permittee agrees to maintain riparian fencing.
- Permittee agrees to replace, out-of-pocket, at least 20% of riparian fencing if needed due to high flow damage. Partners for additional funding to replace fencing to 100% will be sought, if necessary.

Crossings on Fish-bearing Stream Reaches (Completed and Sustained)

- Permittee has limited cattle and vehicle fording across Parks Creek and tributaries to four vehicle/stock crossings and three stock only crossings.
- Permittee agrees to maintain crossings and cap the number of livestock and vehicle access points to current number.

Off-Channel Stock Watering (Completed)

- Permittee realigned fencing to water cattle off-channel in pastures west of Parks Creek in Section 5.

Beaver management (Completed)

- No beaver-created fish passage barriers yet detected.
- Beaver-exclusion cages were added to riparian plantings at Parks #5 Fish Passage Improvement Project.

Riparian Habitat

- Included woody riparian planting with Parks #5 Fish Passage Improvement Project, including re-alignment of exclusion fence at Permittee's expense.
- Permittee agrees to monitor survival of plantings at Parks #5 and replace any damaged tree protection until cuttings are established.
- Included woody riparian planting with Kettle Springs Improvement Project.

E.1.e Substrate Quality

Spawning Substrate (Completed)

- Cooperated in McBain and Trush study (McBain & Trush, et al., 2010) by allowing access for evaluation of gravel composition and quality.

Riparian function measures, See Section E.1.d., above.

Sediment/Turbidity (Completed and Sustained)

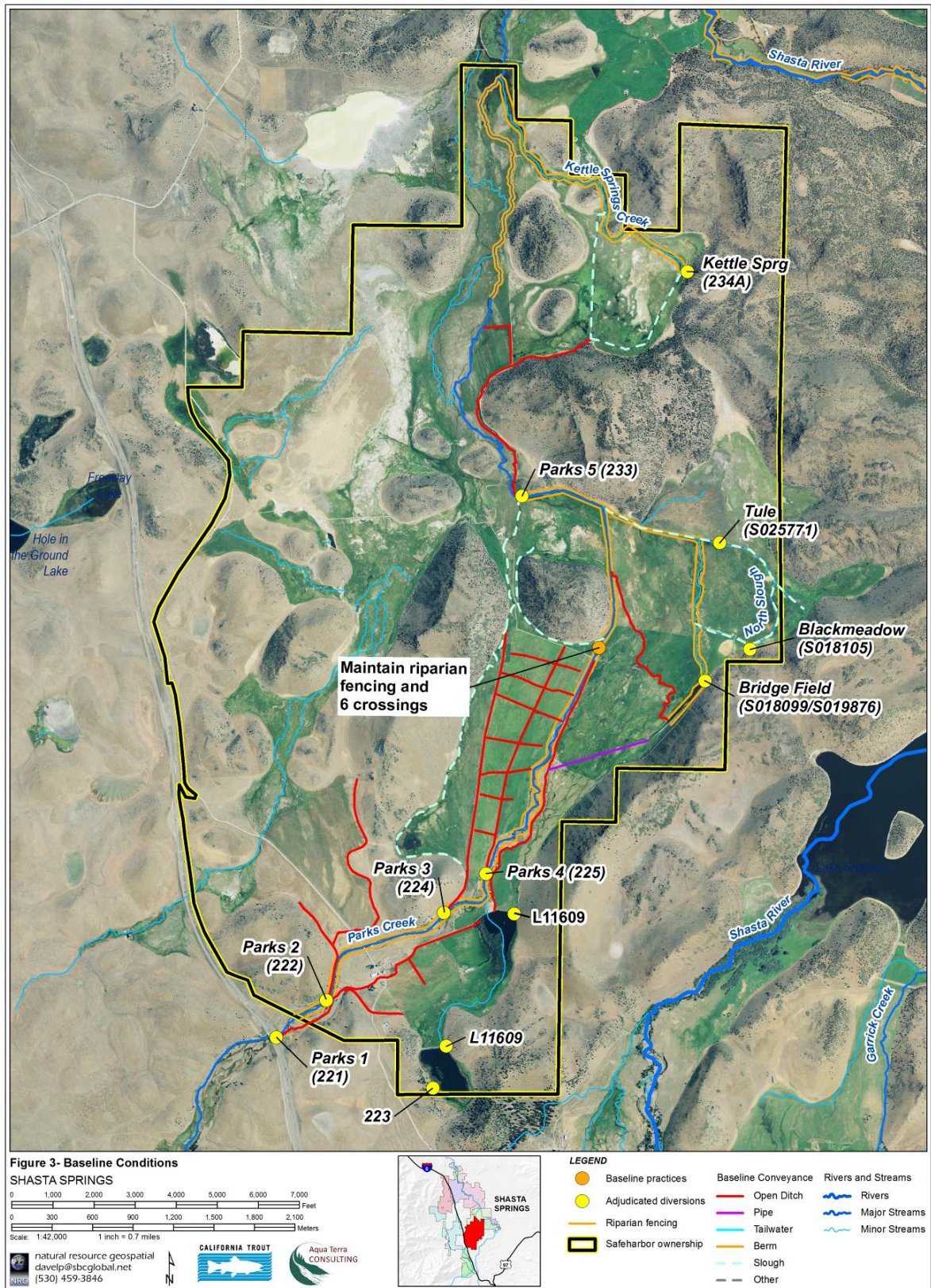
- Riparian function measures, See Section E.1.d., above Tailwater.
- Reduction measures, See Section E.1.a., above.

E.1.f. Pasture Management

Pasture Grazing Management

- Fall calving producing calves big enough to fully utilize upland, seasonal range, comprising more than half of the Enrolled Property.
- Rotation and stocking rates in irrigated and non-irrigated pasture managed to maintain optimum forage cover and heights based on water year type.

Figure 3-Shasta Springs Ranch: Baseline Conditions



E.2 Actions Required to Achieve Elevated Baseline Conditions

This section and Figure 4 details the actions required to achieve and maintain Elevated Baseline Conditions. This includes any Covered Activities that will be implemented and maintained on the Enrolled Property during the term of the Agreement to improve unsuitable habitat conditions for the Covered Species.

E.2.a. Hydrology/Water Quality

Increased delivery and irrigation efficiencies

See Section E.3.a., below.

Tailwater Reduction

- Permittee agrees to conduct an evaluation of water quality conditions in and in the vicinity of the road crossing over Kettle Springs Creek to identify and eliminate any man- made variables contributing to elevated temperatures observed in this stream segment in past studies. Time Frame: Study will be completed within 2 years of permit issuance. Solutions for management-induced variables will be sought concurrently with findings and implemented within five years of permit issuance.
- Permittee agrees to construct and maintain enhanced tailwater berms to eliminate tailwater returning as warm surface flow to Kettle Springs Creek, if applicable. Time Frame: Within 2 years of permit issuance.

Soil Moisture Monitoring Program

See Section E.3.a., below.

Participation in reach-wide Diversion Management Plans

See Section E.3.a., below.

Upgrade/repair/maintain diversion facilities

See Section E.3.a., below.

Diversion relocation/combination

See Section E.3.a., below.

E.2.b. Passage/Migration/ Diversion Screening

Remediation of identified on-site barriers See Section E.3.d. “Beaver Management”, below.

Diversion Screening See Section E.3.b., below.

Remediation of identified on-site barriers See Section E.3.c. “Beaver Management”, below.

Diversion Screening

- With acquisition of funding, Permittee agrees to upgrade remaining POD to current fish passage and screening standards, post-evaluation that will be part of Mid-Parks', East Side Pastures and Spring Channels Renovation Project, proposed. See Section E.3.

E.2.c. Instream Habitat Complexity

None proposed.

E.2.d. Riparian Function

Prescribed Riparian Grazing Intensity/Frequency

- Permittee agrees to implement the riparian grazing plan developed in conjunction with UCCE Range Specialists for riparian pastures along Parks Creek in and upstream of the Wheatgrass Field. See Attachment: Tate and Rivers, 2016 Time Frame: Within 2 years of permit issuance.
- Permittee agrees to implement the riparian grazing plan developed in conjunction with UCCE Range Specialists for riparian zone inside the corridor fencing along Parks Creek between the Lake Field and the North Slough. See Attachment: Tate and Rivers, 2016 Time Frame: Within 2 years of permit issuance.

Beaver management - See Section E.3.d., below.

Riparian Habitat - See Section E.3.d., below.

Channel Structure Improvement (e.g., instream LWD additions)

See Section E.3.d, below

E.2.e Substrate Quality

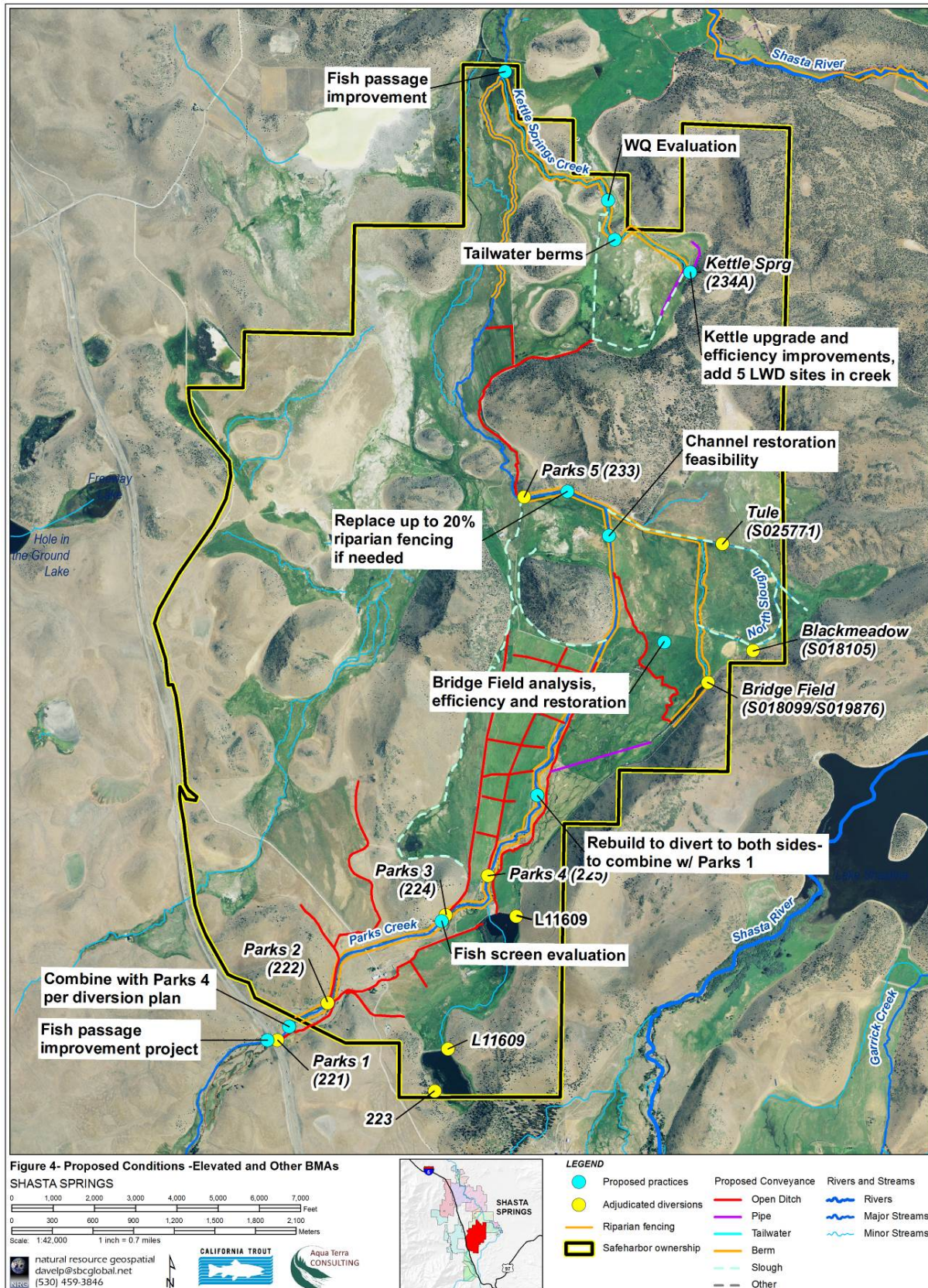
Providing access to potential augmentation projects

See Section E.3.e., below.

Beaver management to promote floodplain function

See “Riparian Function/Channel Structure: Beaver Management,” Section E.3.d, below.

Figure 4- Proposed Conditions



E.3 Other Beneficial Management Activities

This section summarizes any other Beneficial Management Activities that will be implemented and maintained during the term of the Agreement to improve habitat conditions for the Covered Species.

Many of the Beneficial Management Activities proposed in the following sub-sections, are components of a larger project called, for now, the “Mid-Parks Creek, East Side Pastures and Spring Channels Renovation Evaluation Project” (Mid-Parks Creek Project, henceforth). While there are a number of projects on the Enrolled Property, referenced below, the complexity of this Project warrants an additional account of the setting and scope, which is the purpose of the following paragraphs.

The geographic vicinity of this project is a sub-reach of Mid-Parks Creek from the meanders alongside the Olms Field (*referencing Figure 2, about 0.5 mile downstream, or North, of POD Parks #4*) through to the confluence of the North Slough, and continuing downstream to POD Parks #5. The Parks Creek channel through this subsection may have been altered by past owners to improve drainage and control flood events, at some un-quantified cost to stream ecology. All life stages of the Covered Species have been documented using this reach, including summer rearing in at least one year with a wet to very wet hydrograph. Using elevations from USGS 1:24000 topographic models, the slope averages less than 0.25% through this sub-reach. Bed material, including potential spawning gravels, are often carried out of the channel by high flow events and deposited on the pastures bordering Parks Creek.

On the other side of the pastures, east of the stream, numerous springs and seeps emerge, on and off the property, at the interface of the block and matrix geologies of the Pleistocene Debris Flow Deposits which underlie the Enrolled Property (Davids Engineering, 2011). Generally the drainage away from these sources is north-northwesterly, with very flat slopes, similar to the Parks Creek channel. Past owners have made modifications to improve the drainage and ability to use flood irrigation to distribute water across the pastures. The Permittee has added infrastructure to improve the efficiency of the irrigation but maintenance of the distribution ditches and sloughs to keep water flowing is a significantly labor intensive task and leads to loss of productivity. The significant spring sources are on a contour with or downslope of a third of the pasture acreage on the east side of Parks Creek as well as the reach of Parks Creek that is documented as providing some summer rearing habitat.

Based on past experiences, e.g. the Kettle Springs Improvement Project, the Permittee believes there is the potential to improve habitat for the Covered Species while realizing an increase, or minimal net loss, in productivity of the pastures. In order to evaluate this potential for the Mid-Parks Creek reach through the Enrolled Property, the Permittee agrees to participate in the Mid-Parks Creek, East Side Pastures and Spring Channels Renovation Evaluation Project (Mid-Parks Creek Project, henceforth).

This will be a joint undertaking with NMFS and CDFW to define and evaluate alternatives, i.e., a feasibility study, for improving irrigation reliability and efficiency

while increasing available instream habitat (cold water and habitat complexity) for especially summer rearing but also adult spawning coho and steelhead. Consideration will be given for the opportunity to improve Chinook habitat but that will not be the focus of the project.

During an interim period of five years during which the feasibility study will be conducted, the Permittee agrees to bypass (leave instream) at least one cfs of flow from Bridge Field Springs, leaving additional interim flows instream, if feasible.

When the results of the feasibility study are completed (5 years), one of two potential outcomes is anticipated. The study may identify projects that successfully achieve all of the stated goals of the Mid- Parks Creek Project. In this case the Permittee will work collaboratively with the NMFS and CDFW to commit to implementation of the study recommendations. Alternatively, the results of the study may find that satisfactory improvement of the stream channel and floodplain cannot occur without adversely impacting current levels of pasture productivity. In this second scenario, the Permittee will expect to meet and confer with the NMFS and CDFW to seek alternative solutions that would provide benefits for the Covered Species and provide an acceptable level of pasture production for the Permittee. At a minimum (to quantify conservation benefits), existing diversions will be brought up to passage and screening standards.

To summarize the Mid-Parks Creek Project Goals:

- 1) Increase the volume of self-sustaining, complex instream habitat for salmonids in Mid-Parks Creek reach and/or unnamed spring channels, including but not limited to safe passage at irrigation diversions in spring channels. The latter would be considered as part of “elevated baseline”;
- 2) Increase the reliability and quality of spring water inflow into Parks Creek from springs east of Parks Creek in the Mid-Parks Creek reach;
- 3) Increase the productivity of the pastures east of Parks Creek on the Enrolled Property through improved reliability of water and efficiency of irrigation;
- 4) Increase channel and floodplain function, minimize Permittee emergency actions to protect property, and reduce overall maintenance during flood flows and the aftermath.

Actions:

- 1) Permittee agrees to collaborate with NMFS and CDFW on a feasibility study, to be completed in five years from permit issuance.
- 2) Permittee agrees to bypass at least 1 cfs of Bridge Field Springs for the interim period of five years from permit issuance, for the feasibility study. Permittee will also assess and, to the extent feasible, provide quantifiable additional (above irrigation demand) spring flows in this period.
- 3) Permittee agrees to work collaboratively with the NMFS and CDFW to commit to implementation of the study recommendations, if the above goals can be satisfactorily accomplished, per the findings of the feasibility study.

- 4) Failing to find satisfactory achievement of the above goals at conclusion of feasibility study, Permittee agrees to meet and confer with NMFS and CDFW to seek alternative solutions to provide net conservation benefits for the Covered Species.

E.3.a. Hydrology/Water Quality

Increased delivery and irrigation efficiencies

- Assuming acquisition of additional funding for evaluation, design, permits, and construction, Permittee will reconstruct, operate, and maintain Parks #4 Diversion to supply irrigation to fields on both sides of Parks Creek (Figure 5). Fields on the east side of the creek are currently irrigated by diverting at Parks #1. Between ditch loss savings (of an undetermined quantity) and flow bypassed between Parks #1 and #4, stream habitat quality could benefit significantly, especially during the critical spring time-frame for smolt migration and juvenile Covered Species and steelhead redistribution. Critical riffles, for emigration of smolts and redistribution of fry, in and between the upper and middle reaches of Parks Creek lie between Parks #1 and Parks #4 PODs. There is currently only one diversion opportunity for eastside pastures in this vicinity, thus there are limited options for assuring both irrigation demand and fish passage requirements are met. With a project to reconstruct the diversion at the location of Parks #4 to supply irrigation water to both sides of the stream, as historically existed, flow could be bypassed at Parks #1 when water volume and temperature requirements are optimum for salmonid passage through the critical riffles. As flows and water quality diminish in late spring and early summer, typical of snowmelt streams such as Parks Creek, irrigation demand could be taken at either or both POD, mimicking seasonal change in instream aquatic conditions and responding to seasonal increases in crop and stock water demand. Time Frame: Within 5 years of permit issuance.
- Permittee agrees to take part in the Mid-Parks Creek Project (Figure 5). See account at start of Section E.3. Time Frame: Within 5 years of permit issuance for feasibility study; Implementation or “Meet and Confer” subsequent to study, based on study results.

Soil Moisture Monitoring Program

- Permittee agrees to include additional Enrolled Property pastures in Project Area for testing effectiveness of soil moisture sensor technology to increase irrigation efficiency, implement routine use where appropriate, and adjust irrigation management accordingly.

Participation in Parks Creek Diversion/Flow Management Plan

- Permittee agrees to continue taking part in Parks Creek Diversion Management Strategy with forbearance agreement to bypass (leave instream) water coming from participants in Upper Parks Creek reach. Time Frame: For duration of permit issuance.

- Permittee agrees to bypass ≥ 1 cfs of Bridge Field Springs water for a five-year interim period while feasibility study for Mid-Parks Creek Project is being conducted.

Upgrade/repair/maintain diversion facilities

- See above, “Increased delivery and irrigation efficiencies”, for project to restore the capacity of Parks #4 diversion (Figure 5). This is restoring diversion capacity to use Parks #4 in the spring on either or both sides of Parks Creek, thereby contributing to the diversion alternatives in the flow management strategy to improve instream flows for smolt emigration and juvenile redistribution. Time Frame: Within 5 years of permit issuance.

Diversion relocation/combination

- See above, regarding Parks #4 POD (Figure 5). Time Frame: Within 5 years of permit issuance.

Forbearance Agreement

- Permittee agrees to enter into Forbearance Agreement with SWCG members for the purpose of improving habitat for Covered Species.

E.3.b. Passage/Migration/ Diversion Screening

Remediation of identified on-site barriers

- Permittee agrees to conduct water quality investigation of Bridge Field Springs Creek and the North Slough to evaluate limitations to improving summer rearing conditions for juvenile salmonids. Time Frame: Within 2 years of permit issuance.
- Also See Section E.3.d. “Beaver Management”, below.

Diversion Screening

- Permittee agrees to evaluate alternatives for screen placement at Parks #3 diversion (Figure 2). Existing screen and fish bypass are functioning but further down-ditch than current guidelines recommend. Assuming an improved design can be developed and funded, Permittee agrees to implement upgrade. Time Frame: funding for design and implementation will be sought within 5 years of permit issuance.
- Permittee agrees to continue cooperating in project to remediate fish migration barrier located upstream of the Enrolled Property (under the I-5 Bridge).

E.3.c. Instream Habitat Complexity

None proposed.

E.3.d. Riparian Function

Riparian Fencing

- Shasta Springs Ranch will temporarily or permanently fence the Wheat Field pasture, if necessary, to achieve the stated management goals. These goals include reducing bare streambank, enhancing Salix, Juncus, and Carex species, as well as other native trees and shrubs. The purpose of these measures is to increase cover and vigor at the stream's greenline, in the short-term, and enhance streambank stability. These measures are also intended to reduce stream channel width to depth ratio, and improve instream habitat conditions in the long-term.

Beaver management

- Permittee agrees to create a management plan to, at a minimum, not deter dam building beaver activity except where it damages infrastructure, e.g. impairs irrigation control structures, inundates crossings, etc. When necessary, Permittee will work in conjunction with fisheries management personnel to physically breach dams during smolt outmigration, juvenile redistribution, and/or adult spawning periods, generally April to mid-June and November to January or provide alternate passage opportunities through or around the beaver dams. Time Frame: Within 5 years of permit issuance.

Riparian Habitat

- Permittee agrees to take part in riparian planting projects where existing riparian habitat is less than site-potential along Parks Creek. No sites are currently planned however it is expected that sites will be identified as an outcome of Mid-Parks Creek Project.
- Post-alteration of diversion at W122.44445, 41.56325, Cardoza's POD, agree to work collaboratively with NMFS and CDFW on riparian enhancement projects in lower Mid-Parks Creek Time Frame: within 5 years, post-completion of POD change.

Riparian management (e.g., promote aquatic vegetation growth)

- No activities are proposed except potentially as an outcome of Mid-Parks Creek Project.

Channel Structure Improvement (e.g., instream LWD additions)

- No activities are proposed except potentially as an outcome of Mid-Parks Creek Project.

E.3.e Substrate Quality

Providing access to potential augmentation projects

- No activities are proposed except potentially as an outcome of Mid-Parks Creek Project.

Sediment/Turbidity - See "Hydrology/Water Quality: Tailwater Reduction," Section E.2.a., above.

Floodplain Function - Identification of potential floodplain habitat sites

- No activities are proposed except potentially as an outcome of Mid-Parks Creek Project.

Beaver management to promote floodplain function

- See “*Riparian Function/Channel Structure: Beaver Management,*” Section E.3.d., above.

F. Effective Date and Duration of the Site Plan Agreement and Agreement

The Agreement, Site Plan Agreement, and ESP take effect when signed by the Permittee, NMFS, and CDFW. The Agreement, Site Plan Agreement, and ESP have a term of 20 years, which may be extended by mutual written consent of the Permittee, NMFS, and CDFW. One (1) year prior to end of term of the Agreement, Site Plan Agreement, and ESP, the Permittee, NMFS, and CDFW will meet to decide whether to extend the term of the Agreement, Site Plan Agreement, and ESP.

G. Monitoring and Reporting

AMMs are intended to minimize or reduce potential adverse impacts that may occur during implementation of BMAs or Routine Agricultural Activities. The Permittee commits to implement the AMMs and associated monitoring protocols listed in Table G1 below and as described in Appendix 3 of the Agreement.

Implementation monitoring includes those monitoring tasks associated with construction and implementation of BMAs (e.g. construction of habitat restoration projects) and associated AMMs. Implementation monitoring of BMAs serves to verify that habitat restoration projects are constructed as designed and/or managed as intended. The Permittee commits to monitoring actions as summarized in Table G2. Permittee also commits to all relevant AMMs included in Appendix 3 of the Agreement related to the implementation of the BMAs identified in Section E above.

AMM and implementation monitoring will be conducted by the Permittee, the SWCG, or a contractor and included in the annual report.

G.1 Avoidance and Minimization Measures Monitoring

Routine Agricultural Activity	Shasta Springs Ranch - AMM (See Appendix 3 of Agreement for full description)	AMM Monitoring Technique
Irrigation Management	A1 A2 A3 A4 A5	All maintenance of instream diversion structures shall be monitored as follows: - Log of what in-water work had occurred and what minimization measures were implemented will be included in the annual report - When construction or repair work is being done, Photo Point Monitoring will be completed in accordance with Appendix 3 of Agreement.
Irrigation Maintenance	B1 B2 B3 B4 B5 B6 B7 B8	All maintenance of instream irrigation facilities shall be monitored. Following are some examples of protocols: - Log of maintenance activities carried out within the calendar year is included in the annual report.
Riparian Grazing Management	C1 C2 C3	Riparian grazing management shall be monitored as follows: - Three to five permanent photo point stations will be established and marked at locations within each riparian pasture designed to show both vegetation changes before and after seasonal grazing activities, and long-term trends. Photo Point Monitoring will be completed in accordance with Appendix 3 of Agreement. Digital photographs will be taken at each photo point station once per year for trend monitoring, and before and after riparian pasture grazing takes place for annual implementation reporting. - Maintain a log of grazing activities carried out within the calendar year and include in the annual monitoring report. At a minimum, the log will include the following information: beginning and end dates of riparian pasture grazing; number of animals, monitoring practices during the riparian grazing period, and management actions taken as a result of monitoring results including management cues used to determine the time to move livestock out of the riparian pasture. - NMFS and CDFW may initiate periodic inspection of grazed riparian pastures to ensure riparian grazing management plan is effective.

Fence Maintenance	D1 D2	- A short description of fence maintenance activities will be included in the annual report.
Road Maintenance	E1 E2 E3 E4	- A short description of annual road maintenance activities will be included in the annual report.
Crossing Maintenance	F1 F2	- When work is being done, photo point monitoring will be completed in accordance with Appendix 3 of the Agreement.
Herbicide/Fertilizer/Pesticide Use	G1 G2 G3 G4 G5	- Permittee commits to log use of herbicide, fertilizer and pesticide activities carried out within the calendar year is included in the annual report.
Flood Repair	H1 H2	- Permittee shall take photographs of the emergency site repairs and a detailed description of the repairs to be included in the annual report.

G.2 Implementation and Effectiveness Monitoring Commitments

Habitat Parameter	Shasta Springs Ranch – Beneficial Management Activity	Implementation Monitoring Technique	Effectiveness Monitoring Commitment/Technique
Hydrology/Water Quality	<p>Permittee agrees to conduct evaluation of water quality conditions in and in the vicinity of the road crossing over Kettle Springs Creek (Section E.2.a.) Time Frame: Within 2 years of permit issuance</p> <p>No sites are currently planned for developing alternative stock water supply, water storage or tailwater capture, however sites may be identified as an outcome of Mid-Parks', East Side Pastures and Spring Channels Renovation Project, proposed. (Section E.3)</p> <p>Time Frame: Within 5 years of ESP issuance</p>	<p>Three to five photo points will be established before and upon completion of project, using Agreement photo monitoring protocol described in the “Covered Activities and Avoidance and Minimization Measures” document</p> <p>report of study will be written/obtained and summarized/provided in the annual report</p>	<p>Reasonable access for monitoring salmonid use of created/restored habitat</p> <p>Time Frame: until use is established; Adaptive Management Monitoring of, e.g. distribution, is addressed elsewhere</p>

Habitat Parameter	Shasta Springs Ranch – Beneficial Management Activity	Implementation Monitoring Technique	Effectiveness Monitoring Commitment/Technique
<p>Passage/Migration/ Screening</p>	<p>Assuming acquisition of funding, Permittee agrees to upgrade remaining flashboard dam POD to current fish passage standards, post-evaluation that will be part of Mid-Parks’, East Side Pastures and Spring Channels Renovation Project Proposal. E.2.c. Time frame: within 10 years of ESP issuance</p> <p>With additional funding, Permittee will reconstruct Parks #4 POD to facilitate Parks Creek Diversion/Flow Strategy to increase suitable instream habitat, especially for emigrating juvenile salmonids. E.3.a Time frame: within 5 years of permit issuance</p> <p>Permittee agrees to conduct water quality investigation of Bridge Field Springs Creek and the North Slough to evaluate limitations to improving summer rearing conditions for juvenile salmonids. (Section E.3.a.) Time Frame: Within 2 years of permit issuance</p> <p>Permittee agrees to evaluate alternatives for screen placement at Parks #3 diversion (Figure 3). Time Frame: Within 5 years of permit issuance.</p>	<p>Summary or reports of studies will be written/obtained and summarized/provided in the annual report</p> <p>Three to five photo points will be established, before and upon completion of project, using Agreement photo monitoring protocol described in the “Covered Activities and Avoidance and Minimization Measures” document</p>	

Habitat Parameter	Shasta Springs Ranch – Beneficial Management Activity	Implementation Monitoring Technique	Effectiveness Monitoring Commitment/Technique
Instream Habitat Complexity	<p>No additional sites are currently planned however it is expected that sites will be identified as an outcome of Mid Parks’ East Side Pastures and Spring Channels Renovation Project, proposed. See ‘Channel Structure’ E.3.d.</p> <p>Agree to develop and implement beaver management plan. Time frame: within 5 years of ESP issuance</p>	<p>One to two photo points per LWD structure and per gravel placement site will be established, before and upon completion of project, using Agreement photo monitoring protocol described in the ‘Covered Activities and Avoidance and Minimization Measures’ document</p> <p>Completed plan to include parameters for seasonal dam monitoring for fish passage, dam removal or modification when necessary, variables to reported in annual report</p>	<p>Reasonable access for maintenance of stream gage(s), <i>Time frame: duration of Agreement</i></p> <p>Reasonable access for monitoring salmonid use of LWD. <i>Time frame, until use is established, Adaptive Management Monitoring of e.g., distribution, is addressed elsewhere</i></p>
Riparian Conditions	<p>Permittee agrees to implement the riparian grazing plan developed in conjunction with UCCE Range Specialists for existing riparian pastures along Parks Creek (Attachment: Tate and Rivers, 2016) Time Frame: Within 2 years of ESP issuance</p> <p>No additional sites for bioengineering or restoration projects are currently planned however sites may be identified as an outcome of Mid-Parks', East Side Pastures and Spring Channels Renovation Project, proposed. (Section E.3.d.) Time Frame: Within 5 years of permit issuance</p>	<p>Three to five photo points will be established.</p> <p>Photos will be recorded annually for first five years of implementation of plan, as proposed. If changes are made through the Adaptive Management process, photos will be recorded annually for five years after any changes.</p> <p>If plan is unchanged after five years, photos will be taken every five years thereafter, or until any changes occur. Points will be established using Agreement photo monitoring protocol described in the “Covered Activities and Avoidance and Minimization Measures” document</p> <p>Three to five photo points will be established, before and upon completion of discrete projects. Points will be established using Agreement photo monitoring protocol described in the “Covered Activities and Avoidance and Minimization Measures” document.</p>	<p>Reasonable access for monitoring salmonid use of created/restored habitat</p> <p><i>Time Frame: until use is established; Adaptive Management Monitoring of, e.g. distribution, is addressed elsewhere</i></p>

Habitat Parameter	Shasta Springs Ranch – Beneficial Management Activity	Implementation Monitoring Technique	Effectiveness Monitoring Commitment/Technique
Assessment/Studies	Permittee agrees to provide access and collaborate with CDFW & NMFS to conduct new, innovative studies of salmonids in the Parks Creek. on the Enrolled Property	Reports of studies will be written, summarized, and/or obtained and provided in the annual report, consistent with author permission	
Supplementations	The Permittee will allow access for salmonid supplementation as described in Section E.3.h.		Allow access to monitoring supplementation activities

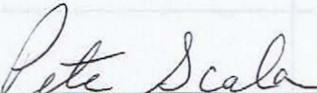
H. Annual Report and Adaptive Management

The Permittee will complete an annual report, yearly and report as stipulated in the Agreement.


I. Regulatory Assurances

Upon execution of the Agreement and this Site Plan Agreement and the satisfaction of all other applicable legal requirements, NMFS will issue a permit under section 10(a)(1)(A) of the ESA to assure that the Permittee may incidentally take Covered Species, in accordance with the Site Plan Agreement and Agreement, as a result of implementing the Covered Activities described in this Site Plan Agreement, and except where such activities would result in the diminishment or non-achievement of the Baseline and/or Elevated Baseline Conditions established for the Enrolled Property. This assurance depends on the Permittee maintaining the Baseline Conditions and/or achieving the Elevated Baseline Conditions set forth in the Site Plan Agreement, complying fully with the Agreement and the Site Plan Agreement, and so long as the continuation of Covered Activities would not be likely to result in jeopardy to Covered Species or the adverse modification or destruction of their designated critical habitat. NMFS provides no assurances with regard to any action that may affect species not covered under the Agreement, including the take of non-covered species and the adverse modification or destruction of their designated critical habitat.

J. Signatures, of NMFS, CDFW, and the Permittee


Shasta Springs Ranch

11-20-2020
Date

 for
Barry A. Thom
Regional Administrator
NOAA's National Marine Fisheries Service
West Coast Region

February 25, 2021
Date

SEPARATE SIGNATURE BLOCK FOR CDFW:

By signing the Agreement and this Site Plan Agreement CDFW expresses its expectation that the Agreement along with a Permittee's Site Plan Agreement signed by NMFS and the NMFS ESP, could meet the requirements of section 2089.22 of the California Fish and Game Code with respect to the Enrolled Property described in the Site Plan Agreement. However, CDFW will not make such determination until reviewing that Site Plan Agreement signed by NMFS and the NMFS ESP.

California Department of Fish and Wildlife

Date

Appendix A - Legal Deeds

<p>RECORDING REQUESTED BY</p> <p style="text-align: center;">REDDING TITLE COMPANY</p> <p>And When Recorded Mail This Deed and, Unless Otherwise Shown Below, Mail Tax Statements To:</p> <p>NAME Emmerson Investments, Inc. STREET ADDRESS P.O. Box 496028 CITY Redding, CA 96049-6028 STATE ZIP </p> <p>Title Order No. _____ Escrow No. <u>64522</u> -RHC</p>	<p style="text-align: center;">RECORDED AT REQUEST OF Stewart Title Co.</p> <hr/> <p style="text-align: center;">OFFICIAL RECORDS SISKIYOU COUNTY, CALIF.</p> <p style="text-align: center;">FEB 7 1 39 PM '94 94001785 <i>David M. C. [Signature]</i> \$14.00</p> <p style="text-align: center;">SPACE ABOVE THIS LINE FOR RECORDER'S USE</p>
<div style="border: 1px solid black; display: inline-block; padding: 5px 20px;">GRANT DEED</div>	
<p>The undersigned grantor(s) declare(s):</p> <p>Documentary transfer tax is \$ <u>Section 11934</u> R & T Code</p> <p>(<input checked="" type="checkbox"/>) computed on full value of property conveyed, or</p> <p>(<input type="checkbox"/>) computed on full value less value of liens and encumbrances remaining at time of sale.</p> <p style="text-align: center;">FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,</p> <p>Mt. Shasta Beef, Inc., a California corporation</p> <p>hereby GRANT(S) to</p> <p>Emmerson Investments, Inc., a California corporation</p> <p>the following described real property in the unincorporated area county of Siskiyou , state of California:</p> <p style="text-align: center;">SEE DESCRIPTION ATTACHED HERETO AND MADE A PART HEREOF.</p>	
<p>Dated <u>January 26, 1994</u></p> <p>STATE OF CALIFORNIA SS. COUNTY OF _____</p> <p>On _____ before me, the under- signed, a Notary Public in and for said County and State, personally appeared _____</p> <p>_____</p> <p>known to me or proved to me on the basis of satisfactory evidence, to be the person _____ whose name _____ subscribed to the within instrument and acknowledged that _____ executed the same.</p> <p>_____</p> <p style="text-align: center;">Name (Typed or Printed) Notary Public in and for Said County and State</p>	<p>MT. SHASTA BEEF, INC., A CALIFORNIA CORPORATION</p> <p>By: <u><i>[Signature]</i></u> (Pres)</p> <p>By: <u><i>[Signature]</i></u> (Sec)</p> <p>_____</p> <p>_____</p> <p style="text-align: center;">(Space above for official notarial seal)</p>

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE; IF NO PARTY SO SHOWN, MAIL AS DIRECTED ABOVE

Name	Street Address	City & State
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Form No. 2956

Order No. 64522

94001785

DESCRIPTION

IN TOWNSHIP 42 NORTH, RANGE 5 WEST, M.D.M.:

Section 4:

The Northwest one-quarter, the West one-half of the Northeast one-quarter and the Northwest one-quarter of the Southwest one-quarter.
AP# 20-080-30

All Section 5.
AP# 20-080-03

Section 6:

Lots numbered 1 and 2 of the Northeast one-quarter; the Southeast one-quarter; the East one-half of the Southwest one-quarter.

All that portion of the Northwest one-quarter and the Northwest one-quarter of the Southwest one-quarter, lying Easterly of the Easterly line of State Highway Interstate No. 5 described in the Deed recorded August 4, 1966 in Book 532 of Official Records of Siskiyou County, at Page 284.
AP#'s 20-080-21, 20-080-22 and Portion 20-080-18

Section 7:

The Northwest one-quarter.

EXCEPTING THEREFROM all that portion of the Northwest one-quarter of Section 7, Township 42 North, Range 5 West, M.D.M., lying Westerly of the Easterly line of State Highway Interstate No. 5 as described in the Deed recorded July 20, 1966 in Book 531 of Official Records of Siskiyou County, at Page 725.

All of the Northeast one-quarter and that portion of the North one-half of the Southeast one-quarter, lying Northerly of the line described as follows:

BEGINNING at the Southeast corner of said North one-half of the Southeast one-quarter; thence Northwesterly, 3000 feet, more or less, to the Point of Termination of this line on the Southwest corner of said Northeast one-quarter of Section 7.

EXCEPTING THEREFROM that portion thereof conveyed to the State of California by the Deed recorded April 22, 1966 in Book 528 of Official Records of Siskiyou County, at Page 860.
AP# 20-080-27 and Portion 20-080-18
CONTINUED

ORDER NO. 64522

94001785

DESCRIPTION CONTINUED:

Section 8:

The North one-half; the Southeast one-quarter; the East one-half of the Southwest one-quarter and the Northwest one-quarter of the Southwest one-quarter.
AP# 20-080-09

IN TOWNSHIP 43 NORTH, RANGE 5 WEST, M.D.M.:

Section 20:

The Southeast one-quarter and the Southwest one-quarter of the Northeast one-quarter.
Portion AP# 20-030-07

Section 21:

The Southeast one-quarter and the Southwest one-quarter of the Southwest one-quarter.
AP# 20-030-09 and Portion 20-060-07

All Section 28.
AP# 20-060-06

Section 29:

The East one-half; the East one-half of the Southwest one-quarter; and the Southeast one-quarter of the Northwest one-quarter.

The Northeast one-quarter of the Northwest one-quarter and the West one-half of the West one-half.
AP#'s 20-060-05 and Portion 20-060-04

Section 30:

The Southeast one-quarter.

All that portion of the Southeast one-quarter of the Southwest one-quarter, lying Easterly of the County Road known as Slough Road.
Portion AP# 20-060-04

Section 31:

The East one-half and all that portion of the East one-half of the West one-half and the West one-half of the Southwest one-quarter, lying Easterly of the County Road known as Slough Road.
AP# 20-060-08

CONTINUED

94001785

DESCRIPTION CONTINUED:

Section 32:

The Northeast one-quarter and the East one-half of the Southeast one-quarter.

The West one-half of the Southeast one-quarter and the West one-half.
AP#'s 20-060-10 and 20-060-09All Section 33.
AP# 20-060-11

TOGETHER WITH a non-exclusive easement for road purposes over and across that certain real property in the County of Siskiyou, State of California, described as:

That portion of the North half of the Southeast quarter of Section 7, Township 42 North, Range 5 West, M.D.M., lying within a strip 20.00 feet in width, centerline of said strip being described as follows:

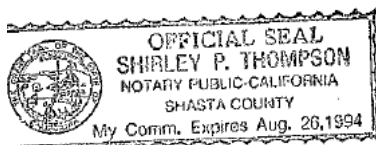
COMMENCING at a point in the center of County Road No. 4L003, locally known as Slough Road, from which the Northwest corner of said Section 7 bears West, 4550 feet; thence along the center of said Slough Road, Southeasterly 2050 feet, more or less, to the center of Parks Creek; thence continuing Southeasterly along the center of said Slough Road, 200 feet; thence parallel with and 200 feet Southeasterly of said Parks Creek, Southwesterly, 2600 feet to the Point of Intersection with a line that bears Northwesterly from the Southeast corner of the North half of the Southeast quarter of said Section 7 to the Southeast corner of the Northwest quarter of said Section 7, being the True Point of Beginning of this centerline; thence continuing parallel with and 200 feet Southeasterly of Parks Creek, Southwesterly, 800 feet, more or less, to the Point of Termination of this centerline on the Easterly line of "Parcel 3" as conveyed to the State of California by the Deed recorded April 22, 1966 in Book 528 of Official Records of Siskiyou County at Page 860, as granted to Jeff Dennis in the Deed recorded on December 28, 1971 in Book 645 of Official Records of Siskiyou County at Page 306.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

No. 5193

State of CALIFORNIACounty of SHASTAOn 2/1/94 before me, SHIRLEY P. THOMPSON, NOTARY PUBLICpersonally appeared GENE DAVIS, PRESIDENT and MASAOKI TANABE, SECRETARY

☐ personally known to me - OR - ☒ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.



WITNESS my hand and official seal.

Shirley P. Thompson
SIGNATURE OF NOTARY

OPTIONAL SECTION

OPTIONAL SECTION
CAPACITY CLAIMED BY SIGNER

Though statute does not require the Notary to fill in the data below, doing so may prove invaluable to persons relying on the document.

☐ INDIVIDUAL
☒ CORPORATE OFFICER(S)
PRESIDENT + SECRETARY

☐ PARTNER(S) ☐ LIMITED
☐ GENERAL
☐ ATTORNEY-IN-FACT
☐ TRUSTEE(S)
☐ GUARDIAN/CONSERVATOR
☐ OTHER: _____

SIGNER IS REPRESENTING:

NAME OF PERSON(S) OR ENTITY(IES)

Appendix B

Riparian Grazing Management Plan

Shasta Springs Ranch

Draft Prescribed Riparian Grazing Management Recommendation

(October 31, 2016) Prepared by

Kenneth W. Tate, Professor and UCCE Rangeland Watershed Specialist,
UC Davis California Certified Rangeland Manager #79; CA Department of
Forestry and Fire Protection Certified Rangeland Professional #00-104;
Society for Range Management

Carissa Koopmann Rivers, Livestock and Natural Resources Advisor, Siskiyou County, UCCE

Riparian Areas on the Ranch

Approximately 6.3 miles of Parks Creek flows through the middle of this ranch (see Figure 2). Parks Creek Reach 1 spans from north end of the ranch (immediately above Cardoza diversion) to the Wheat Field. Some of this reach is flooded by Cardoza diversion. This reach is fenced with permanent wire fence on the west side. This reach is open to grazing by livestock during grazing bouts in the east pasture. The fence is in excellent condition and effective at controlling livestock access to the creek from the west, and acts as an effective deterrent to cattle crossing or entering the creek from the east. The creek is relatively deep with steep banks along this reach which is another deterrent to cattle crossing or entering the creek from the east. This is a low gradient, fine substrate reach with high water table supporting primarily wetland herbaceous species dominated by *Juncus* and *Carex* spp. Noxious weeds are of limited extent in this reach. This reach provides overwintering, early-spring rearing, out-migration, and emigration habitat for salmonids.

Parks Creek Reach 2 (see Figure 6) is contained within the “Wheat Field” pasture. This is a pasture that has been planted in the past to an upland perennial wheatgrass variety. This reach is open to grazing by livestock during grazing bouts in this pasture. Parks Creek is moderately entrenched throughout this reach with a riparian vegetation component occurring just at the stream edge (greenline). Due to relatively steep banks and deep water cattle only cross and enter the reach in a few locations. This reach provides overwintering, early-spring rearing, out-migration, and emigration habitat for salmonids. Noxious weeds are of limited extent in this reach.

Parks Creek Reach 3 is a short, unfenced reach similar to Reach 2 but outside of the Wheat Field.

Parks Creek Reach 4 (Figure 6) is the remainder of Parks Creek through the ranch. This reach is fenced on both sides as a series of management units. Irrigated pastures exist on both sides of this reach throughout most of its length. Noxious weeds and non-native pasture grass species are of concern in this reach. The riparian units along this reach are grazed periodically for vegetation management purposes. This reach provides coho spawning, overwintering, rearing, out-migration, and emigration habitat.

Kettle Springs Creek is narrow-corridor fenced from origin to confluence with Parks Creek to permanently exclude livestock, with two crossings over large CMP, on grade with the channel bottom for livestock, vehicles, and equipment. Stock water is available at off-channel watering sites. This reach provides coho rearing and emigration habitat. North Slough (see Figure 2) is fenced with permanent wire fence on the south side. This reach is open to grazing by livestock during grazing bouts in the north pasture. The fence is in excellent condition and effective at controlling livestock access to the creek from the south (Black Meadow), and acts as an effective deterrent to cattle crossing or entering the creek from the north. The slough is relatively deep with steep banks along this reach – which is another deterrent to cattle crossing or entering the creek from the north. Bridge Field Springs Creek is narrow-corridor fenced to permanently exclude livestock, with one large water gap to allow livestock crossing and drinking water access (see Figure 3).

Riparian Grazing Management Recommendations

Kettle Springs Creek and Bridge Field Creek Riparian Corridors. The ranch owner and managers have made a decision not to graze these riparian corridors with the current fencing configuration and the hazard posed to livestock by the treacherously boggy creek bed – maintaining these units as livestock exclosures. Our recommendation is that managers maintain the riparian corridor fences and water gaps in good working order, and check that the fences are excluding livestock during grazing bouts in adjacent irrigated pastures and rangelands.

Parks Creek Reaches 1 through 3 and North Slough. The conditions we observed along these reaches during our tour of the ranch indicate that ranch owner and managers already have grazing management strategies in place to improve streambank vegetation and habitat conditions within these reaches. Management goals include reducing bare streambank, enhancing *Salix*, *other native trees and shrubs*, *Juncus*, and *Carex* spp. cover and vigor at the stream's greenline. Accomplishing these shorter-term goals will in the longer-term lead to enhanced streambank stability, reduced stream channel width to depth ratio, and improved instream habitat conditions (e.g., cooler temperatures, more hiding cover). These reaches are not considered to be coho spawning habitat. Thus grazing bouts can generally occur in these grazing units at any time during the standard irrigation-growing season (spring through fall). The units should not be grazed season-long. They should be worked into the normal rotation of livestock throughout pastures on the ranch. Rest periods must occur during the growing season (i.e., early, mid, and/or late growing season rest from grazing should occur each year). Management decision triggers described below will ensure grazing intensity (e.g., stocking rate) and livestock impacts are in balance with short and long-term goals listed above. At this time the establishment of fixed, hardened livestock creek crossings or drinking access points is not recommended. Livestock crossing/drinking behavior should be monitored and this recommendation revisited and adapted as needed based upon livestock behavior and extent/intensity of stream channel disturbance. We recommend that the riparian grazing decision triggers and photo monitoring be integrated into the current management strategies for these reaches.

Parks Creek Reach 4 Riparian Grazing Units. The conditions we observed along these reaches during our tour of the ranch indicate that ranch owner and managers already have grazing management strategies in place to improve streambank vegetation and habitat conditions within the riparian management units along this reach. It is highly likely that invasive weeds and pasture grass species are inhibiting native riparian vegetation along much of this reach. Weeds include yellow starthistle (YST), teasel, poison hemlock, and blackberry. There is good reason to expect that prescribed riparian grazing with livestock can reduce the cover and competitive advantage of invasive weeds throughout the riparian corridor – improving odds for native riparian species recruitment.

Management decision triggers described below will ensure grazing intensity (e.g., stocking rate) and livestock impacts are in balance with short and long-term goals listed above. This reach provides coho spawning habitat, so the timing of grazing should be restricted to 1) May 1 – October 31; or 2) when Parks Creek flow is continuous throughout the Mid-Parks Reach and regular spawning surveys between November 1 and January 31, at no less than weekly intervals have not detected redds or live coho; or 3) the instream flow at the sub-reach being proposed for grazing does not contain flow sufficient to provide access for adult coho, which must be balanced with optimal timing of grazing for weed management... At this time the establishment of fixed, hardened livestock creek crossings or drinking access points is not recommended. Livestock crossing/drinking behavior should be monitored and this recommendation revisited and adapted as needed based upon livestock behavior and extent/intensity of stream channel disturbance. We recommend that the riparian grazing decision triggers and photo monitoring be integrated into the current management strategies for these reaches.

Recommended Seasons of Grazing and Livestock Management Decision Triggers. Managers must have real- time indicators they can observe directly on the ground to make decisions about the readiness of riparian grazing units for grazing (e.g., sufficient forage for grazing), and when livestock need to be moved from a riparian unit to achieve conservation goals (e.g., excessive browse on recruiting riparian woody plants less than 5ft in height, excessive streambank disturbance, etc.). For this site we recommend during any grazing bout that:

- 1) physical hoof damage to streambanks be limited to no more than 20% of streambank per each side of stream;
- 2) minimum stubble height of browsed herbaceous vegetation at the stream greenline not go below 3 inches; and
- 3) browse on recruiting riparian woody plants (less than 5ft in height – below cattle maximum browse height) be limited to no more than 20% of current year's leader growth within the riparian unit. Once any of these three triggers is hit during a grazing bout, livestock should immediately be rotated out of the riparian unit.

If redds have been determined to be present, livestock may graze within the riparian pasture between November 1 and May 1 if a temporary electric exclusion fence or wire is installed and maintained between the riparian pasture and the stream bank, and provisions are made to supply off-channel stockwater.

Recommended Grazing Monitoring and Documentation. Siskiyou County UCCE and UC Davis will collaborate annually to provide hands-on, in-the-field training on assessing real-time status of the livestock management decision triggers recommended in the section above. We will base this training on standard, national methods developed in the “Multiple Indicator Monitoring (MIM) of Stream Channels and Streamside Vegetation” (<http://www.blm.gov/nstc/library/pdf/MIM.pdf>). We recommend progress towards these management triggers be assessed every 2 to 3 days during all riparian grazing bouts. We recommend, and will provide training on, the establishment of permanent photo monitoring points in the riparian grazing unit. Photos should be taken at the beginning and end of each grazing bout (certainly within the first few years of grazing). Photo points should be established so that riparian woody species, herbaceous stubble height at the stream greenline, and streambank conditions can be clearly observed and thus conditions and outcomes documented. Finally, we recommend that dates on and off, and numbers of livestock by species and class used during each grazing bout be recorded for each riparian grazing unit.

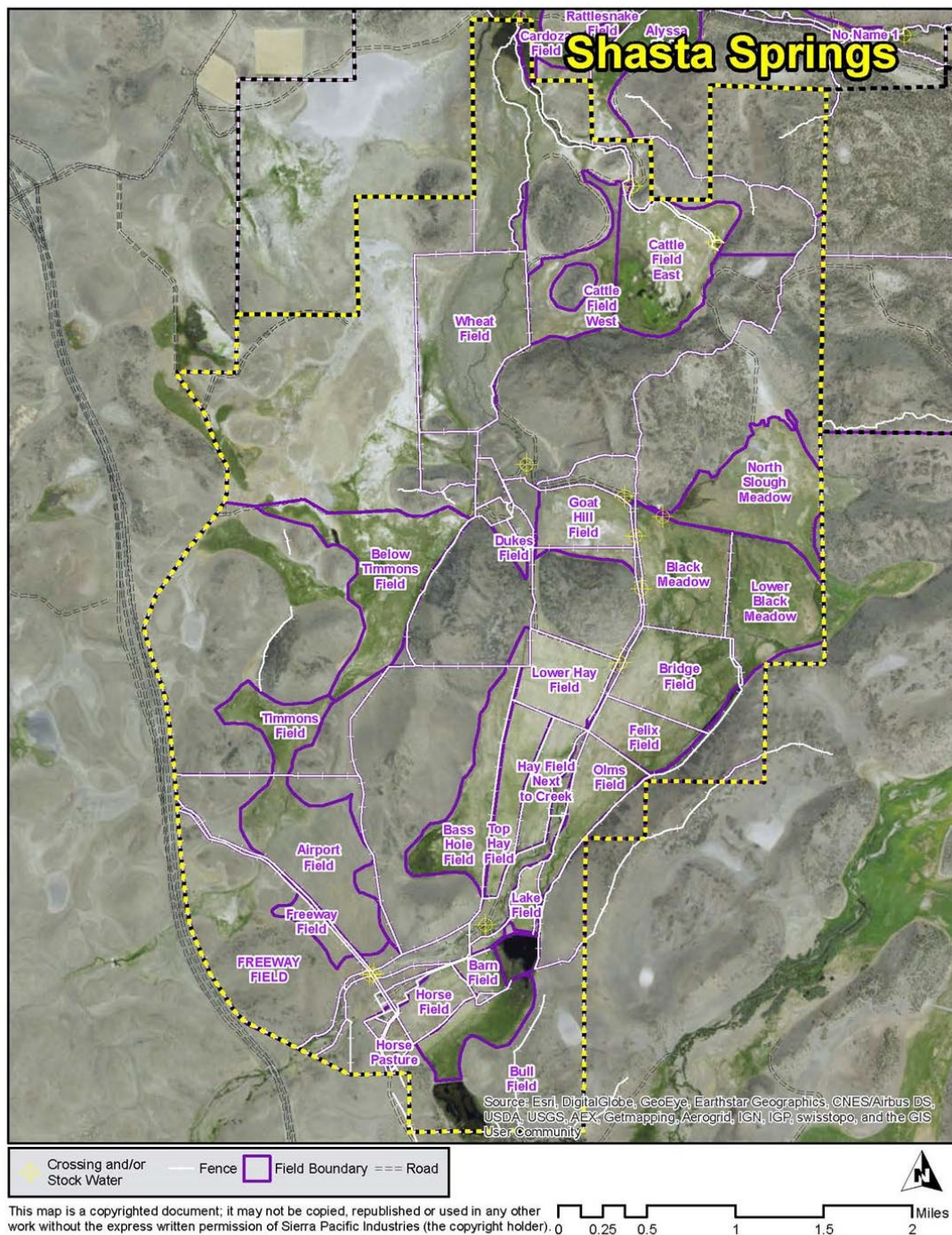


Figure 2- Fields and Fences