

**Cardoza Ranch -Site Plan Agreement between Cardoza Ranch Partnership,
National Marine Fisheries Service (NMFS) and
California Department of Fish and Wildlife (CDFW)
For the Template Safe Harbor Agreement
for Coho Salmon (*Oncorhynchus kisutch*)**

A. Introduction

This Site Plan Agreement for the Template Safe Harbor Agreement (Agreement) for Southern Oregon and Northern California Coast (SONCC) Evolutionarily Significant Unit (ESU) of coho salmon (the Covered Species) is between the Cardoza Ranch Partnership (hereinafter referred to as the Permittee), National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW). This Site Plan Agreement, combined with the measures prescribed in the Agreement, may serve as the basis for NMFS to issue a federal enhancement of survival permit (Permit) 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 Template Safe Harbor Agreement. The Site Plan Agreement is subject to terms of the Template Safe Harbor Agreement and Permit.

This Site Plan Agreement documents site-specific information detailing the Permittee's enrolled property, including the location of the property and management authority of the Permittee, the Enrolled Property baseline conditions, existing and, as available, proposed future land-use activities, the duration of this Site Plan Agreement and requested permit. This Site Plan Agreement also documents the agreed-upon conservation measures to be undertaken by the Permittee on the enrolled property that are expected to benefit coho salmon.

B. Enrolled Property

B.1. General narrative and map describing the Enrolled Property

The Cardoza Ranch (herein referred to as Permittee) is located along Louie Road in central Siskiyou County (41°35'00'' N latitude, 122°26'49''W longitude). The ranch operation influences both the Lower Parks and Mid Shasta reaches as designated within the Agreement, however the river corridor is not directly adjacent to the property. The Parks Creek overflow, a small tributary to the Shasta River, runs through the ranch. The ranch includes a total of 497± acres, with 165 ± acres under irrigation. The map included on the following page shows the approximate property boundaries and general location within the project area.



B.2. Legal Description of the Enrolled Property

The Enrolled Property consists of the following APNs:

020-020-130

020-020-120

020-030-020

The Legal Description of the Enrolled Property from the Permittee Deed is included as **Appendix A**.

B.3. Description of Water Rights and Usage

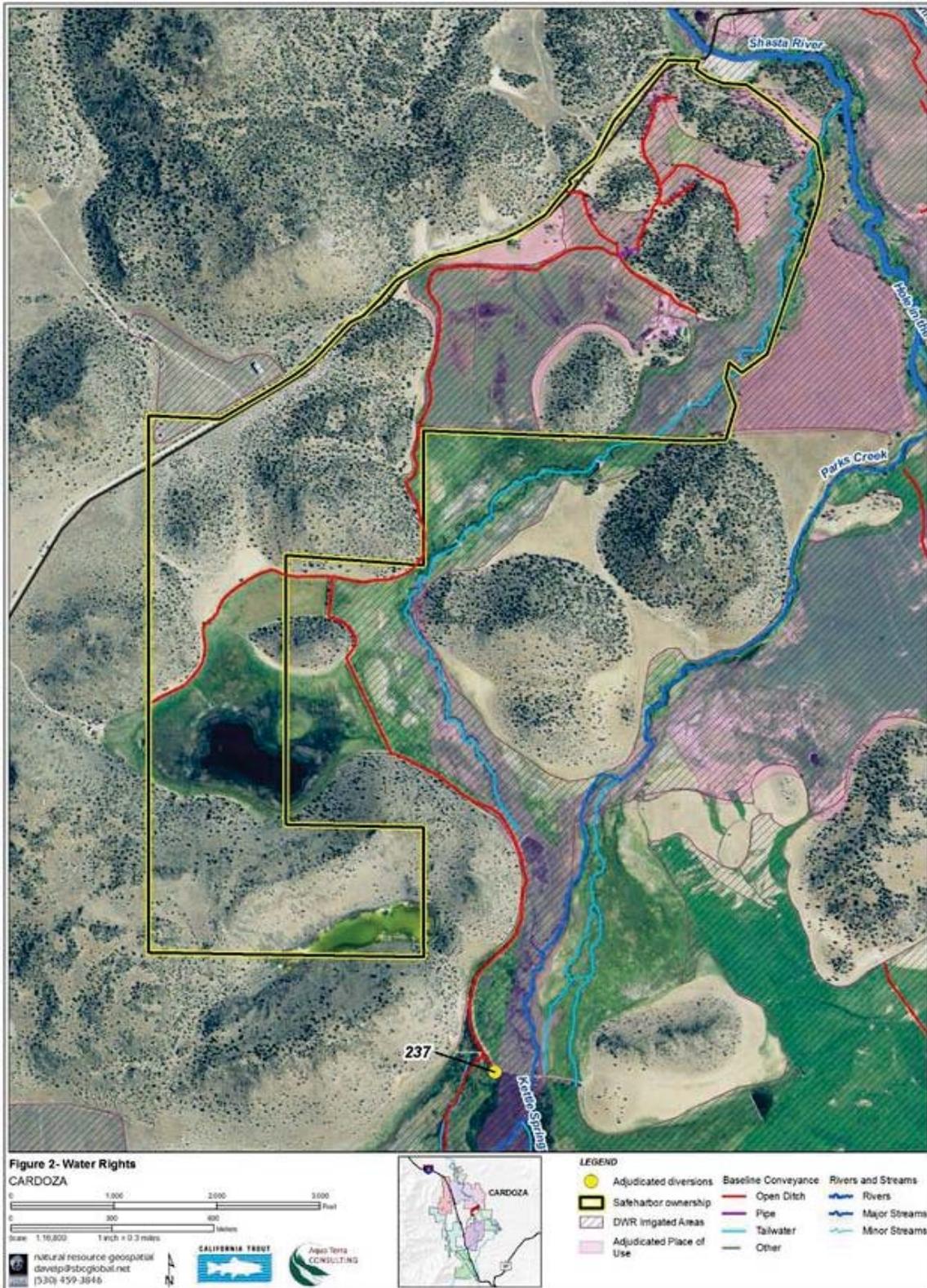
The Cardoza Ranch has a 2.98 cubic feet per second (cfs) water right, which is included in the Shasta River Decree and summarized in the water rights table below. The current point of diversion is located on Lower Parks Creek, 1.5-miles upstream from the confluence with the Shasta River on the neighboring Hole in the Ground property. The diversion structure consists of an earthen dam with two corrugated metal pipes, which are blocked with flashboards during the irrigation season. The water is backed up behind the dam to gain the force (head) needed to convey the diverted water down approximately 7,000 feet of open, unlined diversion ditch. This ditch goes to a concrete lined ditch, to the place of use. The water is then distributed throughout the ranch via a series of open, unlined ditches and conveyed by flood irrigation to the pastures. There is also a small pump that lifts the water from the main ditch to the upper pasture, where it is distributed via a series of open ditches.

The current diversion, including the dam and ditch is maintained by the Hole in the Ground Ranch by agreement between the two Permittees and water mastered by the Siskiyou County Water Master District. The previous water master did allow for periodic “combine and rotate” management of the diversion, where the diversion amount is increased for a shorter period of time, as long as no other user is harmed (personal communication, Tim Beck, former Siskiyou County Water Master). The water master schedule does not indicate a winter stock water right for this ranch.

The map included below illustrates the place of use as stipulated in the Shasta River Decree and the DWR irrigated acreage coverage.

Diversion #/Water Source	Permit/Adjudicated /Filed Water Use Statement	Description	Season Duration	Total Ac-ft per season diverted	Acreage Irrigated with Diversion	Average Days per Season diverted
237	2.98 cfs	Cardoza Diversion	April 1- Oct 1	975.3 ac-ft	165	165

Table 1- Cardoza Ranch Water Rights



C. Routine Land Use

C.1. Present Routine Land Use

Cardoza Ranch consists of approximately 497 acres, with approximately 165 acres under irrigation, and 1,800 feet of paved or rockered ranch roads, primarily the main driveway, at its closest proximity about 900-feet away from Parks Creek overflow. All of the 165 acres are considered grass pasture and are flood irrigated.

In order to create the necessary head to deliver water to the place of use on the Cardoza Ranch, the existing diversion structure is located on property belonging to adjacent property (Hole in the Ground). The diversion consists of an approximately five foot earthen dam with two corrugated metal pipes; a 48-inch round and 5-foot by 3-foot squashed, which are blocked with flashboards during the irrigation season, which creates a 25-acre impoundment on Parks Creek. The existing diversion is for irrigation of the Cardoza Ranch, but the dam provides a pathway for cattle to cross over Parks Creek.

The water right associated with this diversion is 2.98 cfs. The water is currently backed up behind the dam to gain the necessary head to convey the diverted water through a 30-inch by 60-inch squashed culvert and down the 7,000 feet of open, unlined conveyance ditch. This ditch goes to a concrete lined ditch, which is considered the place of use. The existing irrigation infrastructure is mapped in Appendix B.

The Permittee has approximately 7,430 feet of open ditch on the ranch used for flood irrigation, in addition to the 7,000 feet of open conveyance ditch that delivers water from the point of diversion on Parks Creek to the ranch. One hundred percent of the existing ditch crosses the neighboring property before reaching the Cardoza Ranch. There are also two ponds on the Cardoza Ranch that fluctuate in volume, with a maximum area of 45 acres. One pond is completely spring fed and the other is both spring fed and captures irrigation runoff from some of the adjacent pastures, to sub irrigate and provide wildlife habitat.

In 2001, a solar powered rotating drum fish screen was installed in the irrigation ditch about 1,300-feet down from the diversion structure. The screen has an underground fish bypass pipe returns to Parks Creek directly adjacent to the screen.

The Parks Creek overflow floods when substantial flow is present in Parks Creek and collects much of the tailwater created on the ranch. About one mile of Parks Creek overflow is on the Cardoza Ranch, which is not currently fenced, with the exception of one small section.

Irrigation Management

In order to deliver the Permittee's 2.98 cfs water right via gravity to the place of use on the Cardoza Ranch, a 25 acre impoundment is created on Parks Creek by installing flashboards on the upstream side of the culverts which pass under the diversion dam. Water is diverted for irrigation on a rotational schedule over approximately 165 days

between April 1 and October 1, shutting off the irrigation when the pastures are hayed. More than 2.98 cfs has been measured at the water master's weir, as described in the Michael Love & Associates Existing Conditions Memo (Love, 2013), which is included for reference in the appendix. The rotation of the diversion on a monthly basis was generally allowed by the Water Master to provide push water as long as other users were not injured. In recent years, the Permittee has reported staying within the approximately 3 cfs right (personal communication, Frank Cardoza). At approximately 5,797 feet from the diversion headgate the irrigation ditch splits allowing the Permittee to send water to the west down approximately 2,400 feet to irrigate the pastures surrounding the pond or towards the east which is the main irrigation canal for the ranch. All irrigation runoff from the western split is captured by the pond. The main irrigation canal to the ranch runs east from the split down another approximately 1,200 feet of ditch to about 500 feet of concrete lined ditch and then through 5,230 feet of earthen ditch on the ranch for irrigated pasture. There are several lateral ditches in the main pasture along Louie Road, from which the Permittee flood irrigates. The ranch has a small pump that lifts water from the main canal, delivering a portion of the diversion to the pastures on the hill to the northeast of the main pastures, through a 600-foot long lateral pipeline. The pipeline daylights and the water is conveyed directly into a total of 1,700 feet of open ditch. The run-off from those ditches is picked up in a total 3,200 feet of ditch and re-used again on down slope pastures.

Irrigation Maintenance

Ditch cleaning

The conveyance ditch from the diversion to the place of use has significant aquatic plant growth; the Permittee cleans the vegetation out of the conveyance ditch at least annually with a weed mower. The open ditches are prone to excessive algae growth, which slows the conveyance of water. The Permittee cleans the ditches at least yearly to remove vegetation and fix breaches. The Permittee will continue to clean ditches until the Beneficial Management Activities are implemented and this is no longer necessary.

Most of the ditches will be replaced with buried pipeline (see Section E.2.a) as a result of this Site Plan Agreement and then pipeline cleanouts will be opened monthly to flush any vegetation out to ensure proper conveyance in the pipe network.

Diversion cleaning

The flashboards on the existing diversion become blocked by beaver activity, making the flashboards challenging to remove. They then need to be periodically removed using heavy equipment to open the diversion. This will continue in the interim until the point of diversion is relocated (see Section E.2.b).

Fish Screen cleaning

The rotating drum screen is solar operated, which keeps some of the moss and growth to a minimum. The Permittee regularly cleans out larger debris before it approaches the screen. During winter months or during flood events, the Permittee raises the screen to prevent screen damage. The fish screen is maintained by the Permittee. This will continue in the interim until the point of diversion is relocated (see Section E.2.b). Once

the proposed screen is installed on the Shasta River, the Permittee will be responsible for the maintenance and repair. The new on-channel cone screen will be a self-cleaning screen, but will need brushes, stripper bar and anode replacement every 5 to 7 years.

Pasture Grazing Management

The ranch has six distinct pastures, which include the pastures along the riparian area of Parks Creek overflow channel, where between 40 to 100 pair (depending on market and feed availability) of cattle are grazed. The cattle are moved every 21 to 42 days between these pastures to avoid over-grazing. The Permittee tries to keep at least 4-6 inches of stubble remaining; however this is more challenging during winter months.

Riparian Fence Maintenance

The ranch currently has approximately 300-feet of riparian fence that was built along the Park Creek overflow channel as a demonstration project by local schools. Approximately 3,700-feet of Parks Creek overflow channel is not fenced or excluded from grazing.

Road Maintenance

The main ranch road from Louie Road to the residences is well maintained on a regular basis with coarse gravel. There are no roads in the riparian area of the Parks Creek overflow channel and no established crossings.

Crossing Maintenance

There are no established crossings on the ranch across Parks Creek overflow, cattle have crossed the channel in various spots. The riparian grazing plan does call to establish crossings. ATVs or vehicles do not cross the overflow channel. There may be the development of a cattle crossing in the future.

Herbicide/Fertilizer/Pesticide Use

The ranch spot applies Roundup for periodic herbicide use, only in ditches and bases of ditches; average use is about 0.75 gallon per acres of ditch. Most of the ditches will be replaced with buried pipeline (see Section E.2.a) as a result of this Agreement and Roundup use will be eliminated.

The ranch does periodically apply fertilizer. The mix that is currently applied varies based upon analysis of soil/grass needs but is typically a nitrogen based time release fertilizer. Generally, once per year at 300 pounds per acre of 16 (nitrogen):20 (phosphorus) pellet application, in addition to harrowing in manure. Fertilizer is not applied within the riparian area of the ranch.

C.2. Avoidance and Minimization Measures

Water Diversion and Diversion Facilities

A1. Install a locking head gate or valve sized appropriately for the authorized diversion, that can regulate flow, and a functional measuring device or flow meter on any structure or facility connected to a stream used to divert water to facilitate better control and monitoring of water delivery within three years, unless specified otherwise in the site

plan, of the effective date of the Agreement on or in all water diversion structures identified in this Agreement. The designs for head gates or valves and measuring devices in State Watermaster or Special Watermaster District Service areas shall be approved by DWR or said Special District, if applicable, in coordination with the Parties. All measuring devices and methods of water measurement shall be constructed and maintained to meet a 10% measuring accuracy for points of diversion that divert greater than or equal to 200 acre feet per year, and a 15% measuring accuracy for points of diversion that divert less than 200 acre feet per year. Raw data, collected at 15 minute intervals from these devices will be included in the annual SHA report and will be available within 2 weeks of NMFS or CDFW's written request throughout the irrigation season.

A2. Fish passage will be provided for all life stages when sufficient flows are available.

Irrigation Management and Maintenance

B1. During regular maintenance work at diversions and fish screens, the permittee will minimize the discharge of sediments, debris, fine organic matter, and/or muddy, turbid, or silt-laden waters into natural waterways. The permittee will clean instream structures as necessary to maintain proper function.

B2. The permittee will regularly inspect all fish screens and bypass pipes or channels to verify that they are effectively protecting salmonids and other fish species in accordance with CDFW and NMFS fish screening criteria. When necessary, Participant will clean and repair all fish screens and bypass pipes or channels. If a fish screen is removed for cleaning or repair, Participant will ensure either that a replacement screen is installed immediately, or water is not flowing through the area where the screen is removed by either implementing isolation or dewatering of the work site in coordination with the fish relocation effort described later in this document.

B3. When a bypass pipe is present, the bypass entrance(s) shall be installed and operated such that all life stages of the Covered Species can easily locate and enter them. All components of the bypass system, from entrance to outfall, shall be designed and operated to minimize the potential for debris blockage and must be sized to accommodate all life stages of fish and aquatic species which may be drawn into the diversion. Sufficient flow (site specifically determined depending on the volume and type of bypass structure) will be supplied from the diversion into a fish bypass to safely and efficiently return fish back to the stream. Bypass outfalls shall be designed and located so that there is sufficient depth and velocity to avoid injury to all life stages of fish and aquatic life which may be directed into a bypass pipe.

B4. When cleaning/maintaining irrigation or drainage ditches or ponds, the Permittee will work when the ditch is as dry as possible to minimize or eliminate surface water turbidity and sediment transport. The Permittee will place sediment and organic materials excavated from ditches or ponds in a location where the materials cannot wash into any stream channel or Covered Species habitat.

B5. Permittee will regularly monitor and repair as necessary any earthworks or facilities designed to minimize tailwater entering natural waterways.

B6. Planned Instream work shall occur only when Covered Species are least likely to be present or affected by the project, as determined by a landowner in consultation with NMFS and CDFW.

B7. In the case where the fish screen is down ditch, the Permittee shall notify CDFW at least 5 days prior to closing a headgate or valve when fish stranding may occur in the diversion conduit, to allow fish rescue notification and coordination by qualified individuals, NMFS and CDFW or otherwise mutually agreed upon individuals.

B8. Water releases from off-channel impoundments, ponds, and tailwater basins will be conducted in a manner that minimizes turbidity, siltation, elevated temperatures, or pollution impacts to waterways supporting Covered Species. Water shall be released in the early morning (prior to 10:00 am) and/or during cool times of the year, and will be released as gradually as possible to minimize fine sediment discharges. If the release timing and rate is not feasible, landowner will contact NMFS and CDFW prior to release.

Riparian Grazing Management

C1. Develop riparian grazing management plans in coordination with UC Cooperative Extension or other range management specialists.

C2. Fenced riparian areas may be grazed in accordance with grazing management plans approved by the Parties. The grazing management plan will address standard grazing management principles, such as the seasonal timing, duration, and intensity (number of livestock allowable per unit area [i.e., stocking rate]), of livestock grazing within the riparian zone and will explain how the proposed management plan will result in improved riparian function and enhanced aquatic habitat. In addition, the grazing plan will describe the means by which the flash grazing will avoid and minimize impacts to streambanks, riparian vegetation, spawning and rearing areas, and avoid direct impacts to spawning and rearing coho salmon.

C3. To avoid direct impacts to Covered Species spawning, incubation, and emergence, grazing in riparian pastures with streams that are accessible to the Covered Species will be allowed from May 1 to November 1 or as approved by NMFS and CDFW. The permittee will perform at least one of the following actions prior to grazing livestock in riparian pastures where livestock could enter a stream between November 1 and May 9:

- Obtain written concurrence from NMFS and CDFW that potential Covered Species spawning habitat does not occur adjacent to the riparian pasture.
- If potential spawning habitat occurs adjacent to the riparian pasture, perform weekly redd surveys between November 1 and January 15. Redd surveys may be performed by NMFS, CDFW, or a qualified biologist. If surveys are performed by a non-agency biologist, written survey results will be provided to NMFS and

CDFW for concurrence prior to grazing. If redds are not detected during the redd surveys, riparian grazing may occur in conformance with the Participant's riparian grazing management plan.

- If redds are determined to be present, livestock may graze within the riparian pasture between November 1 and April 30 if a temporary electric exclusion fence or wire is installed between the riparian pasture and the stream bank, and provisions are made to supply off-channel stockwater. Electric fence must be checked and maintained daily.

Fence Maintenance

D1. Inspect riparian exclusion fencing during and after each season of grazing and after high flow events where over bank flows may inundate fences and prior to and after riparian grazing has occurred. If riparian exclusion fencing is damaged, repair fencing and move livestock, as appropriate, to minimize resource impacts. If cattle are present, riparian fences shall be repaired within 30 days.

D2. If riparian fences are lost due to a catastrophic event, the Permittee shall notify agencies of the loss in the annual report. The permittee will repair up to the percentage of fencing they committed to replace in the Individual Site Plan, and request funding assistance for the remaining repairs beyond the percentage of its commitment.

Road Maintenance

E2. Minimize erosion and sedimentation from roads and road work. Utilize mulch or other suitable materials, as necessary, to minimize sediment runoff and transport to surface waters. Apply mulch so that not less than 90% of the disturbed areas are covered. Apply all mulches, except hydro-mulch, in a layer not less than two (2) inches deep. Where appropriate, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, will be reseeded with non-invasive species at a rate which will ensure establishment.

E3. Planned Instream work shall occur only when Covered Species are least likely to be present or affected by the project, typically from June 15 through November 1.

Crossing Maintenance

F1. Cross livestock and vehicles only at stable designated locations where potential spawning gravel, incubating eggs, and fry are not present. Wet crossings for cattle should be armoured with rock. Fencing should be installed to guide the cattle to the crossing and across the stream on the armoured surface while minimizing impacts to the stream and stream banks.

- Factors considered when selecting a crossing location include the stream gradient, channel width, and the ability to maintain the existing channel slope. Generally, to construct a crossing, a boulder weir is placed on the downstream side of the

crossing and angular quarry rock is placed in the crossing location; the width of the crossing does not exceed 25 feet; the crossing spans the entire width of the channel; the crossing is “keyed” into the bank on each side; the approaches on both sides do not exceed a slope of 3:1; and bank armoring (usually using quarry rock) is added where needed.

- Angular rock will be applied to the crossing during the period of June 15 through November 1 and maintained over time. The diameter of angular rock will be selected so as to eliminate the risk of angular rock becoming a grade control affecting channel conditions. In locations where the stream crossings occur on intermittent streams, application of rock shall occur when the stream channel is dry.
- Once a crossing is established, the Permittee will corroborate with agency staff after high flow events and/or after gravel introduction, to inspect the crossing and ensure it has not been compromised. The inspection shall be completed in spring or early summer.

F2. When operating vehicles in wetted portions of a stream channel, check and maintain vehicles on a daily basis to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat; minimize the number of passes through the stream to avoid increasing the turbidity of the water to a level that is deleterious to aquatic life; and allow the work area to “rest” after each individual pass of the vehicle that causes a plume of turbidity above background levels, resuming work only after the stream has reached the original background turbidity levels.

Herbicide/Fertilizer/Pesticide Use/Fuel

G1. Ensure that any pesticide or herbicide is handled and applied by a licensed applicator (when required) in accordance with and all applicable, federal, state, local laws, regulations, procedures, and guidelines. Application of pesticides will be in conformance with the pesticide label as well as any required buffers from anadromous streams. The permittees will apply herbicides/pesticides, if any, in conformance with the applicable label directions, as well as any required buffers from anadromous streams in conformance with the Order entered in *Washington Toxics Coalition et al. v. Environmental Protection Agency et al.*, (W.D. Wash No. C01-132C) (January 22, 2004). When possible, areas will be spot treated to reduce the amount applied. Use of broad spectrum insecticides will be minimized or avoided as they are more likely to be harmful to non-target organisms including fish and aquatic insects if exposed. Chemicals with the lowest possible toxicity rating will be used when possible. Use of mobile, pre-emergent herbicides will be minimized or avoided as they can impact non-target plants in the riparian area leading to other impacts such as sedimentation. The Applicant will avoid or minimize exposing aquatic resources by managing spray drift. This includes using modern spray equipment (e.g., low volume or electrostatic sprayers); routinely checking for nozzle wear and calibrating the sprayer frequently throughout the growing season; turning off the sprayer along creeks, drainages and in the turn-around areas; supervising the spraying to minimize effects to surface waters.

G2. Use care to minimize fertilizer use in applications that could result in nutrient loading to natural waterways.

G3. Review label information and avoid the use of any material known to be detrimental to fish where it could impact Covered Species.

G4. Use or store stationary petroleum-powered equipment in a manner to prevent the potential release of petroleum materials into natural waterways by use of drip pans or other measures.

G5. Refuel machinery and handle or store hazardous materials no less than one hundred and fifty (150) feet away from the edge of any water body. All unused or leftover materials will be transported off-site and properly disposed of, when applicable.

Flood or Emergency Events

H1: Prior to, during or immediately after the event, NMFS and CDFW will be contacted and AMMs will be developed in coordination with the Permittee for the particular flood or emergency circumstances.

H2: NMFS and CDFW will be notified within 14 days of beginning emergency work per Fish and Game Code 1610.

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. Although the enrolled property is not adjacent to the Shasta River or Parks Creek, the Enrolled Property is within the Lower Parks Reach of the Agreement Area. Baseline Conditions for the Enrolled Property are the conditions described in Appendix 2 of the Template Safe Harbor Agreement for this reach.

Elevated Baseline Conditions are certain Baseline Conditions improved as a result of certain Beneficial Management Activities. Elevated Baseline for this Site Plan Agreement are the improved fish passage and flow conditions that will result from the following actions: Construct pipeline infrastructure to increase efficiency and reduce tailwater production, construct a new point of diversion on the Shasta River at the Louie Road bridge and abandon existing flashboard diversion structure on Parks Creek, and replacing the existing fish screen with an on channel self-cleaning screen at the relocated point of diversion.

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 Template Safe Harbor Agreement (Appendix 2) for the Lower Parks reach. Section E describes the activities on the Enrolled Property in more detail.

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

Habitat Parameter	Net Conservation Benefit Actions		
	Present Baseline (Maintain)	Elevated Baseline (Restore; Implement and Maintain)	Other Beneficial Management Activities (Restore; Measures to Avoid and Minimize Impacts)
Hydrology/Water Quality		-Construct pipeline infrastructure to increase efficiency and reduce tailwater production as described in Section E.2.a	- Collect tailwater in open ditches and reuse as described in Section E.3.a. -Install, maintain and use field moisture soil sensors to better inform irrigation management as described in Section E.3.a. -Interim flow management efforts to improve water quality, timing and duration until the diversion is moved to the Shasta are described in Section E.3.b
Passage/Migration/Screening		-Construct a new point of diversion on the Shasta River at the Louie Road bridge and abandon existing flashboard diversion structure on Parks Creek, as described in Section E.2.b.	-Implement an interim strategy to improve passage until new point of diversion is constructed as described in Section E.3.b.
Instream Habitat Complexity			If Parks Creek overflow channel is deemed appropriate for Covered Species habitat, the

			Permittee agrees to implementing habitat improvements as described in Section E.3.c.
Riparian Condition			<ul style="list-style-type: none"> - Implement the riparian grazing plan as described in Section E.3.d. - Construct off channel stock water system in conjunction with pipeline project as described in Section E.3.d. -Provide access and collaborate in riparian restoration activities along Parks Creek overflow channel as described in Section E.3.d.
Pasture Management			<ul style="list-style-type: none"> - Construct new cross fencing to better manage pasture grazing as described in Section E.3.f.
Assessment/Studies	-The Permittee agrees to the use of 2013 existing conditions memorandum and alternatives analysis.		-Provide access for assessment of Parks Creek overflow channel for winter off-channel habitat as described in Section E.3.g.
Supplementation			-The Permittee will allow access for salmonid supplementation as described in Section E.3.h.

Table 2- Summary of Net Conservation Benefit Actions

E. Beneficial Management Activities

This section provides a detailed description of Conservation and Habitat Enhancement 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 land and/or water management 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 Template Safe Harbor Agreement.

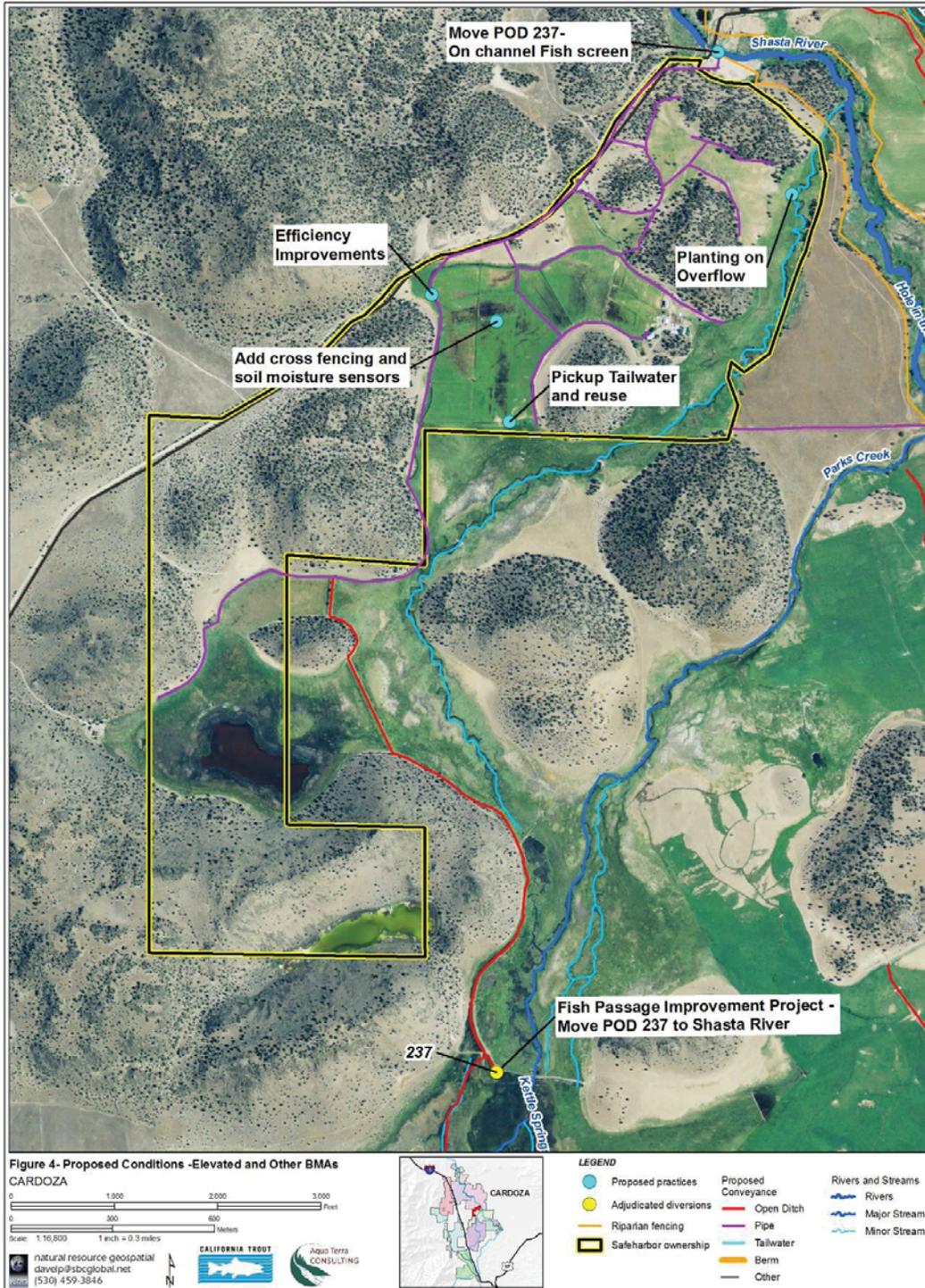
The Permittee is not including any Present Baseline activities. See section E.2 and E.3 for descriptions of other Beneficial Management Activities that will be implemented on the Enrolled Property.

E.1.g Assessments/Studies

-The Permittee agrees to the use of the Parks Creek Cardoza Diversion: Existing Conditions and Alternatives Evaluation Report, prepared by Michael Love and Associates in June 2013 and Addendum 1- Alternative 4 Shasta River Pump Station, dated January 2014 for the purposes of this Site Plan Agreement.

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 land and water management 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:

- Permittee agrees to construct, operate, and maintain a pipeline infrastructure throughout the ranch for better irrigation efficiency and reduce tailwater in accordance with the pipeline's Operations and Maintenance Manual for the term of the agreement and as stipulated by grantor. A 1707 will be filed to permissively dedicate the consumed portion of the water right for instream benefit, when the diversion is not in operation. The landowner is working with The Nature Conservancy to prepare petitions. A map of the proposed irrigation system is depicted on Figure 4. This project has funding for the design, environmental review, and permits. Implementation funds will be pursued once designs are at 65%, with the goal to have it fully constructed in 2019-2021 or 3 to 5 years from the signing of the Agreement.

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

Move Point of Diversion

To eliminate passage issues at the existing diversion structure, the Permittee is committing to relocate the point of diversion from Parks Creek approximately 2.5-miles downstream to the Shasta River, near the Louie Road bridge, and pump the water into a series of proposed pipelines on the ranch. This alternative requires plumbing the ranch backward from its current configuration. Irrigation water would be lifted via a river pump to a high point on the ranch with ample head to deliver the water to all locations on the ranch via a gravity pipeline. This option would eliminate the need for the diversion structure on Parks Creek and fish passage would no longer be an issue. Three-phase power is easily accessible at this location. To help offset the increased costs associated with this increased pumping the project will investigate the feasibility of using solar powered surface pump technology or a grid-tied solar power generating system. To adequately design a solar offset, the pastures will be evaluated for appropriate application rates of water, in order to better estimate necessary power demands of the new pump system. This project has funding for the design, environmental review, and permits, which will be completed by early 2019. Implementation money will be pursued once designs are at 65%, with the goal to have it fully constructed in 2020-2021 or 3 to 5 years from the signing of this agreement. This alternative is described in the Addendum 1: Shasta River Pump Station Memorandum (Love 2013). Permittee agrees to operate and maintain the improved diversion facilities and pipelines and comply with SB88 measuring standards on the new point of diversion for the duration of the agreement. The State Water Board has been consulted about moving the point of diversion and recommended working directly with the local Water Master District to coordinate. Since there are no other points of diversion between the existing diversion and the proposed location, there are no foreseeable issues in legally moving the point of diversion.

Fish Screen

A new self-cleaning cone screen will be designed at the new point of diversion. This project has funding for the design, environmental review, and permits. Implementation money will be pursued once designs are at 65%, with the goal to have it fully constructed

in 2019-2021 or 3 to 5 years from the signing of this agreement. Permittee agrees to operate and maintain the new fish screen for the duration of the agreement.

Passage

A new crossing will be constructed at the current point of diversion to meet neighboring ranch owner's property access and cattle crossing needs, but impounding of Parks Creek will no longer occur. The new crossing structure is currently in the design phase to provide fish passage for all life stages of salmonids while maintaining a cattle crossing across Parks Creek. This project has funding for the design, environmental review, and permits, which will be completed by early 2019. Implementation money will be pursued once designs are at 65%, with the goal to have it fully constructed in 2019-2021 or 3 to 5 years from the signing of this agreement.

E.2.c. Instream Habitat Complexity

The Permittee will not implement any measures specifically to Instream Habitat Complexity under elevated baseline, see section E.3.c.

E.2.d. Riparian Function

The Permittee will not implement any measures specifically to Riparian Function under elevated baseline, see section E.3.d.

E.2.e Substrate Quality

The Permittee will not implement any measures specifically to Substrate Quality.

E.2.f. Pasture Management

The Permittee will not implement any measures specifically to Pasture Management under elevated baseline, see section E.3.f.

E.2.g Assessments/Studies

The Permittee will not implement any measures specifically to Assessments/Studies under elevated baseline, see section E.1.g and E.3.g.

E.3. Other Beneficial Land and Water Management Activities

This section summarizes any other land and water management activities that will be implemented on the enrolled property to benefit the Covered Species

E.3.a. Hydrology/Water Quality

Tailwater Reduction

- Permittee agrees to maintain pickup ditch and will collect tailwater wherever possible and put to beneficial use.

Soil Moisture Monitoring Program

- Multiple field moisture sensor stations will be installed, maintained and used in the main pasture to inform the irrigator when to irrigate to optimize irrigation application rate efficiency. The permittee agrees to the development of irrigation management plans developed in collaboration with experts from academia (University of California, California State Universities, or other experts approved by the Agencies) to better manage efficient application of water throughout the irrigation season. The Agencies believe that irrigation management plans developed as a result of this program would result in a reduction in applied water during the irrigation season which would result in additional instream flow benefits coho salmon. Irrigation efficiencies based on soil moisture monitoring will be reported in the annual report.

Interim Operation Plan

-To reduce adverse water quality impacts to Covered Species at the end of each irrigation cycle, the existing impoundment shall be drained in a manner that minimizes turbidity, siltation, and elevated water temperatures to Parks Creek downstream. Whenever feasible, initiation of drawdown through removal of dam boards or other obstacles should be released in the early morning (prior to 10:00 am) and/or during cool times of year, and will be released as gradually as possible to minimize fine sediment discharges.

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

Passage

-Until the point of diversion is moved to the Shasta River, Permittee will operate the existing Point of Diversion as follows: During the interim period, prior to the removal of the diversion on Parks Creek the Permittee will remove dam boards at the existing point of diversion when water temperatures first reach 19°C in the spring months at the PBS (Parks Big Springs) real-time monitoring location (located near the mouth of Parks Creek). The impoundment shall be fully drained, then left open for at least 7 consecutive days to allow for redistribution of fish. After the 7 days, Permittee can resume normal diversion operations throughout the rest of the irrigation season.

E.3.c. Instream Habitat Complexity

Off-Channel Habitat

-Permittee agrees to an assessment of Parks Creek overflow channel. If it is determined through an assessment, after the point of diversion is moved to the Shasta River, that Parks Creek overflow channel warrants additional habitat complexity, Permittee has committed to participate in the implementation of needed habitat improvements.

E.3.d. Riparian Function

Riparian Grazing Management plan:

-Permittee agrees to adhere to the Riparian Grazing Management Plan in Appendix C.

Off-Channel Stock watering

-Permittee agrees to installation of a stock water system in conjunction with the proposed efficiency piping project.

Riparian Habitat

-Permittee commits to allowing riparian planting along Parks Creek overflow channel.

E.3.e Substrate Quality

The Permittee will not implement any measures specifically to Substrate Quality.

E.3.f. Pasture Management

Pasture Grazing Management

-Permittee will add cross fencing to manage pasture grazing to keep grass between 4 to 6-inches.

E.3.g Assessments/Studies

Off-Channel Habitat

-Parks Creek overflow channel could provide off-channel habitat in the winter. A habitat assessment will be completed to determine if additional channel complexity is needed.

-All relevant studies associated with the covered species, as specified in Template and the Adaptive Management Program for the agreement that are relevant to the covered property will be allowed under this agreement of 5 years, after which the Agencies may request an additional period of access for a like specified period of time. All access related to on-going studies will be done in a manner which provides at minimum 7 days' notice of intent to access by the Agency personnel. Access will be limited to the specific area of study and may require escort by the landowner or his/her representative. The landowner reserves the right to obtain the results of the study upon completion to assure privacy rights are maintained before publication.

E.3.h Supplementation

The Permittee will allow access for salmonid supplementation and all associated monitoring activities.

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

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

G. Monitoring and Reporting

Implementation monitoring includes those monitoring tasks associated with construction and implementation of BMAs (e.g. construction of habitat restoration projects) and AMMs.

Implementation monitoring of BMAs serves to verify that habitat restoration projects are constructed as designed or intended. AMMs are intended to minimize or reduce potential adverse impacts that may occur during implementation of BMAs or during routine ranching and farming activities. Implementation monitoring protocols for AMMs are described in Appendix 3 of the Agreement. These actions will be conducted by the Permittee, the SWCG or a contractor.

G.1. Avoid and Minimization Monitoring

Covered Activity	Cardoza Ranch -AMM (See Section C2 for full description)	AMM Monitoring Technique
Irrigation Management	A1 A2	<p>All maintenance of instream diversion structures shall be monitored as follows:</p> <ul style="list-style-type: none"> -Log of what in-water work had occurred and what minimization measures were implemented will be included in the Annual SHA report -When construction or repair work is being done, Photo Point Monitoring will be completed in accordance with template document.

<p>Irrigation Maintenance</p>	<p>B1 B2 B3 B4 B5 B6 B7 B8</p>	<p>All maintenance of instream irrigation facilities shall be monitored. Following are some examples of protocols:</p> <p>-Log of maintenance activities carried out within the calendar year be included in the yearly SHA report.</p>
<p>Riparian Grazing Management</p>	<p>C1 C2 C3</p>	<p>Riparian grazing management shall be monitored as follows:</p> <p>-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 template document.</p> <p>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.</p> <p>-Maintain a log of grazing activities carried out within the calendar year and include in the yearly Site Plan 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</p>

		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 template.
Road Maintenance	E2 E3	-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 template document.
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 be 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.

Table 3-Avoidance and Minimization Measure Monitoring Commitments

G.2 Implementation and Effectiveness Monitoring Commitments

Habitat Parameter	Cardoza Ranch -Net Conservation Benefit Actions	Implementation Monitoring Technique	Effectiveness Monitoring Commitment/Technique
<p>Hydrology/Water Quality</p>	<p>-Construct, operate and maintain per operations and maintenance manual prepared by engineer pipeline infrastructure to increase efficiency and reduce tailwater production as described in Section E.2.a</p> <p>- Collect tailwater in open ditches and reuse as described in Section E.3.a.</p> <p>-Install field moisture soil sensors to better inform irrigation management as described in Section E.3.a.</p> <p>-Interim flow management efforts to increase water quality, timing and duration until the diversion is moved to the Shasta as described in Section E.3.a.</p>	<p>- Three to five photo points using Photo Point Monitoring guidelines. Documenting pipeline construction and tailwater ditch condition.</p> <p>- Soil Moisture sensor data, showing that irrigation is occurring when soils need water.</p> <p>-Data from PBS will be used to monitor interim effectiveness</p>	
<p>Passage/Migration/Screening</p>	<p>-Construct a new point of diversion on the Shasta River at the Louie Road bridge and abandon existing flashboard diversion structure on Parks Creek, as described in Section E.2.b.</p>	<p>- Three to five photo points using Photo Point Monitoring guidelines. Documenting new point of diversion construction and fish screen maintenance.</p> <p>-Water measuring protocol that is in concurrence with SB88 at new point of diversion.</p>	

		<p>-Pre- and post-construction and design flow surveys of structure and any other critical or controlling hydraulic features.</p> <p>-Data from PBS will be used to monitor interim effectiveness</p>	
Instream Habitat Complexity	<p>-Implement the interim strategy to improve passage until new point of diversion is constructed as described in Section E.3.b.</p> <p>-If Parks Creek overflow channel is deemed appropriate off channel rearing habitat, the Permittee agrees to implement habitat improvements as described in Section E.3.c.</p>	<p>- Three to five photo points using Photo Point Monitoring guidelines. Habitat improvement project on Parks Creek Overflow.</p>	
Riparian Condition	<p>- Implement the riparian grazing plan as described in Section E.3.d.</p> <p>- Construct off channel stock water system in conjunction with pipeline project as described in Section E.3.d.</p> <p>-Provide access and will collaborate in riparian restoration activities along Parks Creek overflow channel as described in Section E.3.d.</p>	<p>- Three to five photo points using Photo Point Monitoring guidelines. To document riparian grazing area, and stock water system construction.</p>	
Pasture Management	<p>-Construct new cross fencing to better manage</p>	<p>- Three to five photo points using Photo Point</p>	

	pasture grazing as described in Section E.3.f.	Monitoring guidelines. To document crossing fencing construction.	
Assessment/Studies	-The Permittee agrees to the use of 2013 existing conditions memorandum and alternatives analysis. -Provide access for assessment of Parks Creek overflow channel for winter off-channel habitat as described in Section E.3.g.	-Reports are included in the appendix of this site plan. -Reports of studies will be written/summarized/obtained and provided in the annual report	
Supplementation	-The Permittee will allow access for salmonid supplementation as described in Section E.3.h.		

Table 4- Implementation and Effectiveness Monitoring Commitments

H. Annual Report and Adaptive Management

The Permittee will complete the Annual Report Form, attached in Appendix F, yearly and reported as stipulated in the agreement template.

I. Regulatory Assurances

Upon execution of this Agreement by the Parties, 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 the Permittee may incidentally take Covered Species, in accordance with the Site Plan and Agreement, as a result of Routine Land Use and Beneficial Management Activities as described in each Agreement, and except where such Routine Land Use 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 and/or achieving the Elevated Baseline Conditions set forth in the Site Plan, complying fully with the Agreement and their Site Plan, and so long as the continuation of Routine Land Use and Beneficial Management 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 Non-Covered species, 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

NMFS

Date

Permittee

Date

SEPARATE SIGNATURE BLOCK FOR CDFW:

By signing the Template Safe Harbor 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 particular 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.

CDFW

Date

Appendix A- Legal Deeds

Order No.
Escrow No.

WHEN RECORDED MAIL TO:
Law Offices of Friedman & Rau
P. O. Box 596
Yreka, CA 96097

RECORDED AT REQUEST OF
FRIEDMAN & RAU

Mar 25 11 29 AM '94
94004145

David Rau

\$8.00

SPACE ABOVE THIS LINE FOR RECORDER'S USE

MAIL TAX STATEMENTS TO:

Frank R. Cardoza, Sr.
Adeline M. Cardoza
3710 E. Louie Road
Montague, CA 96064

DOCUMENTARY TRANSFER TAX \$ None
..X Computed on the consideration or value of property conveyed; OR
... Computed on the consideration or value less liens or encumbrances
remaining at time of sale.
..X is exempt from imposition of the Documentary Transfer Tax
pursuant to Revenue and Taxation Code § 11927(a), on transfer-
ring community, quasi-community, or quasi-marital property,
assets between spouses, pursuant to a judgment, an order, or a
written agreement between spouses in contemplation of any
such judgment or order.

In the opinion of the undersigned
Signature of declaring grantor or grantee

INTERSPOUSAL TRANSFER GRANT DEED

(Excluded from reappraisal under California Constitution Article 13 A § 1 et seq.)

This is an interspousal transfer and not a change in ownership under § 63 of the Revenue and Taxation Code and Grantor(s) has (have) checked the applicable exclusion from reappraisal:

- A transfer to a trustee for the beneficial use of a spouse, or the surviving spouse of a deceased transferor, or by a trustee of such a trust to the spouse of the trustor.
- A transfer to a spouse or former spouse in connection with a property settlement agreement or decree of dissolution of a marriage or legal separation, or
- A creation, transfer, or termination, solely between spouses, of any co-owner's interest.
- The distribution of a legal entity's property to a spouse or former spouse in exchange for the interest of such spouse in the legal entity in connection with a property settlement agreement or a decree of dissolution of a marriage or legal separation.
- Other: Revocable Intervivos Trust

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

FRANK R. CARDOZA, SR. and ADELINE M. CARDOZA, husband and wife,

hereby GRANT(S) to FRANK R. CARDOZA, SR. and ADELINE M. CARDOZA, as Trustees of the Frank R. Cardoza, Sr. and Adeline M. Cardoza 1994 Trust, dated March 14, 1994, all of their interest in

the real property in the City of _____, County of Siskiyou
State of California, described as

FOR DESCRIPTION, SEE EXHIBIT "A" ATTACHED HERETO.

Dated March 14, 1994

STATE OF CALIFORNIA
COUNTY OF SISKIYOU

On March 14, 1994 before
me, Ronald Rau NOTARY PUBLIC,
personally appeared Frank R. Cardoza, Sr.
and Adeline M. Cardoza

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



(This area for official notarial seal)

Signature *Ronald Rau*

MAIL TAX STATEMENTS AS DIRECTED ABOVE

94004145

EXHIBIT "A"

All that real property situate in the County of Siskiyou, State of California, described as follows:

PARCEL I:

All that portion of Sections 8 and 9 in Township 43 North, Range 5 West, M.D.M., in the County of Siskiyou, State of California, described as follows:

BEGINNING at the quarter section corner on the South line of said Section 8; thence East 44.55 chains; thence North 16 deg. 30' East 5.25 chains; thence North 19 deg. 24' West 4.25 chains; thence North 31 deg. East 2.33 chains; thence South 51 deg. 47' East 2.39 chains; thence North 53 deg. 42' East 4.62 chains; thence North 19 deg. 28' East 1.58 chains; thence North 21 deg. East 2.77 chains; thence North 24 deg. 52' East 1.49 chains; thence North 16 deg. 28' East 2.30 chains; thence North 16 deg. 58' East 1.22 chains; thence North 21 deg. 12' East 1.52 chains; thence North 18 deg. 10' East 2.33 chains; thence North 10 deg. 20' East 4.35 chains; thence North 9 deg. 30' West 4.72 chains; thence North 49 deg. West 4.51 chains; thence North 42 deg. 40' West 3.26 chains; thence North 54 deg. West 5.88 chains; thence North 85 deg. 30' West 3.40 chains; thence North 69 deg. West 2.26 chains; thence North 56 deg. 30' West, 2.33 chains; thence North 21 deg. 40' East 1.26 chains to the center of the County Road; thence along the center line of said County road North 86 deg. 32' West 4.65 chains; thence South 41 deg. 44' West 11.96 chains; thence South 28 deg. 20' West 6.10 chains; thence South 42 deg. 20' West 11.53 chains; thence South 59 deg. 20' West, 4.27 chains; thence South 72 deg. 30' West 14.65 chains to the intersection of the quarter section line extending through said Section 8; thence along said Section line South 23.63 chains, to the PLACE OF BEGINNING.

PARCEL II:

All that portion of the South half of the Southwest quarter of Section 8 in Township 43 North, Range 5 West, M.D.M., lying South of the Mayten-Gazelle Road, in the County of Siskiyou, State of California.

PARCEL III:

Northeast quarter of Northwest quarter, West half of West half and Southeast quarter of Southwest quarter, Section 17, Township 43 North, Range 5 West, M.D.M., in the County of Siskiyou, State of California.

020-020-080
020-030-020

Mt. Shasta Ti

Appendix B- Map of Existing Infrastructure

Appendix C- Riparian Grazing Management Plan

Cardoza Ranch- Draft Prescribed Riparian Grazing Management Recommendation (January 10, 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 0.87 miles of an old remnant channel of Parks Creek, referred to as Parks Creek overflow channel flows along the east-northeastern boundary of this ranch, and joins the Shasta River 0.07 miles after leaving the northeast corner of the ranch (Figure 1). Parks Creek overflow channel is currently contained within a single large field. It is open to grazing by livestock during all grazing bouts in this pasture. The reach is also open to cattle as a drinking water source during the winter feeding period in upland areas of the field. The channel is meandering and exposed to solar gain, water from this channel currently contributes to temperature impacts in the Shasta River. It is unknown if salmonids currently use this channel for habitat during any lifestage. This is a low gradient, fine substrate reach with high water table supporting herbaceous species including irrigated pasture grass species, *Juncus* and *Carex* spp. Noxious weeds are of limited extent in this reach.

Riparian Grazing Management Recommendations

Riparian Management Goals. The ranch owner and manager has committed to developing an adaptive riparian grazing strategy to improve streambank vegetation and habitat conditions within this reach without riparian exclusion fencing. Management goals include reducing bare streambank, enhancing *Juncus* and *Carex* spp. cover and vigor at the stream's greenline. Accomplishing these shorter-term goals will lead to long-term enhancements in streambank stability, reduced stream channel width to depth ratio, and improved instream habitat conditions (e.g., cooler temperatures, more hiding cover). Due to high water table it is unlikely this reach has the potential to support a significant riparian woody population. However, the prescribed riparian grazing recommendation below will create an opportunity for riparian woodies to establish and grow if the reach does have the potential to support them.

Create Permanent Riparian Pasture. Currently the creek is part of a larger field which includes irrigated pasture, dry rangeland/juniper woodland, and a winter livestock feeding area (Figure 1). The Permittee has committed to a permanent wire fence be built 1) to contain the irrigated pasture and creek within a single riparian pasture, 2) that several livestock drinking water tanks be developed near the western boundary of this riparian pasture (away from the stream channel), and 3) that a livestock drinking water tank(s) be developed to support the winter feeding activities. These infrastructure will define a clear riparian grazing management unit, and provide alternative water for livestock – so that the creek is not the sole drinking source for livestock (Figure 2). It might be beneficial to include some wooded upland area within the riparian pasture to provide shade and loafing areas for livestock.

Cross-Fencing Alternatives. The riparian area recommended in Figure 2 could be managed as a single grazing unit. However, it is extremely likely that cross-fencing to create sub grazing units will allow the manager to maximize grazing time and pasture forage use, while simultaneously achieving stream enhancement objectives (see above) and staying below management triggers (see below). There are several alternative approaches to cross fencing in this case which we present below in order from least (approach 1) to most management intensive (approach 3). The order below also correlates with least (approach 1) to most (approach 3) likely to allow maximum forage harvest from the overall management unit while achieving objectives and management triggers.

Approach 1. Permanent wire cross fences could be built in logical locations (e.g., create relatively equal sized sub units, good placement of fence crossings on creek, relative to irrigation sets, cost efficient to build). Figure 3 depicts one possible *extensive* layout using permanent wire fencing.

Approach 2. Portable electric fencing could be used to create sub grazing units. Figure 4 depicts an *extensive* use of electric fence in place of permanent fencing.

Approach 3. Figure 5 depicts an *intensive* and flexible use of electric fencing to maximize pasture forage use, while creating complete control of the timing, frequency, and intensity of grazing along the creek channel.

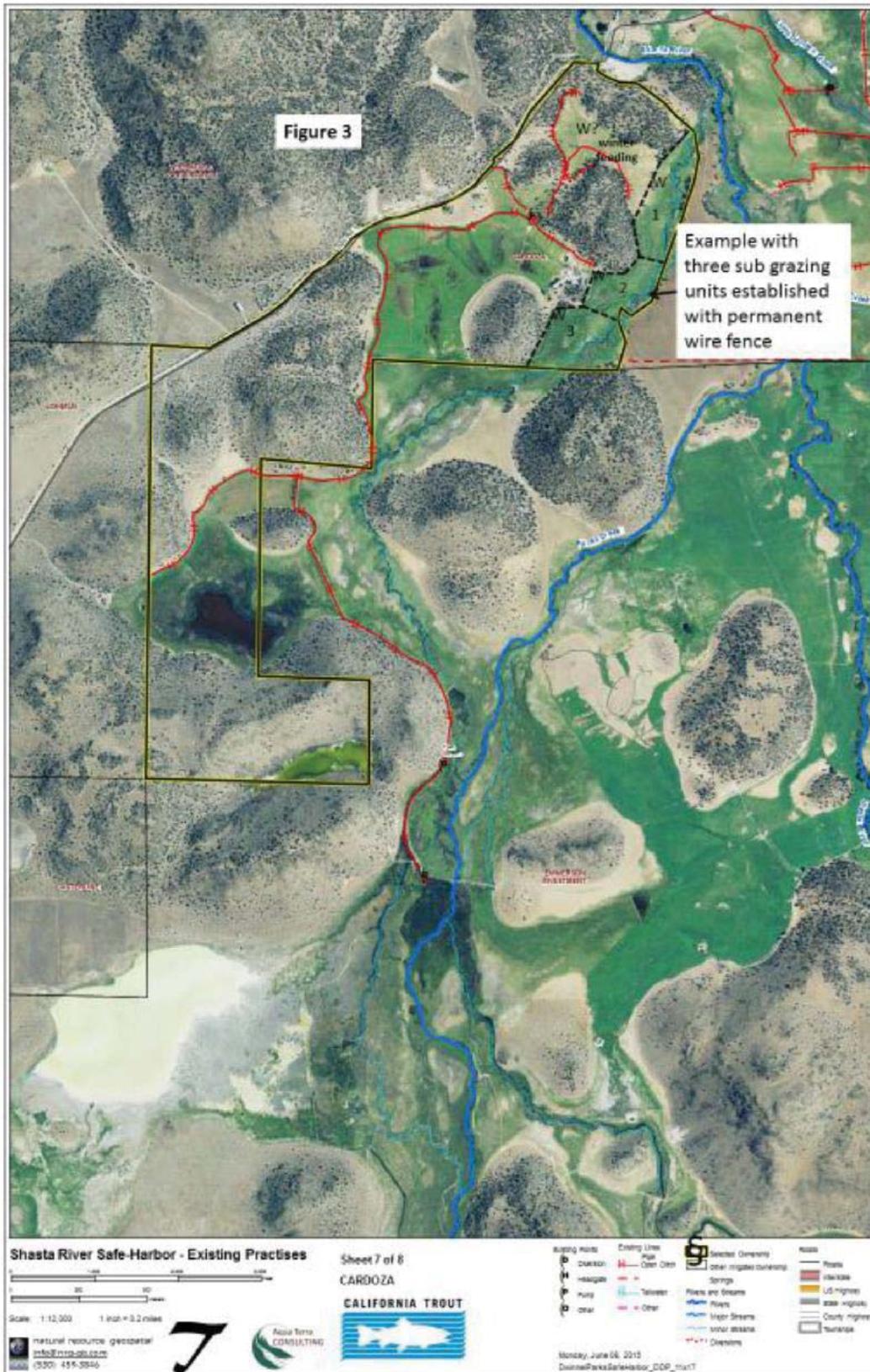
Seasons of Grazing and Livestock Management Decision Triggers. The Parks Creek overflow channel is not considered to be coho spawning habitat and use of this channel by fry and juvenile coho salmon during the summer is unlikely. This assumption will be confirmed by the Parks Creek Overflow Habitat Assessment (E.3.g) or by fisheries surveys. Grazing can occur in this grazing unit and sub grazing units at any time during the standard irrigation-growing season when covered species are not present. The unit or sub units should not be grazed continuously throughout the season— there should be appropriate periods of rest during the growing season which will enhance productivity and persistence of desired forage species. If sub grazing units are established, then a grazing rotation should be implemented to maximize forage production, harvest, and stream channel protection. Management decision triggers described below will ensure grazing intensity and livestock impacts to the stream channel are in balance with short and long-term goals listed above.

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 <5ft in height, excessive streambank disturbance). The Permittee commits to monitoring 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”; and that 3) browse on recruiting riparian woody plants (< 5ft in height – below cattle maximum browse height) be limited to no more that 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 that riparian unit or sub unit.

Indicator	Trigger
Browse use on recruiting riparian woody species < 5 ft. in height	20% of current years leader growth
Streambank Hoof action	20% of each side of a streambank

Table 2. Management triggers

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 days during all riparian grazing bouts where livestock have direct access to the stream channel. 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



Appendix D- Annual Implementation Report Form

Annual Report for Implementation of Cardoza Ranch SHA

Prepared by: _____ Date Submitted: _____

Reporting Year: _____

<i>Avoidance and Minimization Measures</i>		Mark if YES	And attach the following support documents
G.1.a. Irrigation Management	Was any maintenance of diversion structures completed this year?	<input type="checkbox"/>	-Log of what in-water work had occurred and what minimization measures were implemented will be included in the Annual SHA report -Attach raw data from diversion meter -Attach photos of diversion structure.
G.1.b. Irrigation Maintenance	Was any maintenance of instream irrigation facilities completed this year?	<input type="checkbox"/>	-Log of maintenance activities carried out within the calendar year be included in the yearly SHA report. -Attach photos of riparian grazing area.
G.1.c. Grazing Management	Was riparian grazing performed on Parks Overflow?	<input type="checkbox"/>	-Maintain a log of grazing activities carried out within the calendar year and include in the yearly Site Plan 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.
G.1.d. Fence Maintenance	Was riparian fence maintenance completed this year?	<input type="checkbox"/>	-A short description of fence maintenance activities will be included in the annual report template.
G.1.e. Road Maintenance	Was road maintenance performed this year?	<input type="checkbox"/>	-A short description of annual road maintenance activities will be included in the annual report.
G.1.f. Crossing Maintenance	Was new gravel placed in wet crossings this year?	<input type="checkbox"/>	-Attach photos of wet crossings
G.1.g. Herbicide/Fertilizer/Pesticide Use	Was herbicide, fertilizer and pesticide used this year?	<input type="checkbox"/>	-Log of use herbicide, fertilizer and pesticide activities
G.1.h. Flood Repair	Was any flood repair done this year?	<input type="checkbox"/>	-Attach photos of flood repairs

Implement Elevated Baseline			
<i>-if work was completed- Answer yes and attached stipulated materials to report -if answered no to any of the questions, please explain why the activity was not completed or identify what progress has been made toward completion in the column below.</i>			
E.2.a- Implement Conveyance Efficiency	Was the efficiency pipeline constructed? Yes <input type="checkbox"/> No <input type="checkbox"/>	Attach photos of pipeline alignment	
E.2.b- New Diversion Structure	Was the fish screen and pump station constructed? Yes <input type="checkbox"/> No <input type="checkbox"/>	Attach photos of new diversion : and screen	
Implementation Other Beneficial Management Activities			
E.3.a- Flow management participation	Was the flow management strategy implemented this year? Yes <input type="checkbox"/> No <input type="checkbox"/>	Attach PBS data	
E.3.a- Soil Moisture Sensors	Were soil moisture meters installed/used this year? Yes <input type="checkbox"/> No <input type="checkbox"/>	Attach the soil moisture data	
E.3.b- Interim passage strategy at existing POD	Were Interim Measures implemented? Yes <input type="checkbox"/> No <input type="checkbox"/>	Attach log of measures and data from PBS	
E.3.d- Riparian Planting	Were plantings implemented this year? Yes <input type="checkbox"/> No <input type="checkbox"/>	Attach photos of the project	
E.3.d- Riparian Grazing Management	Was the riparian grazing plan followed this year? Yes <input type="checkbox"/> No <input type="checkbox"/>	Attach photos from photo point E and F	
E.3.e- Pasture Management	Were crossing fencing constructed this year? Yes <input type="checkbox"/> No <input type="checkbox"/>	Attach photos of fencing	
E.3.g- Assessments and studies	Were any studies/assessments completed this year?	Attach any reports or data collected from study	