

**MARIN COUNTY  
COMMUNITY DEVELOPMENT AGENCY  
PLANNING DIVISION**

**INITIAL STUDY  
PINE GULCH CREEK ENHANCEMENT PROJECT  
(MARTINELLI, WEBER, NEW LAND FUND COASTAL PERMIT 03-4  
& DESIGN REVIEW CLEARANCE 03-24)**

Exhibit 2: Initial Study

**I. GENERAL INFORMATION**

**A. PROJECT SPONSOR'S NAME AND ADDRESS:**

Carol Whitmire  
P.O. Box 319  
Woodacre, CA 94973  
(415) 488-0955

**B. PROPERTY OWNERS:**

Fresh Run Farms, owned by the Martinelli family, represented by Peter Martinelli

Paradise Valley Farm owned by New Land Fund, represented by Dennis Dierks

Star Route Farms owned by Warren Weber

**B. LEAD AGENCY NAME AND ADDRESS:**

Marin County Community Development Agency - Planning Division  
3501 Civic Center Drive, Room 308  
San Rafael, CA 94903-4157  
Jeremy Tejirian, AICP, Acting Senior Planner  
(415) 499-3798

**C. DECISION-MAKER FOR APPLICATIONS:**

Marin County Deputy Zoning Administrator

**D. OTHER AGENCIES WHICH REQUIRE APPROVAL:**

U.S. Department of Fish and Wildlife  
U.S. Army Corps of Engineers  
California Department of Fish and Game  
California Regional Water Quality Control Board  
California State Water Resources Control Board

**II. PROJECT INFORMATION**

**A. PROJECT TITLE AND APPLICATIONS:**

Pine Gulch Creek Enhancement Project  
Coastal Permit (CP 03-4) and Design Review Clearance (DC 03-24)

**B. PROJECT ADDRESSES:**

Fresh Run Farms, owned by the Martinelli family, represented by Peter Martinelli  
615 Paradise Valley Road  
Assessor's Parcel (ponds 1A & 1B) 188-090-15

Paradise Valley Farm owned by New Land Fund, represented by Dennis Dierks

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235 Paradise Valley Road  
Assessor's Parcel (pond 2) 188-150-69

Star Route Farms owned by Warren Weber  
95 Olema-Bolinas Road  
Assessor's Parcel (pond 3B) 193-010-19  
850 Lauff Ranch Road (north creek)  
Assessor's Parcel (pond 3A) 188-170-45

**C. COUNTYWIDE PLAN  
LAND USE DESIGNATIONS:**

615 Paradise Valley Road (Fresh Run Farms) C-AG-1 (Coastal, Agricultural, 1 unit per 31-60 acres)

235 Paradise Valley Road (Paradise Valley Farm) C-AG-3 (Coastal, Agricultural, 1 unit per 1-9 acres)

95 Olema-Bolinas Road  
C-AG-2 (Coastal, Agricultural, 1 unit per 10-30 acres) and  
850 Lauff Ranch Road (Star Route Farms) C-AG-3 (Coastal, Agricultural, 1 unit per 1-5 acres)

**D. ZONING:**

615 Paradise Valley Road (Fresh Run Farms) C-APZ-60 (Coastal, Agricultural Production Zone, 1 unit per 60 acres)

235 Paradise Valley Road (Paradise Valley Farm) C-ARP-5 (Coastal, Agricultural, Residential, Planned, 1 unit per 5 acres)

95 Olema-Bolinas Road (Star Route Farms) C-ARP-10 (Coastal, Agricultural Residential, Planned, 1 unit per 10 acres) and  
850 Lauff Ranch Road (Star Route Farms) C-ARP 5, (Coastal, Agricultural Residential, Planned, 1 unit per 5 acres)

**E. PROJECT LOCATION:**

The project site is near Olema-Bolinas Road in the Bolinas area of western Marin County. The locations of the ponds are shown in the Vicinity Map in the Initial Study Exhibit.

**F. PROJECT DESCRIPTION**

**1. BACKGROUND**

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For more than 30 years, Fresh Run Farms, Paradise Valley Farm, and Star Route Farms have been growing produce in the Pine Gulch Creek watershed and withdrawing water from the creek for their operations. The original impetus for the Pine Gulch Creek Enhancement project was the listing of coho salmon and steelhead trout as threatened species under the Federal Endangered Species Act (61 Fed. Reg. 56138, Oct. 31, 1996; 62 Fed. Reg. 43937, Aug. 18, 1997). Coho salmon and steelhead trout are both salmonid species of anadromous fish, which means that they live most of their lives in open water but periodically migrate up streams to spawn. Historically, coho salmon and steelhead trout had both spawned in Pine Gulch Creek, but their populations had been reduced or eliminated by logging and agricultural activities in the early part of the century. In 2001, studies conducted by the National Park Service identified small populations of coho salmon and steelhead trout in Pine Gulch Creek, and those populations have been increasing since that time.

The farmers have relied on what are called riparian water rights for domestic use and to irrigate their crops. Riparian diversion entails pumping water from the creek directly onto crop fields or into ponds that would only store the water for a maximum of thirty days. While riparian water rights are guaranteed to owners of parcels that have streams bordering them or running through them, a Streambed Alteration Agreement issued by the State Department of Fish and Game is generally necessary for farmers to modify watercourses of any magnitude. Streambed Alteration Agreements must be renewed every five years, and this renewal process may be complicated by concerns regarding the growing populations of anadromous fish in Pine Gulch Creek.

The State Water Resources Control Board issues a variety of water rights approvals, including what are called appropriative water rights. One way in which appropriative diversion is distinguished from riparian diversion is that appropriative rights allow water to be stored in ponds for longer than thirty days. This is an important distinction because the underlying strategy of the project to support runs of anadromous fish in Pine Gulch Creek is to change the time of year when water withdrawals are made, so that pumping would occur during wet portions of the year and stored for the growing season. In exchange, the farmers would dedicate their agricultural riparian rights during dry portions of the year to in-stream flows. This strategy would result in higher water flows in the creek during the dry portions of the year, which are the most critical for the survival of anadromous fish.

The farmers would implement this strategy by constructing larger water storage ponds on their properties adequate for agricultural irrigation between July 1 and December 15, and changing their pumping schedules to withdraw the majority of their irrigation water from December through March. A total of five ponds would be built on the farms. Each pond would be located in a remote area that would be difficult to see from surrounding properties. Two ponds would be built on Fresh Run Farms. One of the ponds would have a surface area of 0.7 acres and the other pond would have a surface area of 1.3 acres. A single pond would be built on Paradise Valley Farm, which would have a surface area of 0.83 acres. Two ponds would be built on Fresh Run Farms. One pond would have a surface area of 1 acre and the other would have a surface area of 2.7 acres. Building these ponds and altering the pumping schedule to store water for a longer period of time would allow dedication of water in-stream flows to help ensure that there would be sufficient surface flow in the creek to support the growing populations of anadromous fish in Pine Gulch Creek.

## **2. SUMMARY**

On behalf of the owners of Star Route Farms, Paradise Valley Farm, and Fresh Run Farms (referred to collectively as the farmers), the project sponsor proposes a project to enhance summer flows in Pine Gulch Creek by substituting wet season appropriative diversions for dry season riparian diversions. Limited riparian diversion in the spring (April through June), and appropriative storage of winter diversions, would accommodate the continuing agricultural water needs of the farms

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between July and December. The program would include constructing off-stream water storage ponds that would store water diverted from Pine Gulch Creek and winter runoff during the wet season for use in the dry season. Appropriative winter diversion into the ponds would ensure that they are full by the last day of March, on an annual basis. Due to the limited storage capacity of the ponds, the farmers would continue to divert and temporarily store some water in the ponds under their existing agricultural riparian rights between April 1 and June 30, at rates and volumes presented in this document. As part of this program, the farmers would dedicate all of their agricultural riparian diversions between July 1 and December 15 to in-stream flow for the benefit of coho salmon and steelhead trout. This dedication would be linked directly with the appropriative storage rights associated with the proposed ponds.

The farmers would not modify their existing riparian water rights for domestic purposes as part of this project. Domestic uses include small gardens, domestic livestock, residential use, and vegetable wash water. **Table 1** below estimates the existing domestic riparian diversion rate.

**Table 1. Existing Domestic Water Use for the Subject Properties**

<b>Time of year</b>	<b>Cumulative monthly riparian domestic use</b>
	Acre-feet
December	0.53
January	0.53
February	0.50
March	0.60
April	1.13
May	1.15
June	1.13
July	1.15
August	1.15
September	1.13
October	1.08
November	0.78
	10.87

With respect to agricultural diversions, the farmers would submit applications to the State Water Resources Control Board for the appropriation of wet season runoff to storage in exchange for the dedication of their dry season riparian agricultural diversions to in-stream flow. It should be noted that all agricultural diversions (appropriative or riparian) would be made to the off-stream ponds, and that all irrigation would be pumped from the pond to the fields. Although agricultural riparian diversions would be made into the proposed ponds, the water in the ponds would be very limited from April through June because the rate of diversion would be equal to the rate of daily water use at that time. This would allow for lower diversion rates from the stream, as compared with current practices that largely involve direct diversion, further buffering the diversion impacts as compared to historic practice.

It should be noted that the estimated water needs are based on the three farms' crops and planted acreage planted between 2001 and 2005. This report, and the requested permits, in no way limit either the crops that may be planted in the future nor the amount of planted acreage. Crops may

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change and acreage may be increased or decreased provided that the maximum quantity of water diverted to appropriative storage is permitted by the State Water Resources Control Board.

The estimated water needs for the growing season are indicated below.

### Fresh Run Farms

- 15 acres irrigated
- 26 acre-feet irrigation demand
- proposed storage – 20.5 acre-feet

### Paradise Valley Farm

- 4-5 acres irrigated; potential for 10 acres irrigated
- approximately 10 acre-feet irrigation demand
- proposed storage – 5.5 acre-feet

### Star Route Farms

- 32 acres irrigated
- 60 acre-feet irrigation demand
- proposed storage – 35.4 acre-feet

Appropriated water storage volumes have been calculated to ensure that, under normal conditions, each farmer can meet his annual irrigation needs between July 1 and the end of the growing season. At Fresh Run Farms, two ponds will store approximately 20.5 acre-feet of water. At Paradise Valley Farm, one pond will store approximately 5.5 acre-feet of water. At Star Route Farms, two ponds will store approximately 35.4 acre-feet of water. The location of the ponds proposed for construction is shown in the attached Initial Study Exhibit. The water storage plan is detailed in **Table 2** below.

**Table 2. Project Water Storage Plan**

Operation	Ponds to Meet Storage Need	Proposed Storage	Pond Site/ Capacity	Cease Riparian Diversion	Pond Site Parcel
Fresh Run Farms (Peter Martinelli)	2	20.5 acre-ft	pond 1A + Tank (3.5 acre-ft)	July 1	APN 188-090-15
			pond 1B (17 acre-ft)		
Paradise Valley Farm (Dennis Dierks)	1	5.5 acre-ft	pond 2 (5.5 acre-ft)	July 1	APN 188-150-69
Star Route Farms (Warren Weber)	2	35.4 acre-ft	pond 3B (9.4 acre-ft)	July 1	APN 188-170-45
			pond 3A (26 acre-ft)		APN 193-010-19

The proposed agricultural development on each of the properties is described below.

## 2. FRESH RUN FARMS

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### 2.1 Existing Conditions

Fresh Run Farms is the second largest of the three agricultural operations and is located at the northernmost reach of the portion of Pine Gulch Creek within the scope of the project. Fresh Run Farms is operated on 238 acres of family owned land, and currently has 15 acres of irrigated row crops. The property's water supports three families, including small domestic watering of family gardens and livestock. In addition, approximately 500 gallons per day are used for the washing station during the growing season. These uses are included in the domestic water calculation. The monthly agricultural diversion rates have been calculated based upon estimated and potential water use. Two pumps are used for the farm, and are currently operated on an as needed basis for irrigation purposes. The upper diversion pumps at 24 gallons per minute while the lower diversion pumps at 60 gallons per minute.

The topography of the farm consists of steep hills and more level valleys, with several residential structures in the most level portions near Pine Gulch Creek. A portion of the property also supports wetlands. All of these factors were considered in deciding where to locate the ponds. The farmed area includes 22.5 acres of certified organic cropland, 15 acres of which are irrigated row cropland.

### 2.2 Construction

#### Water Distribution System

Both existing and new pumps would draw surface water from Pine Gulch Creek through intake valves that would be covered with a screen to filter objects and sediment in conformance with the requirements of the State Department of Fish and Game. A combination of existing pipes, replacement pipes and new pipes would be used to convey the water from Pine Gulch Creek to the water storage ponds. A total of approximately 1,250 linear feet of new water pipes would be installed underground for the water distribution system. In addition, approximately 800 feet of buried irrigation pipe (4-inch PVC pipe with periodic risers) would be installed as part of the project. The Fresh Run Farms Specifications table in the attached Initial Study Exhibit provides a summary of the water facilities that would be used for the project.

#### Storage Ponds

Pond 1A, the Hilltop Pond, would be constructed in accordance with the submitted plans shown in the Initial Study Exhibit and the following specifications:

#### ***Pond 1A- Hilltop Pond***

Work area	0.8 acres
Storage pond surface area	0.7 acres
Brush removal area	0.25 acres
Storage capacity	3.1 acre-feet
Storage capacity, below grade	0.5 acre-feet
Top width	12 feet
Maximum levee height	15 feet
Maximum water depth	12 feet
Total cut volume	3,000 cubic yards
Compacted fill volume	2,610 cubic yards
Cut/fill ratio	1.15/1.00 cubic feet
Volume of pond liner (foundation)	1,200 cubic yards

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As shown in the schematic drawing of the water distribution system included in the Initial Study Exhibit, there is an existing pipe from the upper point of diversion from the creek up to the existing tank, which is adjacent to pond 1A; there would be a new pipe segment (approximately 50 feet) between the tank and pond 1A, and; there would be a new pipe from pond 1A down to the “Y” in the distribution system. There would be no spillway on pond 1A because water filling this pond would be pumped uphill very slowly and in small amounts. Pond 1A would be operated in conjunction with a tank located adjacent to the pond site. The combined storage capacity of the tank and pond 1A would be 3.5 acre-feet.

Pond 1B, the New Green Pond, would be constructed in accordance with the submitted plans shown in the Initial Study Exhibit and the following specifications:

### ***Pond 1B- New Green Pond***

Work area	1.5 acres
Storage pond surface area	1.3 acres
Brush removal area	0.25 acres
Storage capacity	17 acre-feet
Storage capacity, below grade	0.5 acre-feet
Top width	12 feet
Maximum levee height	25 feet
Maximum water depth	24 feet
Total cut volume	13,100 cubic yards
Compacted fill volume	2,610 cubic yards
Cut/fill ratio	1.24/1.00 cubic feet
Volume of pond liner (foundation)	8,000 cubic yards

Rock armored drainage ditches would direct sheet flow from the surrounding area into the pond. Spillways would be constructed for pond 1B by installing pipes on the southern side of the pond embankment and rock armor would be used to reinforce the pipe ditches and act as energy dissipaters down flow of the pipe outfalls. The spillway would empty into the existing Green Pond.

The dirt farm road that leads around the existing Green Pond would be relocated by re-grading an area approximately 50-foot upslope of the existing farm road and installing a rock armored drainage ditch (called a rock rolling dip) that would concentrate sheet flow, dissipate energy and be passable by farm vehicles.

### **2.3 Water usage**

Two new pond locations are identified as storage for the proposed project. Pond 1A would provide 3.5-acre feet of storage (together with the adjacent tank), which would be gravity fed to the entirety of irrigated lands. The majority of the proposed storage, 17 acre-feet, would be achieved at the lower pond site, pond 1B. Calculations for Fresh Run Farms assume a storage volume of 20.5 acre-feet between the two ponds.

The ponds would be filled in the winter (December 15 – March 31) using a combination of rainfall and pumping from Pine Gulch Creek. The proposed location of pond 1B was chosen in part based on the expectation that it would fill mostly or completely from sheetflow. In the winter, total diversion would occur as necessary, at rates not to exceed 360 gallons per minute (0.8 cubic feet per second) as long as the stream’s flow is greater than documented winter bypass of 25 cubic feet per second (the term bypass refers to the amount of water that would continue to flow in the stream after withdrawals are made). Between April 1 and June 30, the farmer would maintain full ponds

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through riparian diversion. In the spring, the operation would reduce daily pumping to a maximum of 36 gallons per minute for 24 hours per day. This rate of withdrawal would continue through June.

**Table 3**, below, indicates reported use and the percent diversion of overall stream discharge for existing operations and documentation of pump rate, hours of pumping, diversion amounts and percent diversion of overall discharge under the proposed project at Fresh Run Farms. Major water diversion is shifted from the summer months (gray) to the winter months (white).

**Table 3: Fresh Run Farms Agricultural Diversions**

Time of year	Fresh Run Farm reported monthly irrigation use	Fresh Run Farm percent diversion of overall stream discharge	Pump rate and hours of operation per day for the Fresh Run Farms diversion		Proposed Fresh Run Farm storage and diversion plan and percent diversion of overall stream discharge	
	Acre-feet	Percent	Pump rate not to exceed (gpm)	Hours of operation	Acre-feet	Percent
December	0.2	0.01	360 <sup>^</sup>	24	5* <sup>^</sup>	0.36
January	0.2	0.01	360	24	8 <sup>^</sup>	0.32
February	0.2	0.01	360	24	5 <sup>^</sup>	0.18
March	0.5	0.04	360	24	2.5 <sup>^</sup>	0.16
April	2	0.40	36	24	2	0.40
May	3	1.09	36	24	3	1.09
June	5	2.82	36	24	5**	2.82
July	<b>5</b>	<b>6.94</b>			<b>0</b>	<b>0.0</b>
August	<b>5</b>	<b>10.42</b>			<b>0</b>	<b>0.0</b>
September	<b>5</b>	<b>14.71</b>			<b>0</b>	<b>0.0</b>
October	<b>2.5</b>	<b>3.97</b>			<b>0</b>	<b>0.0</b>
November	<b>0.5</b>	<b>0.26</b>			<b>0</b>	<b>0.0</b>
	29.1				30.5	

\* Until June, potential duration of use would be less than 24 hours per day

<sup>^</sup> After December 15 or first major storm. Ponds would mostly fill with sheetflow and rainfall contributions.

\*\* Total production at 36 GPM for 24 hours is 4.8 acre-feet per month

As shown in **Table 3** above, the project would result in an increase in water available for agriculture from an annual total of 29.1 acre-feet to a total of 30.5 acre-feet. It is expected that from December through March, a substantial portion of the water in the ponds would be derived from sheetflow from the surrounding area. Maximum creek withdrawal rates during the winter months (December through March) would be increased from an existing 1.1 acre-feet to a proposed 20.5 acre-feet. Maximum creek withdrawal rates during the summer months (April through November) would be decreased from 28 acre-feet to 10 acre-feet (with that water withdrawn only during April through June). Therefore, the project would reduce summer creek agricultural withdrawals to approximately 37 percent of current levels.

### 3. PARADISE VALLEY FARMS

#### 3.1 Existing conditions

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Paradise Valley Farm is the smallest of the agricultural operations and is located in the middle portion of the project area, downstream from Fresh Run Farms and upstream from Star Route Farms. The New Land Fund property, including Paradise Valley Farm, is held in common ownership, and supports several residential and agricultural structures. Residential structures are clustered near to the entrance driveway and agricultural fields. While the farmer currently irrigates 4 acres of land, the property has approximately 10 acres of certified organic land.

A single pump is used to divert water from Pine Gulch Creek to irrigate the current cropland, which has a capacity of approximately 80 gallons per minute. Normally, the pump is operated three to four days per week for one to three hours at a time. Irrigation is generally limited to hours after 7 p.m. in order to reduce pumping costs.

The farmer also maintains a domestic riparian diversion that pumps water to a storage tank above the proposed pond location. This pump provides water to worker residences as well as for use in the greenhouse. The farmer would maintain access to this water for greenhouse operations. The tank where this water is stored can hold a maximum of 5,000 gallons at a time. The farmer also maintains a small washing station, which uses approximately 500 gallons per day, and is included in the domestic riparian water calculation.

### 3.2 Construction

#### Water Distribution

A new pump, with a 30 gallon per minute maximum capacity, would draw surface water from Pine Gulch Creek through an intake valve that would be covered with a screen to filter objects and sediment in conformance with the requirements of the State Department of Fish and Game. New pipes would be used to convey the water from Pine Gulch Creek to the water storage pond. A total of approximately 500 feet of new water pipes would be installed underground for the water distribution system. Existing pipes would be used for the irrigation. The Paradise Valley Farm Specifications table in the attached Initial Study Exhibit provides a summary of the water facilities that would be used for the Paradise Valley Farm component of the project.

#### Storage Pond

Pond 2, the Hillside Pond, is proposed to be built against the west-facing hill on the property that faces Pine Gulch Creek. Safety factors determine the height of the embankments of the pond and therefore the amount of storage that can be achieved on this property, as the risk to human habitation increases with increased pond size and volume.

The storage pond would be constructed in accordance with the submitted plans and the following specifications:

#### ***Pond 2- Hillside Pond***

Work area	1.64 acres
Storage pond surface area	0.83 acres
Brush removal area	0.5 acres
Storage capacity	5.5 acre-feet
Storage capacity, below grade	4.1 acre-feet
Top width	12 feet
Maximum levee height	14 feet
Maximum water depth	10 feet
Total cut volume	7,600 cubic yards
Compacted fill volume	6,900 cubic yards

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Cut/fill ratio 1.10/1.00 cubic feet  
 Volume of pond liner (foundation) 2,500 cubic yards

A rock armored ditch would direct flow from a drainage ditch on the hillside into the storage pond. Spillways would be constructed for the storage pond by installing two pipes on the southern side of the pond embankment and rock armor would be used to reinforce the pipe ditches and act as energy dissipaters down flow of the pipe outfalls, which would empty into the meadow below the pond.

### 3.3 Water usage

A 5.5 acre-foot pond is proposed for Paradise Valley Farms. It is likely, based on the location of the pond, that it would fill up annually with sheetflow. Winter diversion from Pine Gulch Creek would occur as necessary, at rates not to exceed 100 gallons per minute, or 0.22 cubic feet per second, as long as in-stream flow is greater than the documented winter bypass of 25 cubic feet per second. Pumping would not exceed 30 gallons per minute for eight hours per day from the April through June period.

The proposed pond size of 5.5 acre-feet would accommodate the existing water demand for agricultural and domestic uses. Calculated diversion is based on operation of seven to ten certified organic acres of land. Current operations occur on four of the ten acres and the farmer does not propose to forfeit the ability to grow crops on the remaining land. The pond would be filled in the winter (December 15 – March 31) using a combination of rainfall and pumping. Between April 1 and June 30, the farmer would maintain a full pond through riparian diversion. The maximum rate of diversion would be 30 gallons per minute. Agricultural riparian diversion from Pine Gulch Creek would cease July 1 of each year. In the winter, total diversion would occur as necessary, as long as flow is greater than documented winter bypass of 25 cubic feet per second. The proposed project would maintain the domestic riparian diversion and small washing station that already exists. These small operations total a daily volume of 2,000 gallons per day, which is included as part of the domestic riparian diversion calculation.

**Table 4**, below, indicates reported use and the percent diversion of overall stream discharge for existing operations and documentation of pump rate, hours of pumping, diversion amounts and percent diversion of overall discharge for the proposed project at Paradise Valley Farms. Major water diversion is shifted from the summer months (gray) to the winter months (white).

**Table 4: Paradise Valley Farm Agricultural Diversions**

Time of year	Paradise Valley Farm reported monthly irrigation use	Paradise Valley Farm percent diversion of overall stream discharge	Pump rate and hours of operation per day for the Paradise Valley Farm diversion		Proposed Paradise Valley Farm storage and diversion plan and percent diversion of overall stream discharge	
	Acre-feet	Percent	Pump rate not to exceed (gpm)	Hours of operation	Acre-feet	Percent
December	0.0	0.0	100	24	2* <sup>^</sup>	0.14
January	0.0	0.0	100	24	2 <sup>^</sup>	0.08
February	0.0	0.0	100	24	1 <sup>^</sup>	0.04
March	0.0	0.0	100	24	0.5 <sup>^</sup>	0.0
April	0.16	0.03	30	8	0.2	0.04
May	0.93	0.34	30	8	1.0	0.36

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June	1.50	0.85	30	8	1.5**	0.85
July	<b>1.58</b>	<b>2.20</b>			<b>0</b>	<b>0.0</b>
August	<b>1.43</b>	<b>2.98</b>			<b>0</b>	<b>0.0</b>
September	<b>1.26</b>	<b>3.69</b>			<b>0</b>	<b>0.0</b>
October	<b>0.58</b>	<b>0.93</b>			<b>0</b>	<b>0.0</b>
November	<b>0.1</b>	<b>0.04</b>			<b>0</b>	<b>0.0</b>
	7.54				8.2	

\* After December 15 or first major storm

^ Ponds would mostly fill with sheetflow and rainfall contributions

\*\*Total production at 30 GPM for 8 hours is 1.3 acre-feet

As shown in **Table 4** above, the project would result in an increase in water available to the farmer from an annual total of 7.54 acre-feet to a total of 8.2 acre-feet. It is expected that from December through March, a substantial portion of the water in the pond would be derived from sheetflow from the surrounding area. Maximum creek withdrawal rates during the winter months (December through March) would be increased from an existing 0 acre-feet to a proposed 5.5 acre-feet. Maximum creek withdrawal rates during the summer months (April through November) would be decreased from 7.54 acre-feet to 2.7 acre-feet, with that water being withdrawn only between April and June. Therefore, the project would reduce summer creek agricultural withdrawals to approximately 36 percent of the current levels.

#### **4. STAR ROUTE FARMS**

##### **4.1 Existing conditions**

Star Route Farms is the largest and most intensively farmed of the three operations and is located at the southernmost reach of Pine Gulch Creek. Twenty-nine acres are planted annually with row crops. On the south parcel (APN 193-010-19), the site of the existing 3 acre-foot pond would be expanded into the adjacent eucalyptus grove creating approximately 26 acre-feet of storage. A pond on a separate legal riparian parcel (APN 188-170-45) to the north of this operation with a storage capacity of approximately 9.4 acre-feet is included in this proposal. The information included in this document assumes that Star Route Farms would have 35.4 acre-feet of storage in two separate ponds. It should be noted that as part of this process, approximately an acre of farmable land would be converted to water storage area.

##### **4.2 Construction**

###### Water Distribution

Two new storage ponds would be constructed on the property, as well as the associated water distribution improvements. Pond 3B, the North Pond, would be smaller than pond 3A, the South Pond, which would be located in approximately the same place as the existing pond on the property. Two existing pumps would draw surface water from Pine Gulch Creek through intake valves that would be covered with screens to filter objects and sediment in conformance with the requirements of the State Department of Fish and Game. Existing pipes, along with approximately 300 feet of new buried pipe at pond 3A, would be used to convey the water from Pine Gulch Creek to the ponds. A total of approximately 300 feet of new water pipes would be installed underground for the water distribution system. Existing pipes would be used for the irrigation, with minor modifications to be made as needed to adjust to the expanded water storage capacity and approximately 300 feet of new irrigation distribution pipe in the north field. The Star Route Farms

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Specifications table in the attached Initial Study Exhibit provides a summary of the water facilities that would be used for the Star Route Farms component of the project.

### Storage Ponds

Constructing pond 3B would entail removing 14 greenhouses, that each have approximately 1,625 square feet of growing area. Pond 3B would be constructed in accordance with the submitted plans and the following specifications:

#### ***Pond 3B: North Pond***

Work area	1.50 acres
Storage pond surface area	1.00 acres
Brush removal area	0.5 acres
Storage capacity	9.4 acre-feet
Storage capacity, below grade	4.1 acre-feet
Top width	12 feet
Maximum levee height	9 feet
Maximum water depth	14 feet
Total cut volume	6,700 cubic yards
Compacted fill volume	6,000 cubic yards
Cut/fill ratio	1.15/1.00 cubic feet
Volume of pond liner (foundation)	3,300 cubic yards

A spillway would be constructed by installing a pipe through the pond embankment that would lead to a rock armored ditch to dissipate the energy and velocity of the flow. The water would then flow from the ditch into a vegetated swale and into an existing culvert with an outfall into Pine Gulch Creek.

Constructing pond 3A would entail demolishing a portion of the existing pond and constructing a new and larger pond in its place. Construction of this pond would also involve removal of approximately 400 eucalyptus trees from an existing grove. Pond 3A would be constructed in accordance with the submitted plans shown in the Initial Study Exhibit and the following specifications:

#### ***Pond 3A: South Pond***

Work area	3.7 acres
Storage pond surface area	2.7 acres
Tree removal area	2 acres (approximately 400 eucalyptus trees)
Storage capacity	26 acre-feet
Storage capacity, below grade	6.5 acre-feet
Top width	15 feet
Maximum levee height	13 feet
Maximum water depth	12 feet
Total cut volume	18,600 cubic yards
Compacted fill volume	15,900 cubic yards
Cut/fill ratio	1.2/1.00 cubic feet
Volume of pond liner (foundation)	4,600 cubic yards

Spillways would be constructed by installing a pipe through the pond embankment that would lead to a rock armored ditch to dissipate energy and velocity of flow, which would then empty into the fields surrounding the pond.

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### 4.3 Water usage

Crops are currently irrigated from the creek and the existing 3 acre-foot riparian pond during the summer months. Two pumps are used as part of the agricultural operation. During the growing season, the operation recharges the existing riparian pond 24 hours per day at a rate of 60 gallons per minute. This recharge rate is not enough to meet daily water needs during longer dry periods in the summer. A second pump operates at a rate of 45 gallons per minute on an “as needed” basis. Normally this occurs during longer dry periods or early in the season to reduce double pumping. Irrigation on the cropland occurs throughout the day. A domestic riparian intake feeds a combined water system that supplies the packing shed (1,800 gallons per day) as well as the labor camp. Additional facilities, including a cottage and three trailers, are supplied by an existing well but are included in the domestic riparian calculation because the well function may be affected by construction of pond 3A. These uses account for approximately 3,000 gallons per day, which are included in the domestic riparian calculations.

The maximum capacity for pond 3A would be approximately 26 acre-feet, while the maximum capacity of pond 3B would be approximately 9.4 acre-feet. This proposed storage would allow the farmer to cease agricultural riparian diversion beginning July 1 of each year. The pumping schedule would include pumping at 60 gallons per minute 24 hours per day during the April through June period. In the winter, total diversion would occur as necessary, as long as flow is greater than documented winter bypass of 25 cubic feet per second. Current domestic riparian diversions including wash water for the packing shed, and water to the labor camp would be maintained. A total of 3,000 gallons per day for these operations are included in the domestic riparian calculations for this project.

**Table 5**, below, indicates reported use and the percent diversion of overall stream discharge for existing operations and documentation of pump rate, hours of pumping, diversion amounts and percent diversion of overall discharge for the proposed project at Star Route Farms. Major water diversion is shifted from the summer months (gray) to the winter months (white).

**Table 5: Star Route Farms Agricultural Diversions**

Time of year	Star Route Farms reported monthly irrigation use	Star Route Farms percent diversion of overall stream discharge	Pump rate and hours of operation per day for the Star Route Farms diversion		Proposed Star Route Farms storage and diversion plan and percent diversion of overall discharge	
	Acre-feet	Percent	Pump rate not to exceed (gpm)	Hours of operation	Acre-feet	Percent
December	0.5	0.04	460	24	8.0*^	0.57
January	0.5	0.02	460	24	15^	0.61
February	1.0	0.04	460	24	10^	0.36
March	2.5	0.20	460	24	5.5^	0.44
April	3.0	0.60	60	24	3.0	0.60
May	5.0	1.82	60	24	5.0	1.82
June	7.0	3.95	60	24	7.0	3.95
July	<b>10.0</b>	<b>13.89</b>			<b>0</b>	<b>0.0</b>
August	<b>10.0</b>	<b>20.83</b>			<b>0</b>	<b>0.0</b>
September	<b>8.0</b>	<b>23.53</b>			<b>0</b>	<b>0.0</b>
October	<b>5.0</b>	<b>7.94</b>			<b>0</b>	<b>0.0</b>

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November	<b>1.0</b>	<b>0.52</b>	<b>0</b>	<b>0.0</b>
	53.5		53.5	

\* After December 15 or first major storm

^ Pond would likely fill with sheetflow

As shown in **Table 5** above, the project would not result in an increase or decrease in water available to the farmer, which is an annual total of 53.5 acre-feet. It is expected that from December through March, a substantial portion of the water in the pond would be derived from sheetflow from the surrounding area. Maximum creek withdrawal rates during the winter months (December through March) would be increased from an existing 4.5 acre-feet to a proposed 38.5 acre-feet. Maximum creek withdrawal rates during the summer months (April through November) would be decreased from 49 acre-feet to 15 acre-feet, with that water withdrawn only between April through June. Therefore, the project would reduce summer creek agricultural withdrawals to approximately 31 percent of the current levels.

### **G. ENVIRONMENTAL SETTING**

#### **1. WATERSHED**

Pine Gulch Creek is a 7.5 square mile perennial watercourse located in coastal Marin County that flows south along the San Andreas Fault, discharging into Bolinas Lagoon. The Pine Gulch Creek watershed is located within the Central California Coast Evolutionary Significant Unit (ESU) where coho salmon and steelhead trout occur. Coho salmon are listed as endangered by the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) and the California Department of Fish and Game (CDFG). Steelhead trout are listed as threatened by NMFS. Tributaries draining from Bolinas Ridge contain topography and stream profile appropriate to support salmonids, but fail to provide perennial waters in areas except for McCurdy Creek. As a result of the geology and topography of the watershed, the mainstem provides the majority of salmonid habitat, with limited habitat availability in east-side tributaries.

##### **1.1 Land Use History**

Historic land use in the watershed has included intensive livestock agriculture, logging, minor development, and mining. In the late 1800s and into the 1900s, twenty small farms, many of them dairies, used Pine Gulch Creek for the daily disposal of fresh manure. Intensive irrigation was common in the watershed. The last major logging operation occurred near Dogtown in the 1960s.

A significant shift in land use impact began in the 1960s with the establishment of Point Reyes National Seashore, and later Golden Gate National Recreation Area. Approximately 85 percent of the watershed is included within the boundaries of Point Reyes National Seashore and Golden Gate National Recreation Area. Since National Park Service acquisition, nearly all agricultural operations on federal lands within Pine Gulch Creek watershed have been phased out and these areas are now managed as natural or wilderness areas. The remaining watershed lands are privately held, except for a 73-acre parcel owned by the Bolinas Community Public Utilities District (BCPUD) just to the west of Dogtown. Historically, Pine Gulch Creek had up to seven permanent and seasonal on-stream dams within the watershed. Water use within Pine Gulch Creek has evolved over the past thirty years from in-stream permanent and seasonal dams in the mid to late 1970s, to the current condition with no diversion dams within the watershed.

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The evidence in the record does not provide substantial information regarding the decline of the anadromous fish stocks in Pine Gulch Creek. However, it is safe to assume that the historic disturbance of the stream, including disposal of manure, flood irrigation, logging, and the diversion dams that were constructed, all contributed to a gradual reduction in the populations of coho salmon and steelhead trout that naturally occurred in Pine Gulch Creek. Further, a serious drought that occurred in the early 1970s may have impacted fish runs. Recent studies beginning in 1997, including the fish inventories conducted by Ketcham and Brown of the Point Reyes National Seashore, suggest that the recent resurgence of anadromous fish populations in Pine Gulch Creek is the result of natural dispersal rather than people introducing fish into the creek. Evaluation of genetic samples of coho salmon captured in Pine Gulch Creek indicates strong similarities to salmon found in the Redwood Creek watershed, six miles to the south.

Today, agricultural use in the watershed has declined to a fraction of historic use; a few privately held operations south of the Point Reyes National Seashore boundary are all that remain of the historic agriculture. Both agricultural land use and practices have changed dramatically in the past thirty years, from intensive livestock grazing and flood irrigation to organic crop production using best management practices. The increase in populations of anadromous fish populations, documented in the “Coho Salmon in Pine Gulch Creek 2002 Monitoring Report” published by the Point Reyes National Seashore, indicates that the existing agricultural operations have provided an environment that has been conducive to coho salmon runs. Since coho salmon and steelhead trout rely on similar habitats, the recent resurgence of both species can be viewed as a result of the management practices of the Point Reyes National Seashore and the owners of the properties that surround Pine Gulch Creek. There is no evidence in the record that the current activities of the National Seashore or the property owners surrounding Pine Gulch Creek are resulting in significant adverse effects to the habitat of the anadromous fish in Pine Gulch Creek.

However, it is not known whether the water diversions currently allowed to the farmers may inhibit the future increase in anadromous fish populations. In the past, the farmers have used approximately 70 acre-feet of water during the summer riparian diversion period (July 1 through December 15). This amount of water use during this period has the potential to adversely affect an increase in young of year salmonids by limiting the extent of pool habitat, including surface area and depth, as well as connectivity between pools. Therefore, to avoid the possibility that water diversions could result in an artificial cap on anadromous fish populations in Pine Gulch Creek at sub-optimum levels, the project sponsor proposes to reduce water diversions from the creek during critical seasons of the year. This project proposes the elimination of agricultural riparian diversion to in-stream flow to protect the coho salmon and steelhead trout.

The environmental conditions on the three farms are briefly summarized below.

### **1.2 Fresh Run Farms**

Two ponds are proposed on Fresh Run Farms, owned and operated by Peter Martinelli. The property is located in Paradise Valley, approximately 0.75 mile west of Bolinas Lagoon. The proposed pond 1A site is located in a gently-sloped saddle surrounded by three hilltops at the northwest corner of the property. Soils at the site of the proposed pond 1A are the Palomarin-Wittenberg Complex.

Pond 1B would be situated in a swale on Fresh Run Farms that is alternately plowed and left untilled, according to a schedule that varies from year to year. An artificially constructed pond, known as the Green Pond, and earthen dam lies within the upper third of the swale. Soils at this site are primarily the Palomarin-Wittenberg complex, but also include the Blucher-Cole complex, 2-5

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percent slope. Pond 1B would be constructed on the portion of the site upslope of the existing Green Pond.

### **1.3 Paradise Valley Farm**

One pond is proposed on Paradise Valley Farm, managed by Dennis Dierks. This property is situated within the Pine Gulch Creek watershed in Paradise Valley, approximately 0.5 mile west of Bolinas Lagoon in Marin County, California. Land use history includes cattle grazing since the late 1800's until the property changed ownership. The site was plowed and row crops were planted during the early 1950s. After this brief farming period, the land lay fallow until 1972 when it was purchased by the New Land Trust. The property now supports a privately-operated, small-scale organic farm.

The proposed site for the one-acre (surface area) irrigation storage pond is situated on a west-facing hillside bound by a corralled horse pasture to the southeast, and by an unpaved farm access road to the west. Soil at this site is characterized as the Blucher-Cole Complex.

### **1.4 Star Route Farms**

Two ponds are proposed for Star Route Farms, owned and operated by Warren Weber. This farm is situated on a floodplain approximately 0.75 mile west of Bolinas Lagoon. Pond 3A would be constructed in a southwest portion of the farm, in an area where a smaller pond already exists, at the base of slopes leading up the southern end of Inverness Ridge. The site supports a dense eucalyptus stand and a small portion of a cultivated field. Two soil types characterize this site, including the Palomarin-Wittenberg Complex, an upland soil type, which occurs throughout the eucalyptus stand, and the Blucher-Cole Complex that characterizes the southeastern portion of the site currently used for row crops.

Pond 3B would be constructed in a northwest portion of the farm in an area that includes cultivated fields and greenhouses, and bordered by a willow-dominated hillside seep. Soils at this site are characterized as the Blucher-Cole complex.

### **1.5 Watershed Geology**

The geology of the watershed drives the unique flow and fish habitat characteristics observed within Pine Gulch Creek. The geologic formations west of the San Andreas Fault include the Santa Cruz Mudstone and Merced Formation, which support deep soils with high infiltration capacity. Approximately 75 percent of the watershed drains from Inverness Ridge, west of the San Andreas Fault. These perennial tributaries provide water to the mainstem, but climb immediately from the valley bottom, providing little to no salmonid habitat. The geologic formations west of the San Andreas Fault include the Santa Cruz Mudstone and Merced Formation, which support deep soils with high infiltration capacity. The remaining 25 percent of the watershed drains from Bolinas Ridge east of the San Andreas Fault. The Franciscan Complex, which supports very thin soils with very low capacity for infiltration, makes up Bolinas Ridge. Tributaries draining from Bolinas Ridge have topography and stream profiles appropriate to support salmonids. Except for McCurdy Creek, all eastern tributaries are intermittent.

Four soil types or complexes are found in the study area: Palomarin-Wittenberg complex, 50-75 percent slopes; Cronkhite-Barnabe complex, 30-50 percent slopes; Cronkhite- Barnabe complex, 9-15 percent slopes; and Blucher-Cole complex, 2-5 percent slopes. The Palomarin-Wittenberg complex is an upland soil that consists of 40 percent Palomarin loam and 30 percent Wittenberg

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gravelly loam, comprising a deep and well-drained soil derived from siliceous shale or sandstone, with moderate to low water holding capacity. The Blucher-Cole complex is characterized as very deep and somewhat poorly drained, forming in basins and on alluvial fans. This soil is composed of 40 percent Blucher silt loam, occurring near drainageways, and 30 percent Cole clay loam, on basin rims and depressional areas. Permeability of this soil is slow, water holding capacity is high, and the soil is listed as hydric (Soil Conservation Service 1992). The Cronkhite-Barnabe soils include Cronkhite loam and Barnabe very gravelly loam, and occur on hilly upland slopes. The Cronkhite loam is deep and moderately well-drained, formed in material derived from sandstone or shale, with slow permeability and high water erosion hazard. The Barnabe soil is shallow and well-drained, formed in material derived from sandstone or shale, with moderate permeability and low water holding capacity (Soil Conservation Service 1985).

A review of Marin County's Geographic Information System (GIS), which contains spatial datasets collected from the United States Geologic Survey (USGS) and other sources, shows that the proposed ponds would be located in an area characterized by substantial geologic hazards. Expansive soils are mapped in the areas of ponds 2 and 3A, and may be present in other locations as well. Implementation of the project would place new irrigation ponds within the Alquist-Priolo Special Studies Zone, which would be affected by geologic instability during an earthquake. Ponds 1A, 2, and 3A are within approximately 300 feet of a mapped fault trace, pond 1B is within approximately 1,000 feet of a mapped fault trace, and pond 3B is bisected by a mapped fault trace. Further, with the exception of pond 1A, all the ponds would be located on soils that have a high probability of liquefaction during a strong earthquake. Seismic shaking amplification hazards are also high in the area of the project. On a scale of one to four, with four being the highest, the locations of ponds 1A and 1B are estimated as having a shaking amplification classification of two and ponds 2, 3A and 3B are estimated as having an estimated shaking amplification classification of three.

The Slope Stability Map for Bolinas indicates that, with the exception of pond 1A, the ponds would be located in stability zone one, which is the most stable category. Pond 1A appears to be located in stability zone three, which is regarded as an area where the steepness of the slope approaches the stability limits of the underlying geologic materials. A review of Marin County's slope map indicates that ponds 1A and pond 1B would be located on terrain that has slopes of approximately 5 to 15 percent, while ponds 2, 3A, and 3B would all be located on level areas that have slopes less than 5 percent. Maps created by the USGS show that landslides have been common on the steep slopes in the area and that there are surficial deposits near the creek. In addition, there is some indication that there were debris flows on the hillside east of pond 1B, which is consistent with the USGS's findings that debris flows are particularly likely to occur near the base of steep hillsides. It should be noted that the information contained in the Marin County GIS is not precise and site-specific studies of the fault lines and other hazards have not been submitted.

### **1.6 Pine Gulch Creek Meteorology and Discharge**

Like other portions of northern California, Bolinas experiences a Mediterranean climate characterized by warm, dry summers and cool, wet winters. Coastal low clouds and fog are common, especially during the late night and early morning hours. Average annual precipitation in the Bolinas area is slightly less than 40 inches, with most rain occurring during the Bay Area's winter rainy season (November through March).

Pine Gulch Creek represents the largest freshwater discharge into Bolinas Lagoon. Monthly watershed production, presented below in **Table 6**, is based on average daily flow reported by the USGS from June 1967 through September 1970, and the NPS from May 1998 through December

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2002. The monitored watershed area is 7.5 square miles. The data show significant seasonal and annual variability in streamflow. The normal annual runoff for the watershed is 9,300 acre-feet for the monitoring period. Approximately 75 percent of the watershed discharge occurs during the winter season (December 15 through March 31).

**Table 6: Monthly Watershed Production for Pine Gulch Creek (acre-feet)**

Month	1967	1968	1969	1970	1998	1999	2000	2001	2002	2003	Normal
October		55	102	63		71	49	88	31	48	63
November		88	160	87		464	44	69	564	74	194
December		155	1,759	2,578		439	41	78	3,923	2,714	1,461
January		521	3,807	8,672		923	453	348	2,950		2,525
February		1,387	3,674	1,252		9,056	2,985	1,359	1,589		3,043
March		907	1,399	938		2,794	1,719	635	809		1,314
April		276	557	243		1,299	587	161	228		479
May		128	288	122	403	340	465	48	111		238
June	548	67	155	47	298	198	210	16	70		179
July	116	18	93	31	198	66	119	10	42		77
August	92	18	40	7	106	51	49	14	57		48
September	60	7	41	4	56	47	45	22	37		35
TOTAL		3,627	12,075	14,044		15,748	6,766	2,848	10,411		9,360
Percent normal discharge	NA	39%	129%	150%	NA	168%	72%	30%	111%	NA	

## 2. VEGETATION COMMUNITIES

Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. Vegetation communities at the three farms were described in the first of multiple wetland delineation reports prepared for the project (Parravano 2001), and additional vegetation information was provided in a subsequent delineation report (Parravano 2003). The descriptions of vegetative communities below were obtained from these reports. Lists of plant species noted on the three farms were prepared for the 2001 report, but were augmented in the later documents. Additional information regarding special status plant species is provided in section 4 below.

### 2.1 Fresh Run Farms

Pond Site 1A on Fresh Run Farms supports mixed evergreen forest and non-native annual grassland. California bay, coast live oak, poison oak Association is the dominant vegetation type, adjacent to a small area of California Annual Grassland Weedy Alliance (Keeler-Wolf 1995). California hazel, blackberry, and poison oak are common understory species in the mixed evergreen forest. A sparse herbaceous understory, comprising 20 percent vegetation cover, occupies California bay and coast live oak canopy openings. The remaining area is largely unvegetated and covered with leaf litter.

Pond 1B would be located in a swale on Fresh Run Farms that is alternately plowed and left untilled, according to a schedule that varies from year to year. The existing Green Pond, which was constructed by the previous generation of the farmer's family, lies within the upper third of the swale. Pond 1B would encompass the upslope swale, bound along the east and north by a relocated farm road. Freshwater marsh, which is vegetated with species such as small-fruited bulrush, marsh

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parsley, stinging nettle, and Baltic rush, occurs as a fringe of the existing Green Pond, at the confluence of an adjacent and upslope swale, and within the swale itself. Although pond 1B is proposed upslope of the existing Green Pond, the downslope portion of the swale below the earthen dam was also investigated for environmental constraints related to pond construction. Along the base of the dam, leaking from the existing Green Pond has created a small, wet freshwater pocket supporting a stand of willows. The remaining area within the downslope portion of the swale supports vegetation dominated by species such as velvet grass, perennial ryegrass, bristly dogstail grass, and dissected geranium.

### **2.2 Paradise Valley Farm**

The site supports a non-native shrub-dominated hillside surrounding a small rush-dominated wetland situated in a drainage swale adjacent to the access road. Approximately 65 percent of the one-acre storage pond area is covered by non-native shrubs, 20 percent by non-native grassland, and 15 percent by rush-dominated wetlands. Vegetation structure and composition reflect the disturbed nature of this site. Through human disturbance, including grazing and farming practices, exotic vegetation has overtaken native grassland and coyote brush scrub communities that previously inhabited this site. A 2.5-yard high, dense shrub layer and a 0.5- to 1.0-yard high herbaceous layer characterize vegetation structure.

Non-native shrubs, consisting of dense thickets of narrowleaf firethorn and orange cotoneaster dominate the upland vegetation. A minor native shrub component includes coyote brush, and blackberry. Other associated shrubs include Himalayan blackberry, sweetbriar rose, and blueblossom. Introduced Perennial Grassland (Keeler-Wolf 1995), dominated by velvet grass occupies areas in between other vegetation communities. A diverse mixture of introduced and native grass and forb species are associated with velvet grass, including slender wild oats, ripgut brome, sedge, bull thistle, poison hemlock, field bindweed, *Festuca arundinacea*, rough catsear, smooth catsear, lamp rush, spreading rush, perennial wild rye, penny royal, bristly ox-tongue, curly dock, and white clover.

Rush-dominated wetland vegetation, composed of hydrophytic forbs and graminoids associated with non-native forbs, grasses, and shrubs, occupies two depressional swales within the proposed irrigation pond site. The vegetation is classified as a *Juncus effusus* Association, within a Rush Alliance (Keeler-Wolf 1995). Rush is growing in association with a diverse mix of upland non-native invasive forbs, grasses, and shrubs. Hydrophytic forbs and graminoids on the site include pennyroyal, sedge, clustered dock, and fringed willow herb.

### **2.3 Star Route Farms**

The vegetation structure and composition reflect the disturbed condition of this site, resulting from a variety of physical and biological disturbances. Disturbances include irrigation trenching, crop cultivation, planting of eucalyptus, and operation of farm equipment. This activity has resulted in a loss of plant species richness, incursion of exotic forbs and grasses, and alteration of wildlife habitat.

At the site for pond 3A, a dense stand of planted Tasmanian bluegum eucalyptus dominates the project area. The vegetation structure is composed of a dense 25-meter-high eucalyptus canopy, a two- to five-meter-high subcanopy, and a 0.5- to one-meter-high understory. The sparse subcanopy is composed of widely scattered box elder, California buckeye, California hazelnut, thimbleberry and California laurel. Dense, scraggly layers of California blackberry, poison oak, stinging nettle,

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and mats of woody debris form the understory. Other associated understory species include poison hemlock, field bindweed, pink honeysuckle, bristly ox-tongue, snowberry, and nasturtium.

An artificial irrigation pond comprises the southern half of proposed pond 3A. The pond itself supports a few aquatic plant species, including duckweed, longleaf pondweed, and *Ruppia*. An emergent fringe encompasses this pond with dominant plants including cattail, lamp rush, spreading rush, tall flatsedge, velvet grass and tules.

Pond 3B on Star Route Farms would occupy a small, shallow basin on an old stream terrace of Pine Gulch Creek. The site for pond 3B includes a cultivated field and greenhouse structures. It is bordered by a willow-dominated hillside seep in the northwest corner of the property.

### **3. ANIMAL POPULATIONS**

The mosaic of habitats present within the project area support a variety of wildlife species. The complex of habitats includes the presence of standing water, which can accommodate wildlife adapted to aquatic areas, trees and shrubs which provide nesting and roosting sites for many species of birds, in addition to foraging areas for species of mammals, reptiles, amphibians, and birds.

A major focus of the wildlife potential of the area centers on Pine Gulch Creek, which passes through the farms. Pine Gulch Creek is a principal source of freshwater to Bolinas Lagoon and supports annual runs of steelhead trout and coho salmon. The stream provides good spawning and rearing habitat for both species and is the most important steelhead and salmon stream tributary to Bolinas Lagoon. Pine Gulch Creek offers excellent summer nursery habitat for juvenile salmonids and other fishery resources. In addition to the anadromous species, there are resident populations of rainbow trout, stickleback, and sculpin. In addition to the fish resources, Pine Gulch Creek helps support a wide variety of riparian associated species.

A list of wildlife species that would be expected to utilize the project area was obtained through a habitat reconnaissance, field observation, and literature sources. The species discussed in this study are based on a review of the available literature from the CNDDDB, the Marin County LCP, and habitat observations made during qualitative surveys conducted by Gary Deghi, a wildlife biologist with HBG in the vicinity of Fresh Run Farms during 2004 and in the proposed pond areas of all three ranches in early 2006. Supplemental information was obtained from the literature, particularly for wildlife species not observed during the surveys.

Portions of the project area contain montane hardwood-conifer forest (including riparian canyons), and these areas would be expected to include bird species such as California quail, band-tailed pigeon, northern flicker, hairy woodpecker, Pacific-slope and olive-sided flycatcher, warbling and Hutton's vireo, Stellar's and western scrub-jay, common raven, chestnut-backed chickadee, bushtit, winter wren, Swainson's thrush, orange-crowned and Wilson's warbler, dark-eyed junco, song sparrow and black-headed grosbeak. Additional bird species would be expected in winter such as hermit and varied thrushes, ruby-crowned and golden-crowned kinglets, red-breasted nuthatch, yellow-rumped warbler, and white-crowned, golden-crowned and fox sparrows. Raptors would include species such as red-tailed, red-shouldered, sharp-shinned and Cooper's hawks and turkey vulture. Avian species within grassland, disturbed habitats and other open areas on the farms would be expected to include species such as mourning dove, Allen's and Anna's hummingbirds, American robin, California towhee, Brewer's blackbird, American goldfinch, purple finch and house finch. Scrub areas would harbor species such as Bewick's wren, spotted towhee and wrentit.

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Amphibians expected in the area would include species that could live in irrigation and other ponds on the properties such as bullfrog, Pacific treefrog, California red-legged frog and Coast Range newt. Mammals seen in the area by HBG have included Botta's pocket gopher, California vole, dusky-footed woodrat, coyote and mule deer, and other mammals expected to be common in the area would include Virginia opossum, deer mouse, striped skunk, raccoon and long-tailed weasel. Mr. Peter Martinelli has lived on his property for decades, and indicated to HBG that he has observed bobcat and, on one occasion, a mountain lion on the property.

Additional information regarding special-status wildlife is provided in section 4 below.

### **4. SPECIAL STATUS SPECIES**

Rare, endangered, or threatened species are protected by the Federal Endangered Species Act of 1973 (as updated in 50 CFR sections 17.11 and 17.12, January, 1982), the California Native Plant Protection Act of 1977, and the California Endangered Species Act of 1970 (Title 14 CCR sections 670.2 and 670.51). The California Environmental Quality Act (CEQA) (January, 1984) provides additional protection for unlisted species that meet the "rare" or "endangered" criteria defined in the CEQA Guidelines, 14 CCR section 15380.

The CDFG maintains records for the distribution and known occurrences of sensitive species and habitats in the California Natural Diversity Database (CNDDDB). Sensitive species include those species listed by the federal and state governments as endangered, threatened, or rare or candidate species for these lists. The CNDDDB is organized into map areas based on 7.5-minute topographic maps produced by the USGS. All known occurrences of sensitive species and important natural communities are mapped onto the quadrangle map. The database gives further detailed information on each occurrence, including specific location of the individual, population, or habitat (if possible) and the presumed current state of the population or habitat.

The project area is located in the Bolinas 7.5 minute quadrangle near its border with the Horseshoe Hill and Paradise Valley quadrangles. HBG conducted a CNDDDB records search that included all three of these quadrangles. A search of the CNDDDB conducted for records of occurrence of special status animals and plants within these quadrangles indicated that no special status species are known to occur on the project site itself. However, the absence of a special animal, plant or natural community from the report does not necessarily mean that they are absent from the area in question, only that no occurrence data are currently entered in the CNDDDB inventory. The occurrence of special status species in the vicinity of the project area may be an indication that they also could occur in the project area.

#### **4.1 Special Status Plant Species**

A list of special status plants with potential to occur in the project area was developed from the CNDDDB, the US Fish and Wildlife Service (USFWS) Endangered Species Office, the California Native Plant Society (CNPS), and field knowledge of the investigator.

Special status plant species include:

- Species that are listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR section 17.12; various notices in the Federal Register for proposed species);
- Species that are listed, or proposed for listing by the state of California as threatened or endangered under the California Endangered Species Act (Title 14 CCR section 670.5);

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- Plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered in California and elsewhere (Skinner and Pavlik 1994); and
- Plant species that meet the definition of rare or endangered under the California Environmental Quality Act (1970).

A total of 22 special status plant species have been reported in the Paradise Valley, Horseshoe Hill and Bolinas quadrangles. A list of these species and their habitat requirements is shown in the Biological Assessment. All of the species require habitat conditions that are not found on the project site such as serpentine soils or the presence of extensive coastal freshwater marsh or coastal salt marsh. In addition, none of the species noted were observed during field surveys conducted for several wetland delineations of the properties conducted in 2001, 2002 and 2003.

### **4.2 Special Status Animal Species**

Based on information in the CNDDDB and the knowledge of the HBG wildlife biologist, four species listed as threatened or endangered under the federal Endangered Species Act are known to occur in the immediate vicinity of the project area and are discussed in greater detail below: coho salmon, steelhead trout, California red-legged frog, and Northern Spotted Owl.

Although monarch butterflies are not a listed species, the proposed pond sites have been searched for winter roost sites for this species, with negative results. Further, the CDFG informed HBG that California freshwater shrimp do not occur in the Pine Gulch Creek watershed (Bill Cox, personal communication, March 2005).

#### **4.2.1 Coho Salmon and Steelhead Trout**

Central California populations of steelhead trout were federally listed as threatened in August 1997. Steelhead have been divided into ESUs, all of which were listed as threatened under the Federal Endangered Species Act in August 1997. Steelhead in the Central Coast ESU occur from the Russian River south to Soquel Creek and to, but not including, the Pajaro River, and including San Francisco and San Pablo Bays. Like the coho salmon, these fish require well-oxygenated streams with riffles and loose, silt-free gravel substrate for spawning.

Populations of coho salmon within the Central California Coast ESU are Federally and State listed between Punta Gorda and the San Lorenzo River. This salmonid requires beds of loose, silt-free, coarse gravel for spawning, and also needs cover, cool water, and sufficient dissolved oxygen. According to the CNDDDB, the species occurs in Olema, San Geronimo and Lagunitas Creeks and Devils Gulch. It is believed that these streams provide spawning habitat for approximately 10 percent of California's coho salmon.

Fisheries monitoring in the Pine Gulch Creek watershed has been conducted through the National Park Service since 1998. Ongoing monitoring efforts are now conducted under joint funding including the San Francisco Bay Area Network Inventory and Monitoring Program, as well as a monitoring grant through the CDFG. Pine Gulch Creek currently supports a population of steelhead trout and it is generally accepted that it was supporting a native self-sustaining population of coho salmon into the 1970s. Winter adult and summer juvenile estimates for the 2000-2001 coho cohort year classes document the recent return of coho salmon to the watershed (Brown and Ketcham 2002). Monitoring indicates that all three coho cohort year classes are represented within Pine Gulch Creek (Ketcham and Brown 2003). Salmonid habitat begins at the extent of tidal action, Marin County Open Space District bridge, and extends upstream approximately six miles on the

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mainstem. The two large tributaries, McCurdy Gulch and McCormic Creek are also documented to support salmonids.

Both juvenile steelhead and coho salmon require a period of residency in the stream before migrating downstream to the ocean. The length of freshwater residency varies by species, but is typically one year for salmon and up to three years for steelhead trout. The major downstream migration of juvenile steelhead and coho salmon occurs during the period from February through June, depending on the water year and pattern of winter-spring runoff. Fish habitat is physically reduced to a minimum during the low-flow period of July through October. This is the most critical time for survival of juvenile fish populations in Pine Gulch Creek. At this time, the actual physical habitat supporting fish life is at its minimum due to low flow conditions and the amount of available habitat may become a limiting factor in the health and survival of fish populations.

Stream surveys and observations on the Creek have revealed the presence of increasing populations of juvenile steelhead and coho salmon during the summer and fall months. Headwater springs produce a perennial streamflow that maintains nursery habitat throughout the length of stream utilized by anadromous fishes.

### **4.2.2 California Red-legged Frog**

The California red-legged frog is a federally-listed threatened species and California species of special concern. The historical range of the California red-legged frog extended from the vicinity of Point Reyes National Seashore in Marin County southward to northwestern Baja California, Mexico and inland to approximately Redding in Shasta County (61 Federal Register 25813). The frog has sustained a 70 percent reduction in its geographic range.

California red-legged frogs have been observed in a number of aquatic and terrestrial habitats, including marshes, streams, lakes, reservoirs, ponds and other permanent, or near permanent, sources of water. Although they occur in ephemeral streams or ponds, California red-legged frogs are expected to thrive in permanent deep-water pools with dense stands of overhanging willows and emergent vegetation. However, they have been observed in a variety of aquatic environments, including stock ponds and artificial pools with little to no vegetation. California red-legged frogs usually are observed near water, but can move long distances over land between water sources during the rainy season.

Studies and surveys pertaining to use of the project area by California red-legged frog have been completed by Gary Fellers of the USGS, Biological Resources Division (Fellers 2006). During his 2006 surveys, Fellers found between four and ten California red-legged frogs at the existing Star Route Farms pond (already known to support the species), and also found as many as three California red-legged frogs at the existing Green Pond on Fresh Run Farms. Fellers (2006) also noted non-breeding habitat for California red-legged frog immediately north of the existing Green Pond, and found California red-legged frogs within the section of Pine Gulch Creek itself near the location of the existing pond at Star Route Farms. Based on studies conducted in 2001, Patrick Kleeman also found suitable non-breeding habitat for the species at the site of Pond 2, as are common in wetland areas, but he did not identify any individuals of the species. Further, Kleeman suggested that the eucalyptus grove in the vicinity of Pond 3A may be used as a movement corridor for the frogs between the existing Star Route Farms pond and Pine Gulch Creek.

### **4.2.3 Northern Spotted Owl**

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The northern spotted owl was listed by the USFWS as a threatened species on June 22, 1990. northern spotted owls reach the southern limit of their range in Marin County. In the northern portion of their range, northern spotted owls are typically found in mature coniferous forests. In Marin County they reside in second growth douglas fir, coast redwood, bishop pine, mixed conifer-hardwood and evergreen hardwood forests. Nesting northern spotted owls have been found throughout forested habitats in Marin and use a variety of tree species for nesting. This owl species does not construct a nest so existing nest structures or cavities must be available.

Due to the presence of potential owl habitat in the general vicinity, surveys for northern spotted owl were conducted on the Osterweis property, which is adjacent to the subject properties and Pine Gulch Creek, where limited development is proposed as part of a separate development application. The Osterweis property was once part of Fresh Run Farms, and is currently located between Fresh Run Farms and Paradise Valley Farms. Habitat on the Osterweis property includes mature coniferous and hardwood forest with a closed tree canopy and open understory habitat structure similar to other habitats used by owls throughout Marin County. In 1998, a northern spotted owl pair was heard at night by researchers with the Point Reyes Bird Observatory (PRBO) approximately 500 meters north of the Osterweis Ranch. These birds were documented using a variety of habitats and were found roosting near a residence.

Working with HBG, PRBO biologists surveyed the Osterweis Ranch for northern spotted owl during the 2005 nesting season according to the USFWS' Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls (USFWS 1992). PRBO Conservation Science confirmed the presence of a northern spotted owl pair at Osterweis Ranch, in forested habitat on the hillside west of Pine Gulch Creek. Although no nest was documented, owl pairs in Marin generally nest every two out of three years. The PRBO biologist indicated that it is reasonable to assume this pair will nest in this same vicinity in the next year or two.

This pair of northern spotted owls is the farthest south pair along the Inverness Ridge. They may represent the same individuals documented to the north in 1998. It is possible that there is an additional pair to the north, but further night surveys would be required to determine this. Extensive owl surveys have been conducted on National Park Service lands to the north, west and east, and up to six owl pairs are known in areas over two kilometers from the project area.

### **4.2.4 Monarch Butterflies**

Monarch butterflies are known to congregate in the Bolinas area during the winter months, and overwinter in areas with suitable habitat. Areas that provide a supportive climate, wind protection, nectar sources, and a water source such as the Purple Gate area in Bolinas and the Chapman Preserve in Stinson Beach may provide critical habitat for monarch butterflies. Mia Monroe, a board member of the Monarch Program who has conducted ongoing studies with respect to monarch butterflies in the area, evaluated the site and concluded that the groves of eucalyptus and riparian areas surrounding Pine Gulch Creek do not support clusters of monarchs, and may not have the attributes of suitable overwintering habitat for the butterflies.

## **5. WETLANDS**

Wetland delineations of the proposed pond sites have been prepared by the National Parks Service in several reports (Parravano 2001, Parsons 2002 and Parravano 2003). Each of these reports give significant details on methodology used to map jurisdictional areas pursuant to both the three parameter approach used by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act, and the one-parameter approach used by the U.S. Fish and Wildlife Service (Cowardin

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et.al. 1979), and inherent in the methodology used by the California Coastal Commission under the Coastal Act. A summary of the approaches used by the various agencies is provided below. Detailed wetland delineation results are presented in the reports noted above, and these results are summarized below as well.

### **5.1 Methodology**

Evaluation of the presence of wetlands is required by the Marin County LCP. The California Coastal Commission (CCC) has adopted Interpretive Guidelines containing specific definitions of wetlands, estuaries, streams and rivers, lakes, and open coastal waters. For wetlands, the Commission's interpretation is based on a definition developed by the U.S. Fish and Wildlife Service. According to this definition, generally, wetlands exist where the soil is predominantly hydric (wet), the plant cover is predominantly hydrophytic (plants grow in water or in very moist ground), or the land is flooded or saturated at some time of the year.

Whereas the Corps and EPA require all three wetland parameters to be present at a site for it to be considered a wetland (i.e., wetland hydrology, hydric soils, and hydrophytic vegetation), USFWS only requires one of the three characteristics to be present for it to be considered a wetland (i.e., wetland hydrology, hydric soils, or hydrophytic vegetation). CCC has adopted USFWS' one-parameter approach for delineating wetlands in the California coastal zone as rationalized in the following passage from the CCC's (1981) interpretive guidelines: "Since the wetland definition used in the (USFWS) classification system is based upon a feature identical to that contained in the Coastal Act definition, i.e., soil or substrate that is at least periodically saturated or covered by water, (CCC) will use the classification system as a guide in wetland identification." Like the USFWS, the CCC considers a wetland to be any area that is sufficiently wet for a long enough period of time to support a preponderance of hydrophytic vegetation or result in the development of hydric soils.

Wetlands also fall under the jurisdiction of the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act. To determine federal Corps jurisdiction, the 1987 "Corps Wetlands Delineation Manual" (1987 Manual) would be used to determine the extent of wetlands. Pursuant to the 1987 Manual, key criteria for determining the presence of wetlands are: (a) the presence of inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water; and (b) a prevalence of vegetation typically adapted for life in saturated soil conditions (i.e., hydrophytic vegetation). Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands subject to Corps jurisdiction. Therefore, wetland areas defined according to County LCP criteria would be more inclusive than those that would be defined by the Corps.

### **5.2 Results**

Detailed results of wetland delineations are presented in several reports prepared by the National Parks Service (Parravano 2001, Parsons 2002, Parravano 2003). A summary of wetlands found to be present at the various sites follows. All wetlands reported below were verified by the Corps of Engineers in evaluations conducted by them in 2001 and again in 2003. It should be noted that Pine Gulch Creek, which ranges from 100 to 400 meters from the proposed pond locations, is a potential jurisdictional water below the ordinary high water mark or bank full discharge elevation.

#### **5.2.1 Fresh Run Farms**

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The site for pond 1A was delineated and the Corps verified that no wetlands are present at this site. The topography is gently sloped, which discourages prolonged ponding of water and saturation of soils. Any precipitation flows rapidly off the site as sheet flow.

At the site for pond 1B, potential non-jurisdictional “isolated” wetlands encompassing a total of 3.58 acres were mapped. The existing Green Pond is a constructed pond, impounded by an earthen dam, and encompassing an area of 0.18 acres. Hydrology sources in this area include direct precipitation and sheet flow from adjacent seeps on surrounding hillsides; however, the pond has no overland surface water connection or potential groundwater connection to navigable waters, and is considered isolated. The wetland features in this area include a fringe of emergent vegetation encompassing the existing Green Pond and an adjoining wet swale that appears to intersect the groundwater table and receives sheet flow from adjacent hillside seeps. Wetland features directly below the pond and its dam appear to be supported by seepage from the pond and/or sheet flow from adjacent hillside seeps. No defined bed and bank features were observed throughout the entire swale, either above or below the pond.

### **5.2.2 Paradise Valley Farm**

Approximately 0.003 acres (130 square feet) of potential jurisdictional wetlands are present within a vegetated drainage swale feature on the Paradise Valley Farm proposed location of pond 2. This swale flows generally east to west in the center of the proposed pond location, and the jurisdictional wetland areas occur in a depressional area in the lowest part of the swale.

### **5.2.3 Star Route Farms**

At pond site 3A, a non-jurisdictional, artificial irrigation pond, encompassed by a narrow fringe of freshwater marsh, occupies approximately 0.45 acres of the southern half of the proposed pond site. This pond is considered non-jurisdictional because it was originally built in uplands, is regularly maintained, and water is pumped into the pond from nearby Pine Gulch Creek.

Potential jurisdictional wetlands were mapped on the Star Route Farms pond 3B. Approximately 1.32 acres of potential jurisdictional wetlands at pond 3B consist of two vegetated drainage channels and a shallow basin feature supporting a former cultivated field. The proposed site for pond 3B occupies a small, shallow basin on an old stream terrace of Pine Gulch Creek. A hydrological connection with Pine Gulch Creek results from a narrow vegetated channel that drains the basin, carrying surface water to the creek. The primary hydrology source for the wetlands is sheet or overland flow from an adjacent hillside seep and a seasonally high groundwater table.

## **6. REGULATORY SETTING AND PERMIT REQUIREMENTS**

In addition to County approval, the proposed project would require permits or approvals from several Federal, State, and local agencies. These include an appropriate water rights application to be approved by the California State Water Resources Control Board, a section 1603 Streambed Alteration Agreement through the California Department of Fish and Game, Regional Water Quality Control Board Water Quality Certification under Section 401 of the Clean Water Act, Army Corps consultation under section 404 of the Clean Water Act, as well as consultation with the US Fish and Wildlife Service and National Marine Fisheries Service for effects on federally listed aquatic species. The farmers also intend to enter into Safe Harbor Agreements with the U.S. Fish and Wildlife Service to enhance California red-legged frog habitat in the new ponds. A brief discussion of Federal and State regulatory requirements follows.

## **6.1 U.S. Army Corps of Engineers (Corps)**

Section 404 of the Clean Water Act regulates the discharge of dredged or fill material to wetlands and other waters of the United States. The U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency are responsible for implementing this program. Section 404(a) authorizes the Corps to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into waters of United States. Section 404(b) requires that the Corps issue permits in compliance with EPA guidelines, which are known as the Section 404(b)(1) Guidelines. Specifically, the Section 404(b) (1) guidelines require that the Corps only authorize the “least environmentally damaging practicable alternative” and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards.

EPA and Corps regulations define wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” [40 CFR section 230.3(t); 33 CFR section 328.3(b)].

Following the recent U.S. Supreme Court decision in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, No. 99-1178 (2001), some isolated wetlands may be excluded from the Corps’ Section 404 jurisdiction because they are (1) non-tidal, (2) non-navigable, (3) not hydrologically connected to navigable waters or adjacent to such waters, and (4) not subject to foreign or interstate commerce.

Wetland delineations have been performed at the site of all five proposed ponds and delineations have been verified by the Corps of Engineers. Wetlands subject to the Section 404 jurisdiction of the Corps are present at the site for pond 2 (0.003 acres) and at the site for pond 3B (1.32 acres).

## **6.2 U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS)**

The U.S. Fish and Wildlife Service (USFWS) is responsible for implementing the Federal Endangered Species Act (ESA). The purpose of the ESA is “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved” (16 USC section 1531). The ESA establishes an official listing process for plants and animals considered to be in danger of extinction; requires development of specific plans of action for the recovery of listed species; and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC sections 1532, 1536).

The ESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC section 1536). Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision. In the event that listed species are involved and a Corps permit is required for impacts to jurisdictional waters, the Corps must initiate consultation with FWS or NMFS pursuant to section 7 of the ESA (16 USC section 1536; 40 CFR section 402). If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

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The USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state's wildlife agency (CDFG) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFG review applications for permits issued under Section 404 and provide comments to the Corps about potential environmental impacts. Because the project site may support several federally-listed species and will require Corps authorization for impacts to jurisdictional waters, ESA Section 7 consultations likely will be required with USFWS and NMFS. The Corps likely will serve as the lead federal agency in these consultations.

The Migratory Bird Treaty Act of 1918 makes it unlawful to “take” (kill, harm, harass, shoot, etcetera) any migratory bird listed in 50 CFR section 10, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerines.

### **6.2.1 Safe Harbor Agreements**

Under the federal Endangered Species Act the presence of an endangered species on a property may result in restrictions on activities undertaken on that land that may be harmful to that species. The basic idea behind a safe harbor agreement is that landowners who accomplish activities that are supportive of listed species should not be penalized for conducting these activities. In a safe harbor agreement, a landowner commits to performing positive actions for endangered wildlife (usually by restoring or enhancing habitats for endangered species) and the government pledges not to “punish” the landowner for having accomplished beneficial activities.

A safe harbor agreement assures landowners that if they perform agreed-upon activities that benefit listed species (in this case create a pond that will enhance habitat for the California red-legged frog), they won't incur any new restrictions on the use of the land if their actions result in endangered species taking up residence. Safe harbor agreements, however, do not affect any preexisting restrictions that may apply to a property as a result of endangered species already living there.

### **6.3 California Department of Fish and Game (CDFG)**

Pursuant to Fish and Game Code Sections 1600-1603, CDFG regulates activities that use materials from any streambeds; or substantially divert, obstruct, or change the natural flow or bed of any river, stream or lake. Sections 1600-1603 allow CDFG to review any proposed construction and to propose reasonable modifications for the protection and construction of a fish or game resource that might be substantially adversely affected by such construction. CDFG enters into a Streambed Alteration Agreement with a project applicant and can impose conditions on the agreement to prevent adverse impacts to fish and wildlife resources and ensure no net loss of wetlands.

In 1984, the State legislated the California Endangered Species Act (CESA) (Fish and Game Code section 2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. CESA requires that all State lead agencies (as defined under CEQA) conduct an endangered species consultation with CDFG if their actions could affect a State-listed species. The State lead agency and/or project applicants must provide information to CDFG on the project and its likely impacts. CDFG will then prepare written findings on whether the proposed action would jeopardize a listed species or would result in the direct take of a listed species. Since CESA does not have a provision for “harm,” CDFG considerations pursuant to CESA are limited to those

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actions that would result in the direct take of a listed species. If a proposed project would result in impacts to a State-listed species, an incidental take permit pursuant to section 2081 of the Fish and Game Code is necessary. State and Federal incidental take permits are issued on a discretionary basis and are typically only authorized if applicants are able to demonstrate that impacts to the listed species in question are unavoidable, and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species.

As described above, under authority of the Fish and Wildlife Coordination Act, the CDFG may review applications for permits issued under Section 404 and provide comments to the Corps regarding environmental impacts. Fish and Game Code Section 5650(a) gives CDFG jurisdiction over the input of any deleterious substances, such as silt, into the waters of the State of California, resulting from construction. The CDFG investigates and takes appropriate action when written complaints are filed alleging a violation of the conditions of a Streambed Alteration Agreement. Typically, the CDFG has the discretion to reauthorize Streambed Alteration Agreements every five years.

### **6.4 California State Water Resources Control Board (SWRCB)**

The State Water Resources Control Board (SWRCB) has jurisdiction over water use permits in California and acts as arbiter of disagreements over water rights. All water rights in the State must meet reasonable beneficial use standards; wasteful use of water can be contested and unreasonable use can be stopped by order of the SWRCB. Two types of water use are recognized under California law: riparian rights and appropriative rights. Riparian rights are those where water is extracted for use on lands that directly border the stream. Any owner of a parcel immediately adjacent to a watercourse has the right to take water for domestic and agricultural use at any time unless specific deed restrictions are stated in the title to the land. Riparian storage is limited to a maximum period of 30 days. Riparian rights do not require a permit from the SWRCB, however this does not exempt a property owner from CDFG requirements, as discussed above.

Any removal of water from streamside areas for delivery to non-adjacent parcels constitutes appropriative use, which requires a permit from the SWRCB. When construction and use of water are complete, an inspection is made by the SWRCB for possible issuance of a license. To the extent that beneficial use of the water has been made, as to both amount and season as specified in the terms and conditions of the water appropriation permit, a license may be issued. A license has no time limit and continues as long as proper use is made for the water and required reports are submitted. The SWRCB investigates and takes appropriate action when written complaints are filed alleging illegal diversion, violation of permits, unreasonable use, or violation of public trust.

### **6.5 California Regional Water Quality Control Board (RWQCB)**

Like EPA's 404(b)(1) guidelines, Section 401 of the Clean Water Act prohibits discharges of dredged or fill material that violate state water quality standards. The statute requires Federally-permitted discharges to obtain water quality certification from state water quality authorities. Corps Section 404 permits are not valid until the Regional Water Quality Control Board has been notified and the applicant has obtained a certification that the proposed discharge complies with state water quality standards.

The proposed project would be under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board in Oakland, CA. The Regional Board also regulates discharges of dredged

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or fill material to wetlands (including isolated wetlands) pursuant to its Porter-Cologne Act authority.

In 1972, the Clean Water Act was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The 1987 amendments established a framework for regulating municipal, industrial, and construction-related storm water discharges under the NPDES Program. On November 16, 1990, the US Environmental Protection Agency (EPA) published final regulations that establish storm water permit application requirements for specified categories of industries. The regulations provide that discharges of storm water from construction projects that encompass one or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit. The California State Water Resource Control Board has developed a general construction storm water permit to implement this requirement. The permit requires submittal of a Notice of Intent to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan. The proposed project would be required to comply with this standard.

### **6.6 California Coastal Commission (CCC)**

The project area is within the Marin County Coastal Zone and subject to relevant policies of the Local Coastal Plan, Unit 1 (LCP) (County of Marin 1980). Unit I of the LCP was certified in 1980 and includes the communities of Muir Beach, Stinson Beach, and Bolinas. The primary goal of the LCP is to ensure that the local government's land use plans, zoning ordinances, zoning district maps, and implementing actions meet the requirements of, and implement the provisions and policies of, the Coastal Act at the local level. The relationship of the project to LCP policies is discussed in more detail in the Land Use and Planning portion of the impacts section below (VI.A.2).

## **III. DOCUMENTS INCORPORATED BY REFERENCE**

The following documents specifically have been used in evaluating the proposed project. A complete listing of all technical reports and plans submitted by the project sponsor, as well as maps and documents on file in the Planning Division, that have been used in evaluating the proposed project and incorporated by reference in accordance with Section 15150 of the *California Environmental Quality Act Statutes and Guidelines* are contained in attachment 1 of this Initial Study. Please be advised that all reports, documents, and maps are matters of public record and are available for public review in the Community Development Agency - Planning Division, Room 308, Marin Civic Center, San Rafael.

1. Pine Gulch Creek Enhancement Project Initial Study Exhibit (attachment 2), consisting of project plans, project specifications, impact and mitigation maps
2. Geotechnical Investigation Pine Gulch Creek Reservoirs, Miller Pacific Engineering Group, received 8-22-02
3. Geotechnical Investigation Pine Gulch Creek Reservoirs, Miller Pacific Engineering Group, received 11-14-05
4. Supplemental Geotechnical Investigation Martinelli Site 3, Miller Pacific Engineering Group, received 11-14-05

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5. Geotechnical Plan Review off-channel Irrigation Reservoir New Land Trust Property, Miller Pacific Engineering Group, received 11-14-05
6. Site Grading and Drainage Irrigation Reservoir Embankment Lauff Ranch Road, Erickson Engineering Inc., received 11-14-05
7. Project flooding information, Erickson Engineering Inc., received 3-30-06
8. Flooding Risk Assessment for Proposed Agricultural Reservoir Dennis Dierks Property, Miller Pacific Engineering Group, received 4-18-07
9. Guidelines for Maintaining In-stream Flows to Protect Fisheries Resources Downstream of Water Diversions in Mid-California Coastal Streams, CDFG & NMFS, issued 6-17-02
10. Delineation of Potential Jurisdictional Wetlands and Waters, Pine Gulch Creek Enhancement Project, NPS, received 8-22-02
11. Pine Gulch Creek Watershed Enhancement Project, Cowardin Wetland Delineation Report, NPS, received 8-22-02
12. Water Availability and Cumulative In-stream Impacts Analysis, dated 11-3-05
13. Delineation of Potential Jurisdictional Wetlands and Waters, Pine Gulch Creek Enhancement Project Addendum, NPS, received 11-14-05
14. Delineation of Wetlands and Deepwater Habitats, Pine Gulch Creek Enhancement Project, received 11-14-05
15. Pine gulch water enhancement project Red-legged frog habitat suitability, Patrick Kleeman, undated
16. US NMFS comments, received 10-7-02
17. The Monarch Program (Mia Monroe) comments, received 8-22-02
18. Documentation of Coho Salmon in Pine Gulch Creek, NPS, received 8-22-02
19. Coho Salmon in Pine Gulch Creek 2002 Monitoring Report, NPS, received 11-14-05
20. Biological Assessment, Huffman-Broadway Group (HBG), received 4-20-07
21. A Cultural Resources Evaluation of the Pine Gulch Creek Watershed Enhancement Project, Agricultural Irrigation Storage, Archaeological Resource Service, received 8-22-02
22. A Cultural Resources Evaluation of Three Additional Pond Sites, Pine Gulch Creek Watershed Enhancement Project, Archaeological Resource Service, received 11-14-05

#### **IV. CIRCULATION AND REVIEW**

This Initial Study is being circulated to all agencies that have jurisdiction over the subject property or natural resources affected by the project and to consultants, community groups, and interested

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parties to attest to the completeness and adequacy of the information contained in the Initial Study as it relates to the concerns that are germane to the agency's or organization's jurisdictional authority or to the interested parties' issues.

U.S. Department of Fish and Wildlife  
U.S. Army Corps of Engineers  
U.S. National Parks Service, Point Reyes National Seashore  
U.S. Geological Survey, Biological Resources Division  
U.S. National Marine Fisheries Service  
California Department of Fish and Game  
California Regional Water Quality Control Board  
California Coastal Commission  
Marin County Department of Public Works (DPW), Land Use & Water Resources Division  
Marin County Community Development Agency, Environmental Health Services Division  
Marin County Fire Department  
Marin County Open Space District  
Marin County Resource Conservation District  
Marin County Agricultural Commissioner  
Marin County Department of Public Works  
Bolinas Lagoon Technical Advisory Committee  
Bolinas Community Public Utility District  
Bolinas Fire Protection District  
Interested Parties

### V. EVALUATION OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Pursuant to Section 15063 of the *California Environmental Quality Act Statutes and Guidelines* (CEQA) Guidelines, and the *County Environmental Impact Report Guidelines* (EIR), Marin County will prepare an "Initial Study" for all projects not categorically exempt from the requirements of CEQA. The "Initial Study" evaluation is a preliminary analysis of a project that provides the County with information to use as the basis for deciding whether to prepare an EIR or Negative Declaration. The points enumerated below describe the primary procedural steps undertaken by the County in completing an "Initial Study" checklist evaluation and, in particular, the manner in which significant environmental effects of the project are made and recorded.

- A. The determination of significant environmental effect is to be based on substantial evidence contained in the administrative record and the County's environmental database consisting of factual information regarding environmental resources and environmental goals and policies relevant to Marin County. As a procedural device for reducing the size of the Initial Study document, relevant information sources cited and discussed in topical sections of the checklist evaluation are incorporated by reference into the checklist (e.g. general plans, zoning ordinances). Each of these information sources has been assigned a number which is shown in parenthesis following each topical question and which corresponds to a number on the data base source list provided herein as Attachment 1. See the sample question below. Other sources used or individuals contacted may also be cited in the discussion of topical issues where appropriate.
- B. In general, a Negative Declaration shall be prepared for a project subject to CEQA when the Initial Study demonstrates that there is no substantial evidence that the project may have one or more significant effects on the environment. A Negative Declaration shall also be prepared if the Initial Study identifies potentially significant effects, but revisions to the

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project made by or agreed to by the applicant prior to release of the Negative Declaration for public review would avoid or reduce such effects to a level of less than significance, and there is no substantial evidence before the Lead County Department that the project as revised will have a significant effect on the environment. A signature block is provided in Section VIII of this Initial Study to verify that the project sponsor has agreed to incorporate mitigation measures into the project in conformance with this requirement.

- C. All answers to the topical questions must take into account the whole of the action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. Significant unavoidable cumulative impacts shall be identified in Section VII of this Initial Study (Mandatory Findings of Significance).
- D. A brief explanation shall be given for all answers except "Not Applicable" answers that are adequately supported by the information sources the Lead County Department cites in the parenthesis following each question. A "Not Applicable" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "Not Applicable" answer shall be discussed where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- E. "Less Than Significant Impact" is appropriate if an effect is found to be less than significant based on the project as proposed and without the incorporation of mitigation measures recommended in the Initial Study.
- F. "Potentially Significant Unless Mitigated" applies where the incorporation of recommended mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The Lead County Department must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section VI, "Earlier Analyses", may be cross-referenced).
- G. "Significant Impact" is appropriate if an effect is significant or potentially significant, or if the Lead County Department lacks information to make a finding that the effect is less than significant. If there are one or more effects that have been determined to be significant and unavoidable, an EIR shall be required for the project.
- H. The answers in this checklist have also considered the current California Environmental Quality Act Guidelines and the Initial Study Checklist contained in those Guidelines.

### VI. ISSUES (and Supporting Information Sources):

#### A. LAND USE AND PLANNING.

*Would the proposal:*

<p><b>1. Conflict with applicable Countywide Plan designation or zoning standards?</b> (source #(s): 1, 2)</p>	<p><b>Significant Impact</b></p>	<p><b>Potentially Significant Unless Mitigated</b></p>	<p><b>Less Than Significant Impact</b></p>	<p><b>Not Applicable</b></p>
	[ ]	[ ]	[ X ]	[ ]

## Exhibit 2: Initial Study

The proposed project is subject to the goals and policies of the Marin Countywide Plan (CWP), the Local Coastal Plan, Unit 1, (LCP), the Bolinas Community Plan, and the standards of the Marin County Interim Zoning Ordinance (Title I22) and the Development Standards (Title 24). The CWP serves as the general plan for the unincorporated areas of Marin County and contains goals, policies, and programs that govern existing and future development. For purposes of land use considerations, the CWP divides the County into three environmental corridors. The subject properties are located in the Coastal Recreation Corridor and have land use designations of C-AG-1 (Coastal, Agricultural, 1 unit per 31-60 acres), C-AG-2 (Coastal, Agricultural, 1 unit per 10-30 acres), and C-AG-3 (Coastal, Agricultural, 1 unit per 1-9 acres). These agricultural designations emphasize the importance of maintaining the properties for agricultural operations. The Bolinas Community Plan emphasizes protecting natural resources, encouraging agriculture, and enhancing the character of the local community.

The Pine Gulch Creek Watershed Enhancement Project represents a cooperative arrangement by the organic farmers in the watershed to develop an environmentally and agriculturally sustainable program to protect surface flow for salmonids, while maintaining viable organic farm operations. The solutions proposed in the application materials are based on substantial environmental research conducted over the past 10 years and may be applicable to many other coastal watersheds supporting salmonids. The proposed project identifies a viable solution to maintain organic farming while protecting summer surface flow in Pine Gulch Creek for the benefit of coho salmon and steelhead trout, which would not adversely affect the character of the local community. Therefore, the proposed project would be consistent with the purpose of the governing zoning districts and the mandatory findings for Coastal Permit and Design Review Clearance approval.

Based on the application materials, the proposed project would promote sustainable agricultural practices, would be compatible with the character of the local community, and consistent with the policies contained in the CWP, LCP and the Bolinas Community Plan. Further discussion of these policies is included in the sections below as they are related to the thresholds of significance for various potential environmental impacts.

<b>2. Conflict with applicable environmental plans or policies adopted by Marin County? (source #(s): 1-52)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The determinations of policy consistency as discussed in this Initial Study section represent County staff interpretation of policies. However, this Initial Study does not determine policy consistency. The formal policy consistency determinations are made by the County decision-makers.

Policy inconsistencies may not necessarily indicate significant environmental effects. Section 15358(b) of the CEQA Guidelines states that “effects analyzed under CEQA must be related to a physical change in the environment.” Therefore, only those policy inconsistencies that would lead to a significant effect on the physical environment are considered significant impacts pursuant to CEQA. Where potentially significant environmental impacts are raised in the discussion below, they have been mitigated to a less-than-significant impact and, therefore, project activities are determined to be consistent with the relevant policies cited.

## Exhibit 2: Initial Study

Mitigations are addressed further in the topical impact sections following plan policy analyses.

### **LOCAL PLANS, POLICIES, AND REGULATIONS**

Land use designations and development of the project site are governed by the objectives and policies of the Marin Countywide Plan (CWP), the Local Coastal Plan, Unit 1, (LCP), the Bolinas Community Plan, and the standards of the Marin County Interim Zoning Ordinance (Title I22) and Development Standards (Title 24).

#### **Visual Resources and Community Character**

##### *Policies*

The CWP requires that visual qualities and view potential of the natural and built environment must be considered in reviewing development projects. In particular, preserving visual resources should be achieved by avoiding the removal or damage to trees (Policy EQ-3.11).

In order to be consistent with CWP policies, development should preserve unique natural site amenities including hillsides, ridges, watercourses, stands of significant trees, rock outcroppings and other natural features that are distinguishing characteristics of the surrounding area. The visibility of new development should be minimized by using existing natural site characteristics for screening such as trees and topographic features.

##### *Project*

**Consistent.** The proposed ponds would be located in secluded areas, distant from surrounding residential neighborhoods and main roads. Further, the maximum height of the embankments for all of the ponds except the pond 1B would not exceed 15 feet above grade. Pond 1B would have embankments that are 25 feet in height above grade, but this pond would be located in an isolated and remote location, and would not be visible from off-site locations. The only pond that would be easily visible from a public road would be pond 3A on Star Route Farms, and it would not exceed a height of 13 feet above grade. Pond 3A would be visible from Olema-Bolinas Road, but would not impede views and would have a visual backdrop of forest and hillsides. The pond's embankments would be of earthen construction and vegetated throughout the year. Further, water storage ponds are a typical element of a rural landscape, and would reinforce the agricultural character of the area. Therefore, the project would be consistent with the visual resources and community character policies contained in the CWP.

#### **Geology and Landforms**

##### *Policies*

The CWP requires new development to adhere to the standards of the Department of Public Works in order to minimize excavation, grading, and filling, while allowing for adequate access to developed properties (Policy EQ-3.16). The CWP also requires that new development be located and designed in a manner that minimizes hazards to the public in identified geologic hazard areas (Objective EH-3) and protects the public health and safety from ground rupture and seismic ground shaking (Objective EH-4 and EH-5).

## Exhibit 2: Initial Study

### *Project*

**Consistent.** The proposed project would require earthwork to build the embankments for the ponds, but otherwise would avoid a substantial amount of grading and fill. The ponds are designed to only provide the necessary amount of water for irrigation. Geologic hazards related to seismicity are discussed in the Geophysical section VI.C below, and would result in potentially significant impacts to residences downslope of the proposed ponds. Mitigation measures C.1.1 and C.1.2 would reduce these impacts to less than significant levels by avoiding hazardous areas and channeling debris flows away from existing residences in the event of a major earthquake. Therefore, the project would be consistent with the geology and landform policies contained in the CWP.

### **Hydrology and Drainage**

#### *Policies*

Hydrological and biological processes should be maintained (Policy EQ-3.4). In order to conform with CWP policies, development should be designed to minimize the extent of stormwater runoff and the project should incorporate post-construction drainage control measures identified in the “Start at the Source” guide. In accordance with Marin County’s National Pollution Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board, “Start at the Source” should be regarded as a key document and resource, and the design of the project should adhere as closely as possible to its recommendations. Best Management Practices (BMPs) should be incorporated into the project such as sedimentation basins, infiltration trenches, grassed swales, filter strips and buffers, and site and landscape management.

### *Project*

**Consistent.** The proposed project would not result in a substantial amount of impervious surfaces that could increase the velocity of stormwater runoff in the long term. Further, there would be a considerable distance (more than 100 feet) between the proposed ponds and Pine Gulch Creek, providing open areas and agricultural fields where stormwater would gradually infiltrate into the groundwater and avoid sedimentation into the creek. Standard erosion control requirements would apply to the project during the construction phases, in accordance with the requirements of the Department of Public Works. Hydrological impacts are discussed in more detail in the hydrology section below, and with the incorporation of the mitigation measure C.2.1, the project’s potentially significant short term erosion impacts would be reduced to a less than significant level. Therefore, the project would be consistent with the hydrology and drainage policies contained in the CWP.

### **Stream and Wetland Protection**

#### *Policies*

Within the Coastal Recreation Corridor, the Marin CWP policies call for a 100-foot wide Stream Conservation Area (SCA) buffer zone to be established between the top of stream banks and proposed development (E.Q.-2.3.), for streams shown as blue lines on USGS maps. In addition, an SCA should be established along any natural watercourse that supports riparian vegetation for a distance of at least 100 feet, and the SCA in these circumstances

## Exhibit 2: Initial Study

would require a buffer area that would extend 50 feet from the edge of the riparian plants or 100 feet from the top of stream bank, whichever is greater. The intent of County stream conservation policies is to maintain stream courses in their natural state to the greatest extent feasible for the purposes of water quality, wildlife habitat protection, flooding and erosion control, and aesthetics. The creation of new building sites within stream conservation areas is specifically discouraged (EQ-2.3A).

The LCP also contains policies on stream protection. These policies, listed on pages 19 and 20 of the LCP, specifically encourage the State resources agencies to conduct research on the biological importance of the Pine Gulch Creek, and establishes a riparian protection area that would extend at least 100 feet from a stream shown as a blue line on USGS maps, or 50 feet from the riparian vegetation surrounding such streams (LCP Stream Protection Policies 1-7).

The CWP contains policies regarding the protection of wetlands and requirements for wetland mitigation. These policies are listed in the Baylands Conservation Zone section of the CWP, but apply to all areas of unincorporated Marin. CWP policies discourage approving projects that would result in incursions into wetlands. When wetland incursion is necessary, these policies encourage on-site mitigation at a ratio of 2 acres of replacement wetlands to each acre of wetlands impacted by development (Policy E.Q.-2.43 and Programs E.Q.-2.43A through d). Replacement wetlands should provide equivalent types of habitat and should be created concurrently with the development of the project.

Unlike LCP Unit II, which applies to the northern area of Marin, LCP I does not contain policies specifically protecting wetlands or Environmentally Sensitive Habitat Areas (ESHAs). The California Coastal Act, which is implemented through the LCP, indicates that Environmentally Sensitive Habitat Areas (ESHAs), including wetlands, should be protected from disturbance (Coastal Act Sections 30240 a and b). The Coastal Act does not indicate a specific buffer distance that should be maintained from an ESHA. However, the Coastal Act indicates that the standard for review of development projects shall be the certified LCP for the area (Coastal Act Section 30603c).

### *Project*

**Consistent.** The overarching purpose of the project is to reduce agricultural diversions of water during periods of the year when waterflow is naturally low in any case, thereby improving the habitat that Pine Gulch Creek provides to steelhead trout and coho salmon. Therefore, the project is in essence for environmental restoration, which substantially advances the policies of the CWP and the LCP. The major component of the wetlands restoration is to increase the surface area, depth, and connectivity between the pools that provide in-stream wetland habitat for salmonids from July through November. The highest diversion location is on Fresh Run Farms, more than 3 miles upstream from the mouth of the creek. Project implementation would generally increase wetland habitat over a substantial area of the watershed, for a distance more than 3 miles from Bolinas Lagoon. While the precise amount of the increase of in-stream wetlands has not been quantified, it is important to note that calculating the surface area of additional in-stream wetlands would not capture their full ecological significance, because pool depth and connectivity during dry periods of the year play such a large role in the optimal functioning of the stream's ecosystem. Therefore, exact calculations of in-stream wetlands increases are not necessary to determine that the project would result in substantial beneficial environmental effects related to the Pine Gulch Creek ecosystem. Project implementation, incorporating the mitigation measures, would achieve this objective.

## Exhibit 2: Initial Study

The LCP strongly supports protection of Pine Gulch Creek as a riparian protection area with a stream buffer area on both sides of the creek of 50 feet from the outer edge of riparian vegetation but not less than 100 feet from the banks of the stream. Encroachment into the 100 foot Streamside Conservation Area (SCA) is also discouraged by policies contained in the CWP. Additional LCP policies applicable to Pine Gulch Creek call for studies and programs involving California Department of Fish and Game and Soils Conservation Service (now the National Resource Conservation Service) supporting in-stream flows to maintain the steelhead and coho salmon, and, together with the landowners within the Pine Gulch Creek watershed, recommending agricultural uses and practices that would protect the water quality of the creek (and also Bolinas Lagoon). The Pine Gulch Creek watershed Enhancement Project, and the five ponds proposed to implement its recommendations, are the result of those studies.

As discussed in the Biological Resources section G.1 below, construction of the ponds would result in significant adverse impacts to existing open water and emergent wetlands, which would be replaced at a ratio in excess of two to one. Each of the ponds would provide habitat for the California red legged frog, a Federally listed endangered species, and can therefore be considered as an equivalent type of wetland habitat as the existing wetlands on site. Further, mitigation measure G.1.4 requires that the new wetlands would be created concurrently with the development of the project. In accordance with mitigation measures G.1.1 and G.1.2, significant impacts to ESHAs would be mitigated by establishing a riparian enhancement area adjacent to Pine Gulch Creek and wetland enhancement areas on the fringes of the ponds. These areas would be planted with species that would enhance the ecological values associated with edge habitats. Biological impacts are discussed in more detail in the biological resources section below, and with the incorporation of the mitigation measures identified in that section, the project's impacts would be reduced to a less than significant level. Therefore, the proposed project would be consistent with the stream and wetland protection policies contained in the CWP and LCP.

### **Plant Communities and Protected Species**

#### ***Policies***

The CWP contains three policies that specifically address the protection and preservation of trees. The CWP requires that significant trees and oak woodland habitat shall be protected (Policy EQ-3.14) and encourages the retention of trees in a natural setting and a substantial area where natural litter and soils buildup can occur. Policy EQ-3.11 indicates that tree cutting and damage should be avoided wherever possible to maintain visual qualities of the natural and built environment. Significant oak trees that are removed for development purposes should be replaced at a ratio of two to one.

The CWP indicates that the protection of plant and animal species should be considered through the environmental review process (Policy EQ-2.87) and indicates that vegetation and animal habitats should be preserved (Policy EQ-3.6). The CWP further indicates that the protection of species and habitat should be accomplished by mitigation measures and conditions of approval, and emphasizes the importance of maintaining edge habitats that are particularly important for wildlife (E.Q.-2.87e).

#### ***Project***

## Exhibit 2: Initial Study

**Consistent.** The proposed ponds would be located in areas that lack a substantial number of trees that are defined as “protected trees” by the Marin County Zoning Ordinance. However, the construction of pond 1B on Fresh Run Farms would involve the relocation of a portion of a farm road to an upslope area adjacent to the proposed pond. The grading and construction of the new portion of the farm road would result in the removal of approximately 24 mature oaks, bay laurels, and madrones that have trunk diameters from 12 to 24 inches at breast height. These trees are within an area characterized by steep hillsides vegetated with an oak, bay, madrone forest. The removal of this limited number of native trees would not substantially reduce the habitat value of the surrounding area. However, in order to ensure consistency with the CWP, tree protection and replacement measures are required as mitigation measures. Mitigation measure G.2.1 would ensure that an arborist would trim roots and branches of trees adjacent to the new portion of the road to minimize damage, and would locate and oversee the planting of replacement trees. Protected trees removed by the road construction would be replaced at a two to one ratio with 5-gallon oak trees, clustered on the hillside northwest of the existing green pond and distributed around pond 1B. As mitigated, the project would be consistent with the tree protection policies contained in the CWP.

### **2.1.6 Archaeological and Historical Resources**

#### ***Policies***

The CWP requires development sites to be evaluated to ascertain if archaeological resources are present and to avoid such resources when they are identified (Policies EQ-3.30 and EQ-3.31). The CWP also requires that new development should be compatible with existing development that has recognized historic, architectural, or aesthetic value (Policies CD-2.10 and E.Q. 3.31).

#### ***Project***

**Consistent.** The proposed project would not affect any existing buildings, except for several greenhouses and therefore, historic structures would not be affected. County records indicate that the subject property is located in an area of high archaeological sensitivity, and there are known archaeological resources in the vicinity of the proposed development. As discussed in section I below, the proposed project could potentially result in significant impacts to archaeological resources. Based on the recommendations of a consulting archaeologist, mitigation measures have been incorporated into the project to ensure that impacts would be avoided. Therefore, the project would conform to the Archaeological and Historic Resources conservation policies contained in the CWP.

### **Open Space and Trails**

#### ***Policies***

The CWP encourages the creation and maintenance of open space through clustering development and creating conservation easements across undeveloped land. The CWP also encourages the creation and maintenance of public trails throughout Marin County (E.Q.-4.1).

#### ***Project***

## Exhibit 2: Initial Study

**Consistent.** The Trails Element of the CWP contains maps identifying existing and proposed trails in the County, and the development areas would not be affected by future trail development. Further, the subject properties are in close proximity to open space lands owned and administered by the National Park Service. Therefore, the proposed project would conform to the trails and open space protection policies contained in the CWP.

### **Public Services and Utilities**

#### ***Policies***

The CWP requires that projects shall not cause significant adverse impacts to community services and facilities or on the social environment of the community (Policy EQ-3.9).

#### ***Project***

**Consistent.** General infrastructure for the property is provided by regional and local utilities, including gas, electric, telephone and other services. Utilities infrastructure would not have to be expanded beyond the existing connections because the project would not exceed the capacity of the existing utilities.

### **Traffic and Circulation**

#### ***Policies***

The Department of Public Works, Land Use and Water Resources and Traffic sections, review development applications for consistency with the County's policies and regulations regarding roads, driveways, and parking. Marin County Title 24 contains regulations for parking, access and street development.

#### ***Project***

**Consistent.** The proposed project would not involve access improvements, with the exception of construction activities, and the existing roads, driveways and parking is adequate. The project would not entail any increase in population, or construction of residences, and therefore no access improvements would be required.

### **Conclusion**

As discussed above, the regulatory framework for Marin County includes various policies to protect the physical environment. The proposed project would potentially result in significant adverse impacts to natural and cultural resources, and the safety of the occupants of the farms. These potentially significant impacts would be mitigated by the measures listed in the sections below, and the project would therefore conform with the objectives and policies of the Marin Countywide Plan (CWP), the Local Coastal Plan, Unit 1, (LCP), the Bolinas Community Plan, and the standards of the Marin County Interim Zoning Ordinance (Title I22) and Development Standards (Title 24).

Exhibit 2: Initial Study

- |   |                           |   |                                     |                       |
|---|---------------------------|---|-------------------------------------|-----------------------|
| <b>3. Affect agricultural resources, operations, or contracts (e.g. impacts to soils or farmlands, impacts from incompatible land uses, or conflicts with Williamson Act contracts)?<br/>(source #(s): 1-3)</b> | <b>Significant Impact</b> | <b>Potentially Significant Unless Mitigated</b> | <b>Less Than Significant Impact</b> | <b>Not Applicable</b> |
|   | [ ]                       | [ ]   | [ X ]                               | [ ]                   |

The project would not adversely affect agricultural resources because the storage ponds would be used to support agricultural production on the subject properties.

Based on the application materials, the proposed project would not result in significant impacts to the environment because agricultural resources and operations in the area would essentially be the same whether or not the project is implemented.

- |   |                           |   |                                     |                       |
|---|---------------------------|---|-------------------------------------|-----------------------|
| <b>4. Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)?<br/>(source #(s): 1-4)</b> | <b>Significant Impact</b> | <b>Potentially Significant Unless Mitigated</b> | <b>Less Than Significant Impact</b> | <b>Not Applicable</b> |
|   | [ ]                       | [ ]   | [ X ]                               | [ ]                   |

The project would be consistent with the agricultural use standards contained in the CWP and Interim Zoning Ordinance. Further, the project would not entail the construction of roads that would divide a community or the demolition of housing affordable to households with a moderate income.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the physical arrangement and development patterns in the area would essentially be the same whether or not the project is implemented.

- |   |                           |   |                                     |                       |
|---|---------------------------|---|-------------------------------------|-----------------------|
| <b>5. Result in substantial alteration of the character or functioning of the community, or present or planned use of an area?<br/>(source #(s): 1-4)</b> | <b>Significant Impact</b> | <b>Potentially Significant Unless Mitigated</b> | <b>Less Than Significant Impact</b> | <b>Not Applicable</b> |
|   | [ ]                       | [ ]   | [ X ]                               | [ ]                   |

The project would be consistent with the agricultural use standards contained in the CWP and Interim Zoning Ordinance.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the character of the local community in the area would essentially be the same whether or not the proposed project is implemented.

Exhibit 2: Initial Study

<b>6. Substantially increase the demand for neighborhood or regional parks or other recreational facilities, or affect existing recreational opportunities?</b> (source #(s): 1-3)	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The project would not result in a considerable increase in the demand for parks or recreation area because the project would not increase the population density in the Bolinas area.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the availability of parks and recreation in the area would essentially be the same whether or not the proposed project is implemented.

**B. POPULATION AND HOUSING. *Would the proposal:***

<b>1. Increase density that would exceed official population projections for the planning area within which the project site is located as set forth in the Countywide Plan and/or Community Plan?</b> (source #(s): 1, 2)	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The project would not increase population density because no residential construction is proposed.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the population and housing in the area would essentially be the same whether or not the proposed project is implemented.

<b>2. Induce substantial growth in an area either directly or indirectly (e.g. through projects in an undeveloped area or extension of major infrastructure)?</b> (source #(s): 1-4 )	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The project would not increase population density because no residential construction is proposed. Further, the site is served by existing roads and the utilities necessary for the project and would not require substantial investment in additional infrastructure apart from agricultural irrigation water distribution facilities.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the growth in the area would essentially be the same whether or not the proposed project is implemented.

Exhibit 2: Initial Study

<p><b>3. Displace existing housing, especially affordable housing? (source #(s): 1, 2)</b></p>	<p><b>Significant Impact</b></p>	<p><b>Potentially Significant Unless Mitigated</b></p>	<p><b>Less Than Significant Impact</b></p>	<p><b>Not Applicable</b></p>
	[ ]	[ ]	[ X ]	[ ]

The project would not result in any decrease in the available stock of affordable housing in the Bolinas area because the development and would not entail the demolition of any housing.

Based on the application materials, the proposed project would not result in significant impacts to the environment because housing opportunities in the area would essentially be the same whether or not the proposed project is implemented.

**C. GEOPHYSICAL. *Would the proposal result in or expose people to potential impacts involving:***

<p><b>1. Location in an area of geologic hazards, including but not necessarily limited to: 1) active or potentially active fault zones; 2) landslides or mudslides; 3) slope instability or ground failure; 4) subsidence; 5) expansive soils; 6) liquefaction; 7) tsunami ; or 8) similar hazards? (source #(s): 1-13)</b></p>	<p><b>Significant Impact</b></p>	<p><b>Potentially Significant Unless Mitigated</b></p>	<p><b>Less Than Significant Impact</b></p>	<p><b>Not Applicable</b></p>
	[ ]	[ X ]	[ ]	[ ]

County determinations of significance with respect the proposed project’s impacts to geologic hazards are based on environmental characteristics that are specific to the subject properties, as is further discussed below.

As discussed in the environmental setting section above, the project would be located in an area that is characterized by potentially active faults, landslides, expansive soils, liquefaction, and seismic shaking amplification. The ponds would be designed and constructed in conformance with all relevant building and grading codes and in accordance with the recommendations of the geotechnical reports prepared for the project by Millar Pacific Engineering Group. Therefore, it is expected that the pond embankments would withstand soil expansion and minor seismic tremors. However, when a major earthquake occurs along the San Andreas Fault, it is expected that the ground under the low-lying areas will liquefy and subside and soils and vegetation from surrounding hillsides will slide into the valley. While it is possible that the pond embankments would maintain sufficient structural integrity to contain the majority of the irrigation water, for the purpose of a worst-case analysis it is assumed that all the pond embankments will rupture, spilling the water stored above grade and debris from the pond embankments downslope. Therefore, the proposed project would potentially result in a significant adverse effect on the environment with the respect to geological hazards.

## Exhibit 2: Initial Study

### **Impact C.1.1: Rupture of the pond embankments during a major earthquake would result in flooding and debris flow that may pose hazards to dwellings located directly downslope of the ponds.**

Although the failure of the pond embankments is expected during a strong earthquake, this would not result in significant hazards to humans or cause other environmental impacts for ponds 1A, 1B, 3A, and 3B because the water and debris would flow harmlessly into the surrounding areas and would avoid flooding inhabited structures because of the low amount of impervious surfaces on the Fresh Run Farms and Star Route Farms. A review of the County's topographic maps indicates the following:

- Water flowing downhill from pond 1A would pass through a small area of horse pasture and a forested area before reaching Pine Gulch Creek more than 600 feet distant from the pond.
- Water flowing downhill from pond 1B would flow first into the existing green pond and then into the crop fields below before reaching Pine Gulch Creek more than 900 feet distant from the pond.
- Water flowing downhill from pond 3A would pass through a forested area and an existing farm road before reaching Pine Gulch Creek approximately 100 feet distant from the pond.
- Water flowing downhill from pond 3B would pass over crop fields and an existing farm road before flowing into Pine Gulch Creek approximately 200 feet distant from the pond.

There are no inhabited structures located within the path of the water flow from the proposed ponds towards the creek. Further, a substantial amount of the water from the ponds would be dissipated and percolate into the soil before reaching Pine Gulch Creek. Flooding hazards surrounding the creek are discussed in the hydrology section below.

Due to the geologic instability in the area, it would be hazardous to construct a residential structure downslope and in close proximity to one of the ponds if it would be within the path of the water flow toward the creek. Therefore, mitigation measure C.1.1 below prohibits the construction of buildings that would be inhabited before first obtaining a geotechnical report which indicates that the building would not be adversely affected by flooding or debris flow in the event the pond embankments rupture.

Circumstances differ on Paradise Farms than the other farms because there are several residential structures located downhill of pond 2, between the pond and Pine Gulch Creek. Rupture of pond 2's embankments may potentially result in damage to these structures and hazards to the occupants residing directly downslope of pond 2. A flooding risk assessment report was prepared by Miller Pacific to address this issue, which determined that site improvements would be necessary to channel flood waters away from these structures to provide the occupants with a reasonable degree of safety during a major earthquake. The flooding risk assessment report indicates that the pond embankments would be approximately 12 feet high and the pond would contain a total of 5.5-acre feet of water with a maximum depth of 10 feet. Of this depth, only the upper 6 feet would be above the existing ground surface while the remainder of the capacity would be gained by excavation below grade.

## Exhibit 2: Initial Study

Therefore, a conservative estimate indicates that a maximum of 3.5 acre-feet of water would be released in the event that an embankment fails as a result of a major earthquake.

The natural terrain at the embankment location and extending west toward the existing farm road is relatively level. Beyond the road, the terrain generally slopes gradually down towards Pine Gulch Creek. However, there is a small rise up to approximately 8 feet higher than the level of the farm road that has side slopes descending towards both the north and the south. The farm road has a shallow drainage ditch along the east side which directs rainfall to both the north and south from the high point adjacent to the rise. The risk assessment concludes that the risk of significant damage to the proposed pond embankment would be low to moderate. The type of failure described as most likely in the risk assessment would consist of gradual water seepage through cracks in the embankment that would progressively increase until the water would eventually be lowered down to ground level. A catastrophic breach that would result in the sudden release of the water in the pond is not anticipated, even in the event of a major earthquake.

The risk assessment also indicates that, in the event of a substantial breach, the water and debris released could be effectively controlled and directed into Pine Gulch Creek in a manner to prevent significant flooding of residences downslope of the pond. This would be accomplished by “sculpturing” the terrain to the northwest and southwest of the embankment with small earth berms and minor grading of the existing farm road to create flow patterns towards Pine Gulch Creek that avoid the existing residences. A conceptual plan of these improvements has been submitted, and mitigation measure C.1.2 below requires that final flood mitigation plans be prepared for implementation during construction activities that substantially conform with the conceptual plan attached to the risk assessment, as shown in the Initial Study Exhibit.

Implementing the mitigation measures below would reduce seismic hazards to a less than significant level.

### **Mitigation Measure C.1.1**

Future construction of buildings that would be inhabited are prohibited to be located directly downslope of the ponds, unless the property owner obtains a geotechnical report which indicates that the building would not be adversely affected by flooding or debris flow in the event the pond embankments are ruptured by seismic activity. Development allowed under this provision shall be constructed in a manner that avoids hazards through use of earthen berms that would channel flood debris away from the building, reinforcing the pond embankments to withstand a major earthquake, or implementing other measures that would protect the building from damage. This mitigation measure shall be implemented by avoiding locating inhabited buildings directly downslope of the ponds or preparation of grading and building permit plans that are subject to review by Department of Public Works staff. A copy of the conditions of project approval shall be recorded against the titles of the parcels subject to these restrictions to inform future property owners of these requirements.

### **Monitoring Measure C.1.1.1**

Before issuing building permits for future residential structures on any of the riparian parcels on the farms, Public Works Department staff shall verify that a geotechnical report has been submitted which indicates that the building would not be adversely affected by flooding or debris flow in the event the pond embankments are ruptured by seismic activity, and that the

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grading and building permit plans are consistent with the findings of the geotechnical report and County standards. Before Operations Authorization, CDA staff shall verify that the project sponsor has recorded a copy of the conditions of project approval against the titles of the parcels subject to these restrictions.

### **Mitigation Measure C.1.2**

The farmers shall construct the project in a manner that avoids flood inundation of downslope residences in the event of a breach of the pond embankments due to a major earthquake. A final flood mitigation plan for Paradise Valley Farm shall be prepared for the review and approval of the Marin County CDA and Department of Public Works, and shall be subsequently implemented as approved. The flood mitigation plan shall substantially conform to the plans submitted with the risk assessment prepared by Miller Pacific Engineering Group and received on April 18, 2007. The flood mitigation plan shall create flow patterns that would avoid the existing residences by channeling water with small earthen berms no higher than approximately 3 feet above grade and road cuts that would not exceed 2 feet in depth.

### **Monitoring Measure C.1.2.1**

Before the farmers commence grading or construction activities for the construction of pond 2, CDA and Department of Public Works staff shall review the final flood mitigation plan for conformance with mitigation measure C.1.2, and shall subsequently conduct an inspection to verify that the plan has been properly implemented before Operations Authorization.

2.	<b>Substantial erosion of soils due to wind or water forces and attendant siltation from excavation, grading, or fill?</b> (source #(s): 1-5, 12, 29-35)	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
		[ ]	[ X ]	[ ]	[ ]

County determinations of significance with respect the proposed project’s impacts to erosion are based on environmental characteristics that are specific to the subject properties, as is further discussed below.

The proposed project is designed to divert, store and distribute water to irrigate agricultural fields, and would not alter the effects of wind on the soil. Over the long term, the project would not channel water or increase the velocity of water flow over terrain that is susceptible to erosion, because the irrigation water would be distributed broadly over relatively level agricultural fields and would infiltrate slowly into the soil. However, construction activities may cause short-term erosion that would result in sediments in Pine Gulch Creek. Therefore, uncontrolled erosion would result in potentially significant impacts to the environment.

### **IMPACT C.2.1: Construction activities may cause short-term erosion that would result in sediments in Pine Gulch Creek.**

Grading, truck traffic, and other construction activities would result in ground disturbance and loose soil that could be washed into Pine Gulch Creek by stormwater runoff. Increasing siltation in the creek would adversely affect its ecological value by reducing the surface area, depth and connectivity of the in-stream pools that provide habitat for anadromous fish. Further, sediment washing from the proposed pond construction into surrounding wetlands

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would fill those wetlands, thereby compromising their ecological functions. Construction would take place during the late summer and early fall, and would be exempt from standard requirements for the implementation of stormwater pollution prevention plan for construction during the wet season because it is an agricultural project. However, the construction would leave bare soil because reseeded areas would not have sufficient time to become established with ground cover before the onset of winter storms.

In order to mitigate this impact, the farmers would prepare and implement a storm water pollution prevention plan that incorporates measures such as placement of sterile straw, silt fencing, or other suitable barrier materials (e.g., filter fabric, ply wood) along construction limit boundaries. Implementation of the mitigation measure below would reduce erosion and siltation impacts to a less than significant level.

**Mitigation Measure C.2.1**

The farmers shall construct the project in a manner that avoids erosion from the project and prevents accumulation of silt in drainageways through measures such as placement of sterile straw, silt fencing, or other suitable barrier materials (e.g., filter fabric, ply wood) along construction limit boundaries. This mitigation measure shall be implemented through the preparation of a stormwater pollution prevention plan that is subject to the review and approval by Department of Public Works staff. The stormwater pollution prevention plan shall be submitted in conjunction with the construction management plan. The farmers shall implement the stormwater pollution prevention plan as approved.

**Monitoring Measure C.2.1.1**

Before the farmers commence grading or construction activities the farmers shall submit a stormwater pollution prevention plan that indicates the measures that would be employed to reduce stormwater runoff and sedimentation for the review and approval of Department of Public Works staff.

**Monitoring Measure C.2.1.2**

Before the farmers commence grading or construction activities, staff from the Department of Public Works shall inspect the site to verify that the erosion control measures have been properly implemented.

<b>3.</b>	<b>Substantial changes in topography from excavation, grading or fill, including but not necessarily limited to: 1) ground surface relief features; 2) geologic substructures or unstable soil conditions; and 3) unique geologic or physical features? (source #(s): 1, 2, 29-35)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
		[ ]	[ ]	[ X ]	[ ]

The properties have been developed and used for agriculture in the past, and have existing farm roads that generally follow relatively level terrain that retains the natural topography on

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the site. Grading would be necessary to construct the earthen embankments for the ponds and for the new buried water lines, as discussed in the project description. The total work area for constructing the ponds would be 9.14 acres. Work related to the project such as realigning the farm road on Fresh Run Farms and installing the new pipes for the water distribution facilities would be minimal in scope. Therefore, the total area of ground disturbance for the project would not substantially exceed 10 acres. In comparison to the total area of the farms, 10 acres is a small proportion of the land used for production.

Each pond would have a pond liner of clayish compacted fill (if material with sufficient clay content is available) or concrete to provide for an impermeable foundation for the ponds. These foundations would not substantially affect geologic substructures, although unstable soils and other geologic conditions may result in embankment breaches, as discussed in the geophysical section above. There are no unique geologic features, such as rock outcrops, in close proximity to the ponds that would be affected by the project.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the development would not substantially reform the natural topography on the site and would avoid unique geologic features in the area.

**D. WATER. *Would the proposal result in:***

<b>1. Substantial changes in absorption rates, drainage patterns, or the rate and amount of surface runoff? (source #(s): 1,2, 11, 14)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Water for the farms is currently pumped from Pine Gulch Creek into existing ponds or directly onto crop fields within the Pine Gulch Creek watershed. Irrigation water is distributed to different fields to be sprayed onto crops, and then percolates into the soil or evapotranspires from the plants. No water from Pine Gulch Creek is channeled out of the watershed, and natural hydrological cycles ensure the majority of the water's eventual return to the creek through sub-surface flows. The rate and amount of surface runoff would not be affected by the project because the development would not entail the construction of a substantial area of additional impermeable areas on the farms. Current drainage patterns would only be changed by the insignificant amount of additional evaporation from the proposed ponds that would occur during warm weather.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the future development would not channel water out of the Pine Gulch Creek watershed and would not substantially affect existing absorption rates in the area.

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<b>2. Exposure of people or property to water related hazards, including, but not necessarily limited to: 1) flooding; 2) debris deposition; or 3) similar hazards ? (source #(s): 1-4, 11-12)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The proposed project would retain a large portion of the property down slope of the ponds as agricultural land, providing adequate area for water to infiltrate into the soil. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the area, as analyzed by Erickson Engineering Inc., the proposed ponds on Fresh Run Farms and Paradise Valley Farm and the pond 3B on Star Route Farms are well outside of the 100-year flood plain for Pine Gulch Creek, and would not be effected by flood waters. However, approximately two- thirds of pond 3A on Star Route Farms would be located in the flood plain, resulting in the work area overlapping the flood plain by approximately 2.5 acres. The total flood plain area is approximately 1,200 acres, including the immediate surrounding area and Bolinas Lagoon (according to the FEMA and USGS maps of the area). The increase in downstream floodwater depth due to the presence of pond 3A would be on the order of .00032 feet, which is an immeasurably small amount in comparison to the anticipated water depth of a 100-year flood.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the development would not substantially increase flood hazards in the area.

<b>3. Discharge of pollutants into surface or ground waters or other alteration of surface or ground water quality (e.g. temperature, dissolved oxygen or turbidity)? (source #(s): 1-4, 11-12)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The proposed project would not result in the discharge of pollutants because it would not entail the development of an industrial facility that uses chemical reactions for production, or the installation of any underground storage tanks that could leak.

As discussed in the geophysical section, major earthquakes may result in the ponds' embankments rupturing, and the water contained in the ponds and the debris from the pond embankments would flow towards the creek. A major earthquake could result in major changes to the morphology of Pine Gulch Creek. However, it is unlikely that pond water would substantially contribute to these changes or otherwise adversely affect the ecological function of the watershed, because the majority of the water from the ponds would percolate into the soil before reaching the streambed. This would slow the velocity of the water and filter the debris from the pond embankments before affecting the surface flow of Pine Gulch Creek. Assuming the continuation of farming on the site, the absence of impervious surfaces on the land would protect the creek from significant adverse affects associated with flooding from a rupture of the pond embankments.

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Based on the application materials, the proposed project would not result in significant impacts to the environment because the development would not pollute surface or ground water.

<p><b>4. Substantial change in the amount of surface water in any water body or ground water either through direct additions or withdrawals, or through intersection of an aquifer by cuts or excavations?</b> (source #(s): 1-4, 14, 18, 19, 29-43, 45-50)</p>	<p><b>Significant Impact</b></p> <p>[ ]</p>	<p><b>Potentially Significant Unless Mitigated</b></p> <p>[ ]</p>	<p><b>Less Than Significant Impact</b></p> <p>[ X ]</p>	<p><b>Not Applicable</b></p> <p>[ ]</p>
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As discussed in the project description, the project involves an agricultural diversion and storage program, combining limited riparian withdrawals between April and June, and appropriative storage that will accommodate water needs for the growing season between July and December. All agricultural water diversions would occur through screened pumps withdrawing water from the water column or intakes installed into the gravel of the streambed. All water diverted through this project would be pumped into the ponds, and all irrigation of crops would be applied directly from the storage ponds. This would allow for lower diversion rates from the stream, further avoiding the riparian diversion impacts. Since the water storage would be limited, farmers would replace water used for irrigation with riparian water between April 1 and June 30, at rates and volumes equivalent to the daily water use. The farmers would dedicate all of their riparian diversion between July 1 and December 15 to in-stream flow for the benefit of coho salmon and steelhead trout. This dedication would be linked directly with the appropriative storage rights associated with the proposed ponds, which are regulated by the SWRCB and the CDFG, through Stream Alteration Agreements.

Implementation of the project would not entail any additions of water to Pine Gulch Creek, and it would not entail any substantial cuts or excavations in the aquifer. The water withdrawals entailed by the project are discussed in detail below.

The Pine Gulch Creek watershed provides more than enough water on an annual basis to support healthy populations of anadromous fish. The challenge faced by the farmers is that the natural amount of water flowing in the creek during the winter months is well above the amount flowing during the summer months, when irrigation is necessary for crops. For example, the flow of water in Pine Gulch Creek in February is 2,813 acre-feet, while in September it is 34 acre-feet. This dramatic change in the seasonal hydrograph of Pine Gulch Creek creates competition for water between farmers and fish when the resource is scarce. Taking advantage of the high points of water production in the watershed would reduce this competition, resulting in the simultaneous increase in the productivity of the farms as well as the fish runs. A summary and comparison of existing and proposed cumulative diversion effects is presented for the agricultural diversions associated with the farms in **Table 7** below, where the summer months are shown in grey and the winter months are shown in white.

**Table 7: Cumulative Agricultural Diversion Rates for Pine Gulch Creek**

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<b>Time of year</b>	<b>Average observed monthly watershed production</b>	<b>Existing average cumulative agricultural diversion rates</b>	<b>Proposed average cumulative agricultural diversion rates</b>	<b>Average change</b>
	Acre-feet	Acre-feet	Acre-feet	Acre-feet
December	1,401	0.7	15	+14.3
January	2,464	0.7	25	+24.3
February	2,813	1.2	16	+14.8
March	1,245	3.0	8.5	+5.5
April	497	5.16	5.2	-0.14
May	274	8.93	9	+0.07
June	177	13.5	13.5	0
July	<b>72</b>	<b>16.58</b>	<b>0</b>	<b>-16.58</b>
August	<b>48</b>	<b>16.43</b>	<b>0</b>	<b>-16.43</b>
September	<b>34</b>	<b>14.26</b>	<b>0</b>	<b>-14.26</b>
October	<b>63</b>	<b>8.08</b>	<b>0</b>	<b>-8.08</b>
November	<b>194</b>	<b>1.60</b>	<b>0</b>	<b>-1.60</b>
Total	9,282	90.1	92.2	+2.1

These diversions occur from 3.1 to 0.75 miles above the mouth of Pine Gulch Creek. Under current conditions, pumping may divert 15 to 45 percent of the total surface flow within Pine Gulch Creek during the summer months. The operational modifications enabled by this project would reduce direct pumping impacts in April, May and June. All agricultural riparian diversion would end June 30. During the most critical summer months, August and September, rates of diversion would be reduced by 16.43 acre-feet and 14.26 respectively, so that summer rates of summer withdrawal are less than 5 percent of total summer flow. This is a significant improvement for the creek and aquatic species dependent on summer surface flow.

As a result of this project, the farmers would be able to implement pumping practices that reduce instantaneous diversion by pumping at lower rates for longer durations into their ponds. The combined rate of diversion by pumps presented in **Table 7** is similar to that which is required to irrigate a field directly from the creek (as occurs currently). **Table 7** documents the daily rate of diversion and shows that the maximum combined existing and proposed agricultural diversion rate is less than ten percent of the annual surface flow measured at the downstream gage.

The storage volumes included in this project would allow each farmer to cease agricultural riparian diversions beginning July 1 of each year. The farmers would dedicate their agricultural riparian diversion between July 1 and December 15 of each year to in-stream flow, contingent on the approval of appropriate water storage right applications from the SWRCB. This proposed solution would protect Pine Gulch Creek and its aquatic habitat during the time period when it is most susceptible to diversion impacts. Project implementation would result in significant, long-term protection and management of aquatic habitat on private lands within the Pine Gulch Creek watershed. Therefore, the proposed project would not result in significant adverse impacts to the environment with respect to water withdrawals from Pine Gulch Creek.

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- |  |                           |   |                                     |                       |
|--|---------------------------|---|-------------------------------------|-----------------------|
| <b>5. Substantial changes in the flow of surface or ground waters, including, but not necessarily limited to: 1) currents; 2) rate of flow; or 3) the course or direction of water movements?<br/>(source #(s): 1-4, 14, 18, 19, 29-43, 45-50)</b> | <b>Significant Impact</b> | <b>Potentially Significant Unless Mitigated</b> | <b>Less Than Significant Impact</b> | <b>Not Applicable</b> |
|  | [ ]                       | [ ]   | [ X ]                               | [ ]                   |

The proposed project would not impede any surface waters of the United States or subsurface water because it would not entail stream impoundments or bulkheads that would alter currents or drainage patterns in the area. By changing the time of year that the majority of water diversion takes place from the dry season to the wet season, the project would have beneficial effects on restoring the natural rate of flow and stream morphology of Pine Gulch Creek. As discussed in the Biological Resources section G.1, these changes would be conducive to increasing runs of coho salmon and steelhead trout in the stream.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the development would assist in restoring the natural drainage patterns in Pine Gulch Creek.

- |  |                           |   |                                     |                       |
|--|---------------------------|---|-------------------------------------|-----------------------|
| <b>6. Substantial reduction in the amount of water otherwise available for public water supplies?<br/>(source #(s): 1-4)</b> | <b>Significant Impact</b> | <b>Potentially Significant Unless Mitigated</b> | <b>Less Than Significant Impact</b> | <b>Not Applicable</b> |
|  | [ ]                       | [ ]   | [ X ]                               | [ ]                   |

Public water supplies for Bolinas are not drawn from Pine Gulch Creek, and therefore the Bolinas Community Public Utilities District’s ability to serve Bolinas residents’ water needs would not be affected by the project.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the water supply capacity in the area would essentially be the same whether or not the proposed project is implemented.

**E. AIR QUALITY. *Would the proposal:***

- |  |                           |   |                                     |                       |
|--|---------------------------|---|-------------------------------------|-----------------------|
| <b>1. Generate substantial air emissions that could violate official air quality standards or contribute substantially to an existing or projected air quality violation?<br/>(source #(s): 1-4)</b> | <b>Significant Impact</b> | <b>Potentially Significant Unless Mitigated</b> | <b>Less Than Significant Impact</b> | <b>Not Applicable</b> |
|  | [ ]                       | [ ]   | [ X ]                               | [ ]                   |

The climate of the area is characterized by strong coastal winds and mild temperatures throughout the year. Further, the local community is surrounded by State and National Park lands that do not have urban traffic problems or development that generates high levels of

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pollutants. The project would not result in considerable air emissions and would comply with the significance criteria established by the Bay Area Air Quality Management District.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the air quality of the area would essentially be the same whether or not the project is implemented.

<b>2. Expose sensitive receptors to pollutants, such as noxious fumes or fugitive dust? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

There are no schools, hospitals or other sensitive receptors in close enough proximity to the any of the pond sites to be affected by fugitive dust from construction activities. The nearest site of a sensitive receptor would be the Bolinas-Stinson Beach School, which is on the property adjacent to Star Route Farms. However, the school campus would be located approximately 500 feet from the construction site, which is too distant to be affected by the dust created by construction. The development would avoid impacts to areas immediately surrounding the site by complying with County building standards for reducing dust during construction. The project would not result in considerable air emissions and would comply with the significance criteria established by the Bay Area Air Quality Management District.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the development would not expose any school, hospital or other sensitive receptors to fumes or dust.

<b>3. Alter air movement, moisture, or temperature, or cause any change in climate? (source #(s): 1-4 )</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Strong coastal winds and mild temperatures throughout the year characterize the climate of the area. Implementation of the project would not result in considerable alterations to climatic conditions because the development would not be industrial or involve the installation of large-scale Wind Energy Conversion (WEC) systems, and would therefore avoid air movement and temperature fluctuations that can sometimes be associated with those activities.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the climate of the area would essentially be the same whether or not the project is implemented.

<b>4. Create objectionable odors? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

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The project would not result in considerable odors because the use of the property would not be industrial or entail large scale feed lots that can generate odors, and would therefore avoid the noxious fumes that can sometimes be associated with those activities. The project would not substantially increase the odors that are typical of the existing farming operations.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the odors in the area would essentially be the same whether or not the project is implemented.

**F. TRANSPORTATION/CIRCULATION. *Would the proposal result in:***

<b>1. Substantial increase in vehicle trips or traffic congestion such that existing levels of service on affected roadways will deteriorate below acceptable County standards? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Traffic congestion in Bolinas is generally limited to the downtown area and the areas surrounding highways. Trucks related to construction activity would access the farms for a limited duration of time, but would not substantially alter traffic patterns or decrease levels of service at local intersections. The project would not result in considerable additional vehicle trips because the agricultural operations on the subject properties would not be substantially expanded as a result of the project.

Based on the application materials, the proposed project would not result in significant impacts to the environment because traffic congestion in the area would essentially be the same whether or not the project is implemented.

<b>2. Traffic hazards related to: 1) safety from design features (e.g. sharp curves or dangerous intersections); 2) barriers to pedestrians or bicyclists; or 3) incompatible uses (e.g. farm equipment)? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The project would not result in considerable additional vehicle trips because the agricultural operations on the subject properties would not be substantially expanded as a result of the project. Further, the project would not entail any changes to the public road network in the area.

Based on the application materials, the proposed project would not result in significant impacts to the environment with respect to traffic hazards because the subject properties are easily accessible from existing road systems.

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<b>3. Inadequate emergency access or access to nearby uses? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The project would not result in considerable additional vehicle trips because the agricultural operations on the subject properties would not be substantially expanded as a result of the project. Further, the properties currently have adequate emergency vehicle access, and the project would not impede the existing access.

Based on the application materials, the proposed project would not result in significant impacts to the environment with respect to emergency access because the subject properties are easily accessible from existing roads.

<b>4. Insufficient parking capacity on-site or off-site? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The project would not result in considerable additional vehicle trips because the agricultural operations on the subject properties would not be substantially expanded as a result of the project. Further, the properties currently have adequate parking, and the project would not reduce available parking.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the subject properties have adequate parking capacity on the site.

<b>5. Substantial impacts upon existing transportation systems, including rail, waterborne or air traffic systems? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Traffic congestion in Bolinas is generally limited to the downtown area and the areas surrounding highways. The project would not result in considerable additional vehicle trips because the agricultural operations on the subject properties would not be substantially expanded as a result of the project. Therefore, the project would not add a burden to existing transportation systems.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the use of the transportation systems in the area would essentially be the same whether or not the proposed project is implemented.

**G. BIOLOGICAL RESOURCES. *Would the proposal result in:***

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1. <b>Reduction in the number of endangered, threatened or rare species, or substantial alteration of their habitats including, but not necessarily limited to: 1) plants; 2) fish; 3) insects; 4) animals; and 5) birds listed as special status species by State or Federal Resource Agencies?</b> (sources #(s): 1-4, 16-19, 36-50)	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ X ]	[ ]	[ ]

County determinations of significance with respect to the proposed project’s impacts to biological resources are based on environmental characteristics that are specific to the subject properties, as is further discussed below.

As discussed in the environmental setting section, the mosaic of habitats present within the project area support a variety of plant and wildlife species. Four species listed as threatened or endangered under the Federal Endangered Species Act are known to occur in the immediate vicinity of the project area: coho salmon, steelhead trout, northern spotted owl, and California red-legged frog. These species depend on the ecological communities present in the area, and significant impacts to these ecological communities would degrade their habitats and potentially reduce the population of these species.

Special status species known to occur in the project area include the coho salmon and steelhead, both listed species that are known to inhabit Pine Gulch Creek. In fact, one of the objectives of the proposed project is to provide benefits to these anadromous fish species through the protection of surface flows in the creek and avoidance of instantaneous withdrawals during low flow periods. CDFG and NMFS generally encourage maintaining minimum winter bypass rates that equal or exceed the median cumulative water discharge in February, in order to provide sufficient in-stream flow to support increasing populations of anadromous fish. Based upon eight years of monitoring recorded at NPS and USGS water gauge stations on Pine Gulch Creek, the median February discharge for Pine Gulch Creek is 25 cubic feet per second (Ketchum, 2005). The ponds have been designed to capture sheet flow during the winter, which would minimize water withdrawals from Pine Gulch Creek during the winter. Therefore, it is not anticipated that the project would decrease Pine Gulch Creek’s discharge below 25 cubic feet per second during the winter months and the project would not result in significant adverse effects to runs of anadromous fish during the winter.

The only way that individuals of either of these anadromous fish species could be significantly impacted through implementation of this project would be from transport of sediment into Pine Gulch Creek during the construction process, or from inadvertent entrapment of fish in the intakes placed within Pine Gulch Creek and used to fill the irrigation ponds. The stream buffers and use of BMPs discussed above in the Geophysical section C.2 would mitigate any impacts of increased sedimentation in Pine Gulch Creek to insignificant levels. Also, intakes will be equipped with screens of prescribed mesh as required by CDFG and NMFS to ensure that pumping from the creek does not cause impacts to individuals of listed fish populations.

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A northern spotted owl nest has recently been identified on a property located between Fresh Run Farms and Paradise Valley Farm. Direct impacts to northern spotted owl would not result from pond construction because nesting areas and foraging habitats would not be disturbed. The possibility for indirect impacts from proposed pond construction would likely be limited to audio or visual disturbance from construction or post-construction operations at the site, especially during the nesting season; and removal of trees or other habitat alterations within the activity area of the owl pair. Generally, USFWS has in the past considered that indirect auditory impacts to nesting Northern Spotted Owl are possible within 0.25-mile of a nest. The biological assessment determined that none of the pond construction sites are within 0.25-mile of a northern spotted owl pair on a property located between Fresh Run Farms and Paradise Valley Farm, so no impacts would occur. Based on a memo from the USFWS dated July 31, 2006 entitled “Transmittal of Guidance: Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California”, auditory harassment may generally take place within 200 meters of a nest and visual harassment may take place within 100 meters of a nest. Also based on these criteria, project impacts to nesting Northern Spotted Owl would not occur.

Further, based on the project biological assessment, prepared by Huffman-Broadway Group (HBG), none of the 22 reported plant species in the CNDDDB for this part of Marin County has the potential to occur on the project site. Special status plant species in this part of Marin County generally require soil or other habitat conditions that are not present in the project area (e.g., serpentine soils, presence of coastal salt marsh habitat, etc.) or are thought to be extinct. Based on this information and the fact that none of the species were noted during botanical surveys conducted as part of previous wetland delineations conducted at the site, the proposed project is not expected to result in significant impacts to special status plants.

Three potentially significant impacts from the project are identified below, including effects to ESHAs and SCAs, effects to wetlands, and effects to the California red-legged frog known to inhabit the project site. Impacts expected to result from the project are discussed below in relation to direct effects to individuals of California red legged frog, as well as indirect impacts to their habitat.

**IMPACT G.1.1: Implementation of the project would result in substantial grading and construction in environmentally sensitive habitat areas (ESHAs), as defined by the California Coastal Act, and minor construction activities within Streamside Conservation Areas (SCAs).**

Wetlands and riparian areas are considered ESHAs, where encroachment is discouraged in the coastal portions of Marin County. However, LCP Unit 1 does not discuss protecting ESHAs and does not establish specific buffers surrounding ESHAs as such, but does establish a 100-foot buffer area around streams. Encroachment into SCAs is also discouraged by policies contained in the CWP. All of these areas are protected because of their relatively high ecological value. Streams and wetlands provide important wildlife corridors, varied edge habitats, and suitable habitat for many forms of animal and plant life.

The project has been designed to minimize disturbance within the SCA surrounding Pine Gulch Creek and the 100-foot buffer zone from the creek established by the LCP. However, grading, placement of fill for construction of berms, excavation, truck traffic and other ground-disturbing activities could result in erosion and allow elevated levels of sediment in stormwater runoff to wash into Pine Gulch Creek, which would potentially result in impacts

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to fish and other aquatic wildlife species. A substantial increase in siltation in the creek would adversely affect its ecological value by reducing the surface area, depth and connectivity of the in-stream pools that provide habitat for anadromous fish. Access by construction vehicles and workers to locations in the vicinity of existing wetlands and riparian areas could result in increased erosion and indirect impacts to sensitive habitats. These potential impacts are especially relevant to the construction of pond 3A at Star Route Farms, which is planned adjacent to the 100-foot buffer zone surrounding the creek.

The requirement for the implementation of a Stormwater Pollution Prevention Plan (mitigation measure C.2.1), which identifies proper construction techniques and BMPs, would minimize adverse effects associated with these activities and protect Pine Gulch Creek from increased sedimentation and siltation impacts during pond construction.

The ponds would be located outside of the 100 foot LCP buffer zone for Pine Gulch Creek and the SCA as defined by the CWP. Only minor disturbance within the buffer zone and SCA for Pine Gulch Creek would be entailed, including the installation of pumps and pipes for water diversion. However, substantial grading and construction would occur within ESHAs elsewhere on the farms, including pond 3B on Star Route Farms, and pond 1B on Fresh Run Farms. Most significantly, construction of ponds 1B and 3B would occur within palustrine emergent wetlands fed by natural springs and runoff. This construction would significantly disrupt the habitat provided by these wetlands, while the installation of pumps and pipes to divert water from Pine Gulch Creek would result in less substantial, but still significant biological impacts to the environment.

In order to mitigate these impacts, a riparian enhancement area and wetland enhancement areas would be established, as described in the mitigation measures G.1.1 and G.1.2 below. The wetland areas would be restored and enhanced with native riparian and wetland species. In order to mitigate the impacts resulting from installing the pipes and pumps for the water diversion, red alders would be planted adjacent to the creek bank on Star Route Farms. Red alders are native riparian species that have spread along other portions of the creek, and have the advantage of growing quickly and falling into the creek when they die, which creates pools and riffles that enhance the in-stream habitat for anadromous fish. Further, the fringes of the ponds would be seeded with wetland plant species to encourage their quick growth and enhance their ecological value.

Temporary construction activities could also result in significant and unnecessary impacts to sensitive habitats if they are not carefully planned and implemented. Truck traffic, materials stockpiling, and other activities typical of construction sites could inadvertently disturb wetland and riparian areas, resulting in significant impacts to sensitive habitats. Therefore, a construction management plan is required, which would ensure that temporary construction impacts are minimized and unnecessary construction impacts are avoided.

Implementation of the mitigation measures below would reduce the project's impacts to the SCA and ESHAs on the site to a less than significant level.

### **Mitigation Measure G.1.1**

A riparian enhancement area shall be established between pond 3A and Pine Gulch Creek, as shown in the Mitigation Map in the attached Initial Study Exhibit. Within the riparian enhancement area, the understory of exotic species of groundcover, brush and eucalyptus trees that do not exceed a diameter at breast height of 4- inches, shall be removed to allow for

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revegetation with native freshwater wetland plant species. As many red alders shall be planted within the riparian enhancement area as would be likely to grow under the prevailing conditions. Deer fencing shall be installed surrounding the red alders for a minimum period of three years from the time of Operation Authorization to protect them from defoliation. Initiation of the diversion pumping into the ponds shall not occur until the CDA issues an Operations Authorization to the farmers.

### Monitoring Measure G.1.1.1

Initiation of the diversion pumping into the ponds shall not occur until the CDA issues an Operations Authorization. The Operations Authorization shall not be issued until CDA staff has conducted a final inspection of the project to verify that mitigation measure G.1.1 has been implemented. This inspection may be conducted in consultation with staff from the Department of Public Works and the Marin County Resource Conservation District.

### Monitoring Measure G.1.1.2

Approximately 3 years after Operations Authorization, CDA staff shall conduct a site inspection to determine that the mitigation plantings have become successfully established. This inspection may be conducted in consultation with staff from the Department of Public Works and the Marin County Resource Conservation District. If the red alders covering a substantial portion of the enhancement area have died, then additional replanting would be required, and would be reinspected the following year to ensure conformance with mitigation measure G.1.1.

### Mitigation Measure G.1.2

Wetland enhancement areas shall be established on the fringes of each pond, and shall include the upper portions of the interior of each pond embankment where wetland vegetation can be supported by periodically saturated soils. In the wetland enhancement areas, existing wetland vegetation in the immediate vicinity of the development shall be transplanted to the fringes of all the ponds, or these areas shall be seeded in accordance with **Table 8** below.

**Table 8: Mitigation Plant Materials**

Location	Plant Species	Common Name
Wetland fringe species at irrigation ponds	<i>Typha latifolia</i>	Broad-leaf cattail
	<i>Juncus effusus</i>	Lanp rush
	<i>Juncus patens</i>	Spreading rush
	<i>Cyperus eragrostis</i>	Tall flat-sedge
	<i>Holcus lanatus</i>	Velvet grass
	<i>Scirpus californicus</i>	tules

If the wetland plants covering a substantial portion of the enhancement area have died, then additional replanting would be required, and would be reinspected the following year to ensure conformance with this mitigation measure.

### Monitoring Measure G.1.2.1

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Before Operations Authorization, CDA staff shall conduct a site inspection to verify that mitigation measure G.1.2 has been implemented.

### **Monitoring Measure G.1.2.2**

Approximately 3 years after Operations Authorization, CDA staff shall conduct a site inspection to determine that the mitigation plantings have become successfully established.

### **Mitigation Measure G.1.3**

Construction activities shall be timed and coordinated in a manner that minimizes disturbance to ESHAs, through the use of appropriate construction phasing, staging areas, transportation routes, and the temporary improvement and subsequent restoration of transportation routes. This mitigation measure shall be implemented through the development of a construction management plan that is subject to review and approval by CDA staff in consultation with Department of Public Works staff.

A construction management plan, which indicates the locations of vehicle access routes, equipment staging areas, excavated fill material stockpile areas, and timing of the construction shall be prepared for the review of staff from the CDA and Department of Public Works. Access to construction areas shall be planned to avoid affecting existing unimpacted wetland or riparian habitats. All vehicle and pedestrian access routes related to the construction shall be marked. Where necessary, access routes in close proximity to valuable habitat shall be temporarily upgraded with coarse aggregate to prevent soil displacement that could lead to future sedimentation and erosion problems. Construction vehicle access within a 100 foot buffer area from Pine Gulch Creek shall be minimized to the maximum degree feasible. Measures to prevent inadvertent deposition of soil excavated during pond construction into adjacent wetlands or stream habitats shall include placement of sterile straw, silt fencing, or other suitable barrier materials (e.g., filter fabric, ply wood) along construction limit boundaries. Wetland and riparian habitats adjacent to the construction areas shall be staked or fenced using orange construction fencing or flagging and construction equipment will be excluded from this area. The location of these areas shall be shown on the construction management plan. The construction management plan shall indicate that construction activities will only take place in the late summer and fall of the year, to avoid unnecessary impacts to California red-legged frogs. The construction management plan shall also indicate that after construction is complete, access routes will be restored to original grade by filling in ruts and disking the route to loosen any compacted surface soils. Appropriate erosion control measures shall be employed, including reseeding exposed soil with native grasses. The construction management plan shall be implemented as approved.

### **Monitoring Measure G.1.3.1**

Before the farmers commence grading or construction activities, CDA staff, in consultation with staff from the Department of Public Works shall review the construction management plan for conformance with mitigation measure G.1.3.

### **Monitoring Measure G.1.3.2**

Before the farmers commence grading or construction activities and periodically during construction, CDA or Department of Public Works staff shall conduct site inspections to determine whether all measures included in the construction management plan are being fully

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implemented. The property owners are required to allow access to the project site to staff from the CDA and Department of Public Works to conduct these inspections.

### **Monitoring Measure G.1.3.3**

Before Operations Authorization, staff from the CDA or Department of Public Works shall conduct a site inspection to ensure that the access routes have been restored as necessary.

### **IMPACT G.1.2: Implementation of the project would result in impacts to 3.03 acres of combined palustrine emergent wetlands and open water wetlands for construction of the proposed ponds.**

Grading and construction associated with implementing the project would recontour and disturb several wetland areas and one existing water storage pond, with a consequent decrease in the ecological functions they provide. However, full implementation of the project would mitigate these impacts by providing new ponds with palustrine emergent wetlands and open water habitats that would replace the wetlands impacted by the project. Since the project entails the construction of ponds at several locations on several properties, and the construction may be phased over the course of several years, there is a possibility that the project would be only partially completed. In the event that the project is only partially completed, it may not provide sufficient wetlands to be self-mitigating. Therefore, the project would result in potentially significant impacts to the environment.

The area of wetland and aquatic habitats that would be affected by pond construction as part of the project would total 3.03 acres. Pond 1B would be constructed in the area adjacent to the existing 0.18 acre existing Green Pond, within an area of a grassland swale containing a total of 3.58 acres that is considered wetlands under the Coastal Act's definition. An area of approximately 1.6 acres of this wetland would be impacted due to the construction of pond 1B. Construction of pond 2 at Paradise Valley Farm would mostly occur in uplands, but a small (0.003 acre) area of wetland, which is vegetated with rushes and surrounded by blackberries and coyote brush, would be impacted by pond construction at this location. Construction of pond 3B at Star Route Farms would occur in an area partially occupied by greenhouses that also includes vegetated drainage channels within a shallow basin in an old stream terrace of Pine Gulch Creek that contains approximately 1.32 acres of wetlands. Pond 3B construction would require excavation of about 1.2 acres of these wetlands. Wetlands also occur at the existing pond 3A, which consist of existing open water and vegetated wetland fringe within an existing water storage pond. An area of 0.14 acres within the existing water storage pond on Fresh Run Farms would be only temporarily impacted, as it would be incorporated into pond 3A, and an area of 0.09 acres of the existing pond will be permanently filled and converted to uplands.

Implementation of the project would result in the creation of five ponds with 5.09 acres of open water habitat and 1.14 acres of vegetated fringe wetlands, a total of 6.23 acres, all providing breeding habitat for California red-legged frog. A summary of the location of open water habitats and vegetated wetlands resulting from the project is shown in Figure 3 "Components of Biological Mitigation Plan" in the attached Initial Study Exhibit. A comparison of the newly created wetlands that would exist after project implementation (6.23 acres) to the acreage of wetlands impacted by the project (3.03 acres) results in a mitigation ratio of 2.06 to 1, in conformance with CWP wetlands policies.

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A summary of the location of wetlands and aquatic habitats that would be affected by construction of the ponds (using County LCP criteria) is shown in the Impacts Map in the attached Initial Study Exhibit. A comparison of the existing palustrine emergent wetlands or open water habitats that would be impacted at the five pond construction sites, with the acreage of open water habitat with fringe palustrine emergent wetlands that would result after project construction is shown in the **Table 9** below.

**Table 9: Comparison of Impacted Wetlands with Post-construction Wetlands**

Pond Location	Impacted Wetland Acreage <sup>(1)</sup>	Wetland Acreage Created <sup>(2)</sup>
1A	0.0	0.33 ac open water; 0.12 ac palustrine emergent wetland fringe
1B	Approx. 1.6 ac palustrine emergent wetland	1.03 ac open water; 0.23 ac palustrine emergent wetland fringe
2	0.003 ac palustrine emergent wetland	0.59 ac open water; 0.24 ac palustrine emergent wetland fringe
3A	0.14 ac open water; 0.09 ac palustrine emergent wetland fringe	2.29 ac open water; 0.33 ac palustrine emergent wetland fringe
3B	Approx. 1.2 ac palustrine emergent wetland	0.85 ac open water; 0.22 ac palustrine emergent wetland fringe
Totals	3.03 acres (0.14 ac open water; 2.89 ac palustrine emergent wetland)	6.23 acres (5.09 ac open water; 1.14 ac palustrine emergent wetland fringe)

- (1) Based on wetland delineations by Parravano 2001, 2003 and Parsons 2002, and engineering CAD data for new ponds provided by Erickson 2006.
- (2) Based on CAD data provided by Erickson. Assumes construction work area 20 feet beyond grading footprint; encompasses design water areas and levees, cut slopes, etc. and assumes emergent vegetation growth in a wetted perimeter within a 10 foot band around new impoundments.

Since impacted wetlands at ponds 2 and 3B would be subject to the jurisdiction of the Corps, HBG consulted with the Corps regarding the permit that would be required from the agency. The Corps (Mark D'Avignon, personal communication with HBG, March 22, 2006) considers the project itself as a habitat improvement project in that one of its objectives is to improve conditions of Pine Gulch Creek as it pertains to use by the coho salmon and steelhead trout. Although jurisdictional wetlands would be impacted at two of the pond sites, the construction of the ponds would convert these vegetated wetland areas to open water irrigation ponds that will have a fringe of wetland vegetation (tules and cattails, similar to the existing pond on Star Route Farms). Although the proposed ponds would not specifically be managed for purposes of providing wetland habitat, the creation of open water habitat and fringe wetland vegetation entailed in the project would increase the suitable habitat for the California red legged frog known to inhabit the area. Therefore, implementing the mitigation measure below, which would ensure that the project is completed as approved, would mitigate impacts to wetlands to a less than significant level.

### Mitigation Measure G.1.4

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The farmers shall implement the pond construction as proposed to create 5.09 acres of new open water habitats and 1.14 acres of wetland fringe to provide self-mitigating wetlands at a ratio in excess of 2 to 1. The proposed construction and mitigation activities shall be phased in stages that ensure full mitigation of the impacts to wetlands. The stages of project implementation shall be described in the construction management plan required for the project by mitigation measure C.1.3, which shall indicate the sequential phases of wetland impacts, enhancement, and creation for each component of the project. The construction management plan shall be implemented as approved.

### **Monitoring Measure G.1.4.1**

Before the farmers commence grading or construction activities, CDA staff shall review the construction management plan for conformance with mitigation measure G.1.4. This review may be conducted in consultation with staff from the Department of Public Works and the Marin County Resource Conservation District.

### **Monitoring Measure G.1.4.2**

Before the farmers commence grading or construction activities and periodically during construction, staff from the Planning Division, Department of Public Works or Marin County Resource Conservation District shall conduct site inspections to determine whether all measures included in the construction management plan are being fully implemented. The property owners are required to allow access to the project site to staff from the CDA, Department of Public Works, and Marin County Resource Conservation District to conduct these inspections.

### **IMPACT G.1.3: Grading and construction activities may result in the incidental take of California red legged frogs.**

All five ponds constructed as part of the Pine Gulch Creek Watershed Enhancement Project are expected to provide habitat for the Federally listed California red-legged frog when completed. Project implementation would result in a long-term beneficial impact on the California red-legged frog through expansion of suitable habitat. In addition, the schedule of pumping and drawdown of the proposed ponds would result in low water levels in late summer when red-legged frogs are not present in the ponds, a process that would help to control populations of bullfrogs, which are predatory on red-legged frogs.

Studies and surveys pertaining to use of the project area by California red-legged frogs have been completed by Gary Fellers of the U.S. Geological Survey, Biological Resources Division (Fellers 2006). During his 2006 surveys, he found between four and ten red-legged frogs at the existing Star Route Farms pond 1A, and also found as many as three red-legged frogs at the existing Green Pond on the Fresh Run Farms property near the proposed pond 1B. Fellers also noted non-breeding habitat for red-legged frogs immediately north of the existing Green Pond, and found red-legged frogs within the section of Pine Gulch Creek itself near the location of the existing pond at Star Route Farms.

Since the red-legged frog is known to occur at the site of pond 1B on Fresh Run Farms and at the site of pond 3A on Star Route Farms, there is the potential for impacts to occur to individuals of the species during pond construction at these locations. Pond construction is planned to occur during low water levels late in the summer, which is during the non-breeding season for the California red-legged frog. Therefore, impacts to breeding frogs or

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egg masses in aquatic areas would not occur. Since the frogs move during the dry season to upland aestivation sites after breeding, there is the potential that construction activity for ponds 1B and 3A could encounter individuals using the edges of the existing pond or aestivating frogs in upland areas. Therefore, the project would result in potentially significant impacts to the environment with respect to harming a special status species.

In order to mitigate potential impacts to red-legged frogs during pond construction, mitigation in the form of pre-construction surveys in both ponds and upland areas, and the presence of monitors during portions of the construction operations would be necessary. These surveys and monitoring activities would need to be provided by USFWS biologists or biologists licensed by the USFWS to handle individuals of the species, because any individuals encountered will need to be removed from construction areas and relocated to suitable nearby habitats. Relocation sites would likely be near Pine Gulch Creek in the vicinity of pond 3A, and the existing Green Pond in the vicinity of pond 1B construction.

Implementation of the mitigation measure below would reduce the potential impacts to red legged frogs to a less than significant level.

### **Mitigation Measure G.1.5**

The project shall be constructed in a manner to avoid the impacts to the California red legged frog. This mitigation measure shall be implemented for construction of all the ponds, with the exception of pond 1A on Fresh Run Farms. The mitigation measures that would be employed include those activities related to worker training, pre-construction surveys and biological monitoring that are included in the January 26, 1999 U.S. Fish and Wildlife Service “Programmatic Formal Endangered Species Act Consultation on issuance of Permits under Section 404 of the Clean Water Act or Authorizations under the Nationwide Permit Program for Projects that May Affect the California Red-legged Frog” as follows:

- a) The applicant or project proponent shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures with verification that that they have been approved by the USFWS for the project. No project activities shall begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.
- b) A USFWS-approved biologist shall survey the work site two weeks before the onset of activities. If California red-legged frogs, tadpoles, or eggs are found, the approved biologist shall contact the USFWS to determine if moving any of these life-stages is appropriate. In making this determination the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves moving animals, the approved biologist shall be allowed sufficient time to move California red-legged frogs from the work site before work activities begin. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.
- c) Before any construction activities begin on a project, a USFWS-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and

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briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

- d) A USFWS-approved biologist shall be present at the work site until such time as all removal of California red-legged frogs, instruction of workers, and habitat disturbance have been completed. After this time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures. The USFWS-approved biologist shall ensure that this individual receives the training outlined above, and in the identification of California red-legged frogs. The monitor and the USFWS-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the Corps and USFWS during review of the proposed action. If work is stopped, the Corps, the USFWS and the County shall be notified immediately by the USFWS-approved biologist or onsite biological monitor.

### Monitoring Measure G.1.5.1

Before the farmers commence grading or construction activities, the project biologist shall submit a letter verifying that the pre-construction surveys have been completed, the USFWS's requirements regarding frog relocation have been met, and the required worker training has occurred.

### Monitoring Measure G.1.5.2

Before Operations Authorization, the project biologist shall submit a letter verifying that the biological monitoring and any necessary frog relocations have been carried out in conformance with mitigation measure G.1.5 and USFWS requirements.

<b>2. Substantial change in the diversity, number, or habitat of any species of plants or animals currently present or likely to occur at any time throughout the year?</b> <b>(source #(s): 1-4, 16-19, 36-50)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ X ]	[ ]	[ ]

County determinations of significance with respect the proposed project's impacts to plants and animals are based on environmental characteristics that are specific to the subject properties, as is further discussed below.

Implementation of the proposed project would result in the removal of vegetation and existing habitats would be excavated to construct the proposed ponds. Impacts resulting from construction of pond 1B at Fresh Run Farms and pond 3B at Star Route Farms are discussed above under section G.1. On Fresh Run Farms, construction of pond 1A is proposed in an area of annual grassland adjacent to a forested area vegetated with Coast live oak and California bay, and given the prevalence of this type of grassland habitat in the region, this impact is not considered significant. Similarly, construction of pond 2 at Paradise Valley Farm would primarily occur within an area of scrub and grassland, which is also not considered significant because of the prevalence of grassland habitat in the region. Construction of pond 3A at Star Route Farms would displace an existing farm pond as

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discussed above, but most construction would occur within an existing grove of non-native eucalyptus trees and an area that is currently under cultivation. As discussed in section G.1 and the environmental settings section above, the eucalyptus grove does not provide habitat for monarch butterflies or northern spotted owls, and therefore removal of a portion of this grove (approximately 400 trees) would not result in significant impacts to the environment. From the standpoint of vegetation removal, the effects to grassland, scrub and eucalyptus habitats would not be considered significant.

Construction of the ponds and the accompanying loss of vegetation associated with the grassland, scrub, wetland, agricultural and eucalyptus habitats on site will undoubtedly disrupt and displace small numbers of existing wildlife. Some limited bird roosting, nesting, and foraging areas could be eliminated, and reptiles, amphibians, and small mammals that utilize these areas would be displaced to remaining undisturbed areas. Open space areas near the project area should be capable of accommodating these species, therefore, impacts to wildlife populations would not be significant (for special status species, see Section G.1 above). Noise and other construction activities could indirectly impact wildlife populations within sensitive habitats, but construction noise would not result in significant impacts to animal populations because the noise would be temporary, limited to the construction hours permitted by the Marin County Noise Ordinance, and agricultural machinery that is typically used on the farms results in similar noise levels.

However, the grading and construction of the new portion of the farm road would result in the removal of approximately 24 mature oaks, bay laurels, and madrones that have trunk diameters from 12 to 24 inches at breast height.

### **IMPACT G.2.1: Realignment of the farm road passing pond 1B would result in substantial grading and vegetation removal, including the removal of mature native trees.**

The mature, native trees that would be impacted are within an area characterized by steep hillsides vegetated with an oak, bay, madrone forest. The removal of this limited number of native trees would not substantially reduce the size of the oak woodlands in the area because the hillsides surrounding the crop fields on the properties support extensive forests. However, in order to ensure consistency with the CWP and the Marin County Interim Zoning Ordinance and to mitigate potentially significant biological impacts, tree protection and replacement shall be required. Implementation of the mitigation measure below would reduce this impact to a less than significant level.

#### **Mitigation Measure G.2.1**

An arborist shall trim roots and branches of trees adjacent to the new portion of the road passing pond 1B to minimize damage during construction, and would locate and oversee the installation of tree protection fencing around the driplines of trees to be preserved, and the planting of replacement trees for trees to be removed. The location of the tree protection fencing shall be shown on the construction management plan for the project. Healthy, mature, native trees removed by the road construction would be replaced at a two to one ratio with 5-gallon sized oak trees, clustered on the hillside northwest of the existing green pond and distributed around pond 1B. If a substantial number of the replacement trees have died, then additional replanting would be required, and would be reinspected the following year to ensure compliance with this mitigation measure.

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**Monitoring Measure G.2.1.1**

Before the farmers commence grading or construction activities, the sponsor shall submit a construction management plan that shows the location of the tree protection fencing for the review and approval of CDA staff.

**Monitoring Measure G.2.1.2**

Before the farmers commence grading or construction activities, the project arborist shall submit a letter to the CDA verifying that the tree protection fencing has been installed.

**Monitoring Measure G.2.1.3**

Before Operations Authorization, the arborist shall submit a letter verifying that the roots and limbs of trees to be preserved have been trimmed according to arboricultural standards.

**Monitoring Measure G.2.1.3**

Before Operations Authorization, CDA staff shall conduct a site inspection to determine that the mitigation tree planting has been completed.

**Monitoring Measure G.2.1.4**

Approximately 3 years after Operations Authorization, CDA staff shall conduct a site inspection to determine that the mitigation plantings have become successfully established and are thriving.

<b>3. Introduction of new species of plants or animals into an area, or improvements or alterations that would result in a barrier to the migration, dispersal or movement of animals? (source #(s): 1-4, 16-19, 36-50)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Implementation of the proposed project would not result in exotic, invasive species being introduced into the area. Further, the ponds would be located outside of the stream corridor surrounding Pine Gulch Creek.

Based on the application materials, the proposed project would not result in significant impacts to the environment because it is designed to enhance the movement corridor for anadromous fish in Pine Gulch Creek.

**H. ENERGY AND NATURAL RESOURCES. *Would the proposal result in:***

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<b>1. Substantial increase in demand for existing energy sources, or conflict with adopted policies or standards for energy use? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The proposed development would utilize the existing energy grid as well as solar energy. Water pumps would draw small amounts of additional electricity, but not enough to strain existing energy production facilities.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the use of energy in the area would essentially be the same whether or not the project is implemented.

<b>2. Use of non-renewable resources in a wasteful and inefficient manner? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

As discussed section VI-H.1 above, the energy usage of the proposed development would not exceed the capacity of existing energy production facilities. Building materials would be generally limited to pipes and pumps, which would not be wasteful or inefficient.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the use of energy and availability of non-renewable building materials would essentially be the same whether or not the project is implemented.

<b>3. Loss of significant mineral resource sites designated in the Countywide Plan from premature development or other land uses which are incompatible with mineral extraction? (source #(s): 1-4, 13)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The proposed development would not occur in an area that is designated by the State or the County as a mineral resource preservation area.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the development would not result in the loss of availability of a mineral resource that would be valuable to the public.

**I. HAZARDS. *Would the proposal involve:***

Exhibit 2: Initial Study

- |   |                           |   |                                     |                       |
|---|---------------------------|---|-------------------------------------|-----------------------|
| <b>1. A risk of accidental explosion or release of hazardous substances including, but not necessarily limited to: 1) oil, pesticides; 2) chemicals; or 3) radiation)?</b><br><b>(source #(s): 1-4)</b> | <b>Significant Impact</b> | <b>Potentially Significant Unless Mitigated</b> | <b>Less Than Significant Impact</b> | <b>Not Applicable</b> |
|   | [ ]                       | [ ]   | [ X ]                               | [ ]                   |

The proposed project would not result in any major or unusual quantities of explosive or hazardous materials to be present on the project site during construction or when improvements are completed. Therefore, the likelihood of creating any hazards is remote.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the agricultural use of the property would not result in the release of toxic substances through spills or explosions.

- |  |                           |   |                                     |                       |
|--|---------------------------|---|-------------------------------------|-----------------------|
| <b>2. Possible interference with an emergency response plan or emergency evacuation plan?</b><br><b>(source #(s): 1-4)</b> | <b>Significant Impact</b> | <b>Potentially Significant Unless Mitigated</b> | <b>Less Than Significant Impact</b> | <b>Not Applicable</b> |
|  | [ ]                       | [ ]   | [ X ]                               | [ ]                   |

Primarily, emergency response for the area is carried out by the County Office of Emergency Services, in coordination with the County Fire Department, Sheriff, and other key agencies. The local area is susceptible to natural disasters such as wildfires and earthquakes, and human-caused disasters such as structural fires. First responders would not be hindered by the proposed project because the access to the farms is adequate.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the agricultural use of the property would not result in any interference with emergency preparedness or response.

- |  |                           |   |                                     |                       |
|--|---------------------------|---|-------------------------------------|-----------------------|
| <b>3. The creation of any health hazard or potential health hazard?</b><br><b>(source #(s): 1-4, 20)</b> | <b>Significant Impact</b> | <b>Potentially Significant Unless Mitigated</b> | <b>Less Than Significant Impact</b> | <b>Not Applicable</b> |
|  | [ ]                       | [ ]   | [ X ]                               | [ ]                   |

Agricultural development on the farms would not result the creation of health hazards because the water stored in the proposed ponds would be used for agricultural purposes, and is not intended to be potable.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the occupants of the property would not be exposed to any sources of effluent or toxic substances.

Exhibit 2: Initial Study

<b>4. Exposure of people to existing sources of potential health hazards? (source #(s): 1-4, 20)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The proposed project would not expose the occupants to existing health hazards because the subject property is not located in proximity to a site that has been listed by the State as a hazardous materials site or an existing or historic landfill.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the development would not result in the release of toxic substances that could be harmful to the health of the inhabitants of the area.

<b>5. Increased fire hazard in areas with flammable brush, grass, or trees? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The proposed project would not increase fire hazard because the construction materials would not be highly flammable. Further, the removal of approximately 400 eucalyptus trees, which are considered a pyrophytic species by the fire department, would be necessary for the project.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the buildings and occupants of the property would not be exposed to substantial risk from wildland fires.

**J. NOISE. *Would the proposal result in:***

<b>1. Substantial increases in existing ambient noise levels? (source #(s): 1-4, 21-24)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The proposed development would result in typical construction noise for a temporary period, which would be required to conform with the standard construction hours allowed by the Noise Ordinance for development in the County.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the ambient noise in the area would essentially be the same whether or not the proposed project is implemented.

Exhibit 2: Initial Study

<b>2. Exposure of people to significant noise levels, or conflicts with adopted noise policies or standards? (source #(s): 1-4, 21-24)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The proposed project would not increase the population in the area because it would not entail any residential development and would not substantially increase the number of workers on the farms.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the subject property is not located in an area where noise is frequently generated above the normal level of comfort people experience, and additional people would not frequent the properties as a result of the project.

**K. PUBLIC SERVICES. *Would the proposal have an effect upon, or result in a need for new or altered government service in any of the following areas:***

<b>1. Fire protection? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Primarily, the fire protection for this area is carried out by the Marin County Fire Department and Bolinas Fire Protection District. Fire fighters would not be hindered by the proposed project because the access to the site is adequate and fire prevention measures, such as brush clearance and construction with fire retardant materials, would be implemented in compliance with existing building and fire codes. Further, the ponds would provide a supplemental source of water for fire fighting activities.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the project would not increase demand on the service capacity of the Fire Department.

<b>2. Police protection? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Primarily, police protection for this area is carried out by the Marin County Sheriff's Department. Police officers would not be hindered by the proposed project because the access to the site is adequate. The construction of water storage ponds on previously developed farms would not result in considerable additional use of police services.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the project would not increase demand on the service capacity of the Sheriff's Department.

Exhibit 2: Initial Study

<b>3. Schools? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Primarily, the educational services for this area provided by the local school district. The construction of water storage ponds on previously developed farms would not result in the considerable additional use of educational services.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the school capacity in the area would essentially be the same whether or not the project is implemented.

<b>4. Maintenance of public facilities, including roads? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Primarily, road and utility maintenance in this area is carried out by the Marin County Department of Public Works, the Bolinas Community Public Utility District, Pacific Gas and Electric, and other private entities. The construction of water storage ponds on previously developed farms would not result in the considerable additional use of roads or other public facilities.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the roads and other public facilities' capacity in the area would essentially be the same whether or not the project is implemented.

<b>5. Other governmental services? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The construction of water storage ponds on previously developed farms would not result in the considerable additional use of the parks, libraries, or other government services.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the parks, libraries, or other government services available in the area would essentially be the same whether or not the proposed project is implemented.

**H. UTILITIES AND SERVICE SYSTEMS. *Would the proposal result in a need for new systems, or substantial alterations to the following utilities:***

Exhibit 2: Initial Study

<b>1. Power or natural gas? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Primarily, power and natural gas in the area are provided by the Pacific Gas and Electric Company. The construction of water storage ponds on previously developed farms would not result in the considerable additional use of power or natural gas.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the power and natural gas capacity in the area would essentially be the same whether or not the proposed project is implemented.

<b>2. Communications systems? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Primarily, communications systems in the area are provided by various telephone and cable companies. The construction of water storage ponds on previously developed farms would not result in the considerable additional use of communications systems.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the communications systems and facilities in the area would essentially be the same whether or not the proposed project is implemented.

<b>3. Local or regional water treatment or distribution facilities? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Primarily, water treatment and distribution services in this area are provided by the Bolinas Public Utilities District. The construction of water storage ponds on previously developed farms would not require any new water treatment facilities because the water stored would be used for irrigation.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the water treatment and distribution capacity in the area would essentially be the same whether or not the proposed project is implemented.

<b>4. Sewer or septic tanks? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Exhibit 2: Initial Study

The construction of water storage ponds on previously developed farms would not require additional septic capacity or interfere with existing septic systems.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the project would not effect septic capacity on the farms.

<b>5. Storm water drainage? (source #(s): 1-4, 11)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

The water storage ponds would be surrounded by crop fields, providing adequate area for water to infiltrate into the soil. The use of best management practices for future drainage improvements would dissipate the energy of the storm water over a broad area to reestablish the natural drainage pattern down slope of the water storage ponds and avoid erosion. There is no public stormwater system in the area that would be affected by the proposed development.

Based on the application materials, the proposed project would not result in significant impacts to the environment because there are no municipal stormwater drainage facilities that would be affected by the development and the run-off from the pond embankments would infiltrate into the surrounding crop fields.

<b>6. Solid waste disposal? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Primarily, solid waste disposal services in this area are provided by a County approved garbage hauler. The construction of water storage ponds on previously developed farms would not require any new solid waste facilities because the local garbage hauler has sufficient capacity for solid waste generated by the project in addition to meeting their existing commitments.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the solid waste disposal demand from constructing the ponds would not substantially affect the service of the garbage hauler or the receiving landfill.

**H. AESTHETICS/VISUAL RESOURCES. *Would the proposal:***

<b>1. Substantially reduce, obstruct, or degrade a scenic vista open to the public or scenic highway, or conflict with adopted aesthetic or visual policies or standards? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Exhibit 2: Initial Study

The proposed ponds would be located in secluded areas, distant from surrounding residential neighborhoods and main roads. Further, the maximum height of the embankments for all of the ponds except for pond 1B on Fresh Run Farms would not exceed 15 feet above grade. Pond 1B would have embankments that are 25 feet in height above grade, but this pond would be located in an isolated and remote location, and would not be visible from off-site areas. The only pond that would be easily visible from a public road would be pond 3A on Star Route Farms, and it would not exceed a height of 13 feet above grade. Pond 3A on Star Route Farms would be visible from Olema-Bolinas Road, but would not impede views and would have a visual backdrop of forest and hillsides. The pond's embankments would be of earthen construction and vegetated throughout the year. Water storage ponds are a typical element of a rural landscape, and would reinforce the agricultural character of the area.

Based on the application materials, the proposed project would not result in significant impacts to the environment because the visual character of the development would be compatible with the character of the local community.

<b>2. Have a demonstrable negative aesthetic effect by causing a substantial alteration of the existing visual resources including, but not necessarily limited to: 1) an abrupt transition in land use; 2) disharmony with adjacent uses because of height, bulk or massing of structures; or 3) cast of a substantial amount of light, glare, or shadow? (source #(s): 1-4)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Based on the reasons discussed in section H.1 above, the proposed project would not result in significant impacts to the environment because the visual character of the development would be compatible with the character of the local community.

**I. CULTURAL RESOURCES. *Would the proposal:***

<b>1. Disturb paleontological, archaeological, or historical sites, objects, or structures? (source #(s): 1-4, 51, 52)</b>	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ X ]	[ ]	[ ]

County determinations of significance with respect the proposed project's impacts to cultural resources are based on environmental characteristics that are specific to the subject properties, as is further discussed below.

There is no evidence that the project would disturb paleontological resources and there are no historic structures on the site that would be affected by the project. However, a review of cultural resource maps maintained by the Marin County Community Development Agency

## Exhibit 2: Initial Study

indicates that the subject property is located in an area of known archaeological sensitivity and in proximity to a known archaeological resource site. Therefore, the proposed development could potentially result in significant adverse effects to archaeological resources.

### **Impact I.1.1: Grading and other ground disturbing activities may potentially disturb archaeological resources, reducing their value to insignificance.**

Two separate archaeological reports were prepared for the proposed project by Archaeological Resource Service, which evaluated the development for potential impacts to the archaeological resources in the project area. The reports indicate that there are four archaeological sites known to exist in the vicinity of the project and that archaeological sites in the area tend to be located near creeks and on short uplifted benches near Bolinas Lagoon. Frequently, archaeological sites are marked by dark colored soil with an abundance of shellfish remains and may also include chipped stone tools, or groundstone tools such as mortars and pestles. Human remains have also been reported in the past by residents in close proximity to the existing pond on Star Route Farms, although these reports have not been confirmed. However, there is sufficient evidence that the general area has been the site of human habitation for many generations to warrant protective measures for ground disturbing activities of any magnitude.

In addition, pond 2 proposed on Paradise Valley Farm, and pond 3B proposed on Star Route Farms would be located in close proximity to the known boundaries of archaeological sites. The site numbered CA-Mrn-382 is located approximately 55 feet southeast from the southeast corner of the proposed pond 3B on Star Route Farms. The site numbered CA-Mrn-383 is located across a farm road, less than 100 feet from the proposed pond on Paradise Valley Farm. Ground disturbing activities associated with the proposed development, such as grading and removing vegetation, could scatter or destroy the archaeological materials, reducing the site's cultural and scientific value. Therefore, the project would result in a potentially significant adverse impact on cultural resources.

Several mitigation measures have been recommended in the archaeological report, including requiring an archaeologist to monitor the initial stages of the development of the ponds near archaeological sites. In the event that the monitor finds that the project is encroaching into an archaeological site, remediation or modifications to the project would be required.

With respect to the construction of the ponds other than pond 2 and pond 3B, although no human remains or archeological resources of any kind are known on these future construction sites or in the immediate vicinity, it is possible that there may be undiscovered archeological resources buried on the site due to location in a high sensitivity area. Such resources could be discovered during proposed earthwork on the site, making this a potentially significant impact.

Implementation of the mitigation measures below would reduce impacts to archaeological resources to a less than significant level.

### **Mitigation Measure I.1.1**

The project shall be constructed in a manner that avoids disturbing archaeological resources. In the event that any human remains, artifacts, or other indicators of prehistoric or historic use of the parcel are encountered during site preparation or construction activities on any part of

## Exhibit 2: Initial Study

the project site, all work at the vicinity of the discovered site shall stop and the project sponsor shall contact the Marin County Environmental Coordinator immediately. If human remains are encountered, the County Coroner must also be contacted. A registered archaeologist, chosen by the County and paid for by the project sponsor, shall assess the site and shall submit a written evaluation to the Agency Director advancing appropriate conditions to protect the site and the resources discovered. State law identifies the procedures that must be followed if human remains are encountered. If the remains are deemed to be Native American and prehistoric, the Coroner must contact the Native American Heritage Commission so that a "Most Likely Descendant" can be designated. No work at the site may recommence without approval of the Agency Director. If it is determined that a prehistoric site exists the following measures shall be implemented:

- A. No future development activity shall take place at or in close proximity to the prehistoric site within the development area.
- B. The historical site(s) shall be filled to protect the resources there.
- C. No additional excavation shall occur at these locations other than to remove surface organic material.
- D. The applicant may be required to submit a revised project to protect the resource(s). No further work in the vicinity of the archaeological site may recommence without approval of CDA staff.

### **Monitoring Measure I.1.1.1**

In the event of archaeological resource discovery, Marin County CDA staff shall verify that an appropriate archaeological report has been submitted and all construction work has been stopped. In the event that the report indicates that any human remains, artifacts, or other indicators of prehistoric or historic use of the parcel are encountered during site preparation or construction activities on any part of the project site, Marin County CDA staff shall verify that a registered archaeologist has been retained to assess the site and has submitted a written evaluation to the Agency Director advancing appropriate conditions to protect the site and the resources discovered before work commences on the site. If human remains are encountered, CDA staff shall verify that the County Coroner has been contacted and that all future work is carried out in accordance with the mitigation measures.

### **Mitigation Measure I.1.2**

The farmers shall construct the project in a manner that avoids disturbing the archaeological resources in proximity to pond 2 on Paradise Valley Farm and pond 3B on Star Route Farms. This mitigation measure shall be implemented for the specific cases of ponds 2 and 3B by having an archeological protocol prepared by a qualified archaeologist and submitted for the review and approval of CDA staff in conjunction with the construction management plan. The archaeological protocol shall identify the archaeological monitor, specify when archaeological monitoring will occur, and indicate the measures that will be implemented during construction to protect archaeological resources. The farmers shall implement the archaeological protocol as approved. The archaeological protocol shall include, at a minimum, the following measures:

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- A. Monitoring will consist of directly watching the major excavation process. Monitoring will occur during the entire workday, and will continue on a daily basis until a depth of excavation has been reached at which cultural resources could not occur. This depth is normally estimated as five feet below existing grade, but may require modification in specific circumstances, which will be determined by the monitoring archaeologist, based on observed soil conditions.
- B. If prehistoric human interments (human burials) are encountered within the native soils of the parcel, all work shall be halted within the immediate vicinity of the find. The County Coroner, the project superintendent, and the Marin County Environmental Coordinator shall be contacted immediately. State and Federal law prescribe the procedures that must be followed subsequent to discovery of human interments.
- C. If significant cultural deposits other than human burials are encountered, the project shall be modified to allow the artifacts or features to be left in place, or the archaeological consultant shall undertake the recovery of the deposit or feature. Significant cultural deposits are defined as archaeological features or artifacts that are associated with the prehistoric era, the historic era Mission and Pueblo periods and the American era up until approximately 1900. A representative of the Native American community must be contacted in all cases where prehistoric or historic era Native American resources are involved.
- D. Whenever the monitoring archaeologist suspects that potentially significant cultural remains or human burials have been encountered, the piece of equipment that encounters the suspected deposit will be stopped, and the excavation inspected by the monitoring archaeologist. If the suspected remains prove to be insignificant or of non-cultural origin, work will recommence immediately. If the suspected remains prove to be part of a significant deposit, all work shall be halted in that location until removal has been accomplished. If human remains (burials) are found, the County coroner must be contacted.
- E. Equipment stoppages will only involve those pieces of equipment that have actually encountered significant or potentially significant deposits, and should not be construed to mean a stoppage of all equipment on the site unless cultural deposit covers the entire building site.
- F. During temporary equipment stoppages brought about to examine suspected remains, the archaeologist should accomplish the necessary tasks with all due speed.

After construction in these areas is complete, the consulting archaeologist shall provide CDA staff with a letter verifying that the archaeological protocol has been properly implemented.

### **Monitoring Measure I.1.2.1**

Before the farmers commence grading or construction activities for ponds 2 or 3B, CDA staff shall review the archaeological protocol for conformance with mitigation measure I.1.2.

### **Monitoring Measure I.1.2.2**

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Before Operations Authorization, CDA staff shall confirm that a letter from the monitoring archaeologist has been submitted, which verifies that mitigation measure I.1.2 has been properly implemented.

<b>2. Have the potential to cause a physical change which would adversely affect unique ethnic cultural values, or religious or sacred uses within the project area?</b> (source #(s): 1-4, 51, 52)	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

Staff site visits and review of the Marin County CDA resource maps do not indicate the presence of unique ethnic, cultural values, or religious or sacred uses within the project area, apart from the archaeological resources discussed in section I.1 above. The subject properties are not developed with historic buildings or unique ethnic or cultural facilities.

Based on the application materials and the mitigation measures identified in section I.1 above, the proposed project would not result in significant impacts to the environment because the development would avoid areas of cultural value and religious sites.

**J. SOCIAL AND ECONOMIC EFFECTS. *Would the proposal result in:***

<b>1. Any physical changes which can be traced through a chain of cause and effect to social or economic impacts.</b> (source #(s): 1-4 )	<b>Significant Impact</b>	<b>Potentially Significant Unless Mitigated</b>	<b>Less Than Significant Impact</b>	<b>Not Applicable</b>
	[ ]	[ ]	[ X ]	[ ]

There are no economic effects of this project that would result in physical impacts on the environment because the future development would be consistent with the established character of the local community. Further, no direct or indirect physical adverse impacts would result from social or economic effects related to the proposed project. The costs of providing limited County services to the project are not expected to result in significant adverse physical effects on the environment.

Based on this evaluation, the proposed project would not result in significant impacts to the environment because the social and economic function in the area would essentially be the same whether or not the project is implemented.

**VII. MANDATORY FINDINGS OF SIGNIFICANCE.** Pursuant to Section 15065 of the State EIR Guidelines, a project shall be found to have a significant effect on the environment if any of the following are true:

*(Please explain your answer after each question)*

**Yes    No    Maybe**

## Exhibit 2: Initial Study

- a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

*As described in Section VI of this Initial Study, any potential environmental impacts from the proposed project would be mitigated to a less than significant level.*

- |  | <b>Yes</b>               | <b>No</b>                           | <b>Maybe</b>             |
|--|--------------------------|-------------------------------------|--------------------------|
| b) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

*As described in Section VI of this Initial Study, any potential environmental impacts from the proposed project would be mitigated to a less than significant level.*

- |  | <b>Yes</b>               | <b>No</b>                           | <b>Maybe</b>             |
|--|--------------------------|-------------------------------------|--------------------------|
| c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects). | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

*As described in Section VI of this Initial Study, any potential environmental impacts from the proposed project would be mitigated to a less than significant level.*

- |   | <b>Yes</b>               | <b>No</b>                           | <b>Maybe</b>             |
|---|--------------------------|-------------------------------------|--------------------------|
| d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

*As described in Section VI of this Initial Study, any potential environmental impacts from the proposed project would be mitigated to a less than significant level.*

Exhibit 2: Initial Study

**VIII. PROJECT SPONSOR'S INCORPORATION OF MITIGATION MEASURES:**

Acting on behalf of the project sponsor or the authorized agent of the project sponsor, I (undersigned) have reviewed the Initial Study for the Pine Gulch Creek Enhancement Project and have particularly reviewed the mitigation measures and monitoring programs identified herein. I accept the findings of the Initial Study, including the recommended mitigation measures, and hereby agree to modify the proposed project applications now on file with Marin County to include and incorporate all mitigation measures and monitoring programs set out in this Initial Study.

\_\_\_\_\_  
*(Project Sponsor's Name or Representative)*

\_\_\_\_\_  
Date

\_\_\_\_\_  
*(Project Sponsor's Name or Representative)*

\_\_\_\_\_  
Date

**IX. DETERMINATION:** (Completed by Marin County Environmental Coordinator). Pursuant to Sections 15081 and 15070 of the State Guidelines, the forgoing Initial Study evaluation, and the entire administrative record for the project:

I find that the proposed project WILL NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
For

## Exhibit 2: Initial Study

### ATTACHMENT 1

#### INITIAL STUDY (August 2007)

#### *PINE GULCH CREEK ENHANCMENT PROJECT*

#### **DOCUMENTS INCORPORATED BY REFERENCE**

The following is a list of relevant information sources that have been incorporated by reference into the foregoing Initial Study pursuant to Section 15150 of the *California Environmental Quality Act Statutes and Guidelines*. The number assigned to each information source generally corresponds to the number listed in parenthesis following the incorporating topical question of the Initial Study checklist. These documents are both a matter of public record and available for public inspection at the Planning Division office of the Marin County Community Development Agency (CDA), Room 308, Civic Center, 3501 Civic Center Drive, San Rafael. The information incorporated from these documents shall be considered to be set forth fully in the Initial Study.

1. Pine Gulch Creek Enhancement Project Initial Study Exhibit (attachment 2), consisting of project plans, project specifications, impact and mitigation maps
2. Marin Countywide Plan: Marin County (1994)
3. Marin County Code, Interim Zoning Ordinance, Title 22: Marin County (1997)
4. Marin County Code, Development Standards, Title 24: Marin County (1994)
5. Marin County slope stability map, Wagner (1977)
6. Seismic shaking amplification hazards map: USGS (2000)
7. Fault hazards map: California State Department of Conservation Division of Mines and Geology (2000)
8. Liquefaction susceptibility hazards map: USGS (2000)
9. Debris flow map: USGS (1997)
10. Alquist-Priolo Special Studies Zones map: California State Department of Conservation Division of Mines and Geology (1974)
11. Start at the Source Tools Handbook: BASMAA (2000)
12. Flooding map: FEMA National Flood Insurance Program Q3 Flood Data (1996)
13. Mineral resource preservation sites map: California State Department of Conservation Division of Mines and Geology (1987), Marin County Department of Public Works (2004)
14. USGS quadrangle map: US National Hydrography Database (2007)

## Exhibit 2: Initial Study

15. Sensitive receptor sites in unincorporated Marin County map: Planning Staff (2003)
16. California Natural Diversity Data Base map, California Department of Fish and Game (periodically updated)
17. Vegetation map of Marin County: modified USDA Forest Service calveg vegetation data (2000) and California Department of Forestry and Fire Protection (2002)
18. Wetlands map of Marin County: the National Wetlands Inventory (periodically updated)
19. Steelhead trout and Coho salmon observed in Marin County map: California Department of Fish and Game, Salmon Protection and Watershed Network (SPAWN) and Marin County Department of Public Works (periodically updated)
20. State of California Hazardous Materials and Waste Sites List: Department of Toxic Substances Control Envirostar Database (periodically updated)
21. Sensitive receptor sites in unincorporated Marin County map: Planning Staff (2003)
22. Existing noise contours map: Illingworth and Rodkin, Inc (2005)
23. Marin County Airport (Gross Field) Airport Land Use Plan: Marin County (1991)
24. Marin County Noise Ordinance: Marin County (2005)
25. Marin County archaeological sensitivity map, Marin County (undated)
26. Marin County archaeological sites inventory map, Marin County (1968)
27. Marin County archaeological sensitivity map, Marin County (undated)
28. Marin County archaeological sites inventory map, Marin County (1968)
29. Geotechnical Investigation Pine Gulch Creek Reservoirs, Miller Pacific Engineering Group, received 8-22-02
30. Geotechnical Investigation Pine Gulch Creek Reservoirs, Miller Pacific Engineering Group, received 11-14-05
31. Supplemental Geotechnical Investigation Martinelli Site 3, Miller Pacific Engineering Group, received 11-14-05
32. Geotechnical Plan Review off-channel Irrigation Reservoir New Land Trust Property, Miller Pacific Engineering Group, received 11-14-05
33. Site Grading and Drainage Irrigation Reservoir Embankment Lauff Ranch Road, Erickson Engineering Inc., received 11-14-05
34. Project flooding information, Erickson Engineering Inc., received 3-30-06

## Exhibit 2: Initial Study

35. Flooding Risk Assessment for Proposed Agricultural Reservoir Dennis Dierks Property, Miller Pacific Engineering Group, received 4-18-07
36. Guidelines for Maintaining Instream Flows to Protect Fisheries Resources Downstream of Water Diversions in Mid-California Coastal Streams, CDFG & NMFS, issued 6-17-02
37. Delineation of Potential Jurisdictional Wetlands and Waters, Pine Gulch Creek Enhancement Project, NPS, received 8-22-02
38. Pine Gulch Creek Watershed Enhancement Project, Cowardin Wetland Delineation Report, NPS, received 8-22-02
39. Water Availability and Cumulative Instream Impacts Analysis, dated 11-3-05
40. Delineation of Potential Jurisdictional Wetlands and Waters, Pine Gulch Creek Enhancement Project Addendum, NPS, received 11-14-05
41. Delineation of Wetlands and Deepwater Habitats, Pine Gulch Creek Enhancement Project, received 11-14-05
42. Pine gulch water enhancement project Red-legged frog habitat suitability, Patrick Kleeman, undated
43. US NMFS comments, received 10-7-02
44. The Monarch Program (Mia Monroe) comments, received 8-22-02
45. Documentation of Coho Salmon in Pine Gulch Creek, NPS, received 8-22-02
46. SWRCB comments, received 11-13-02
47. US NMFS comments (to Coastal Conservancy), received 10-7-05
48. Coho Salmon in Pine Gulch Creek 2002 Monitoring Report, NPS, received 11-14-05
49. State Department of Water Resources comments, received 2-2-06
50. Biological Assessment, Huffman-Broadway Group (HBG), received 4-20-07
51. A Cultural Resources Evaluation of the Pine Gulch Creek Watershed Enhancement Project, Agricultural Irrigation Storage, Archaeological Resource Service, received 8-22-02
52. A Cultural Resources Evaluation of Three Additional Pond Sites, Pine Gulch Creek Watershed Enhancement Project, Archaeological Resource Service, received 11-14-05

**PINE GULCH CREEK  
ENHANCEMENT  
PROJECT INITIAL  
STUDY EXHIBIT**

**ATTACHMENT 2**

# Vicinity Map

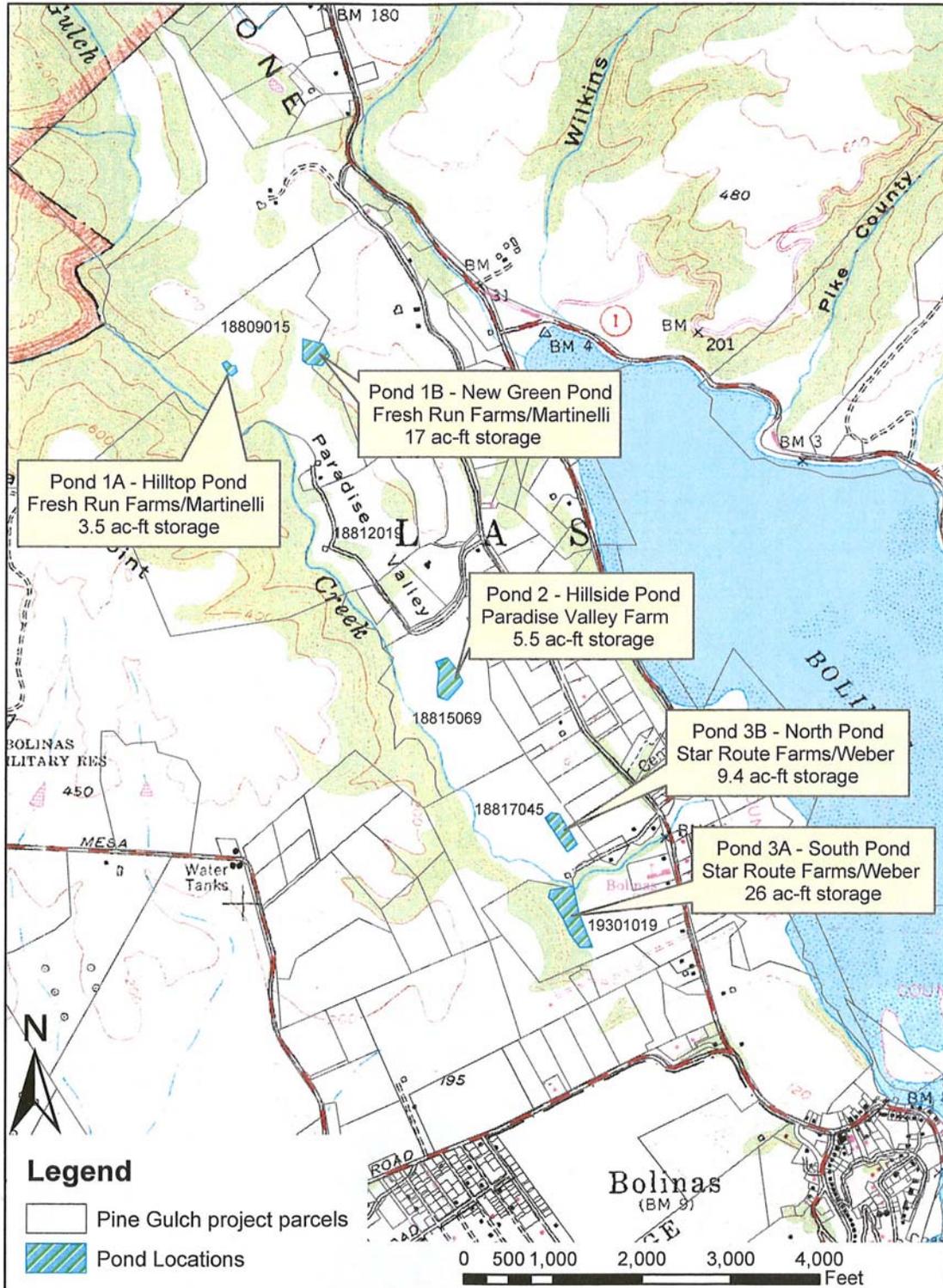
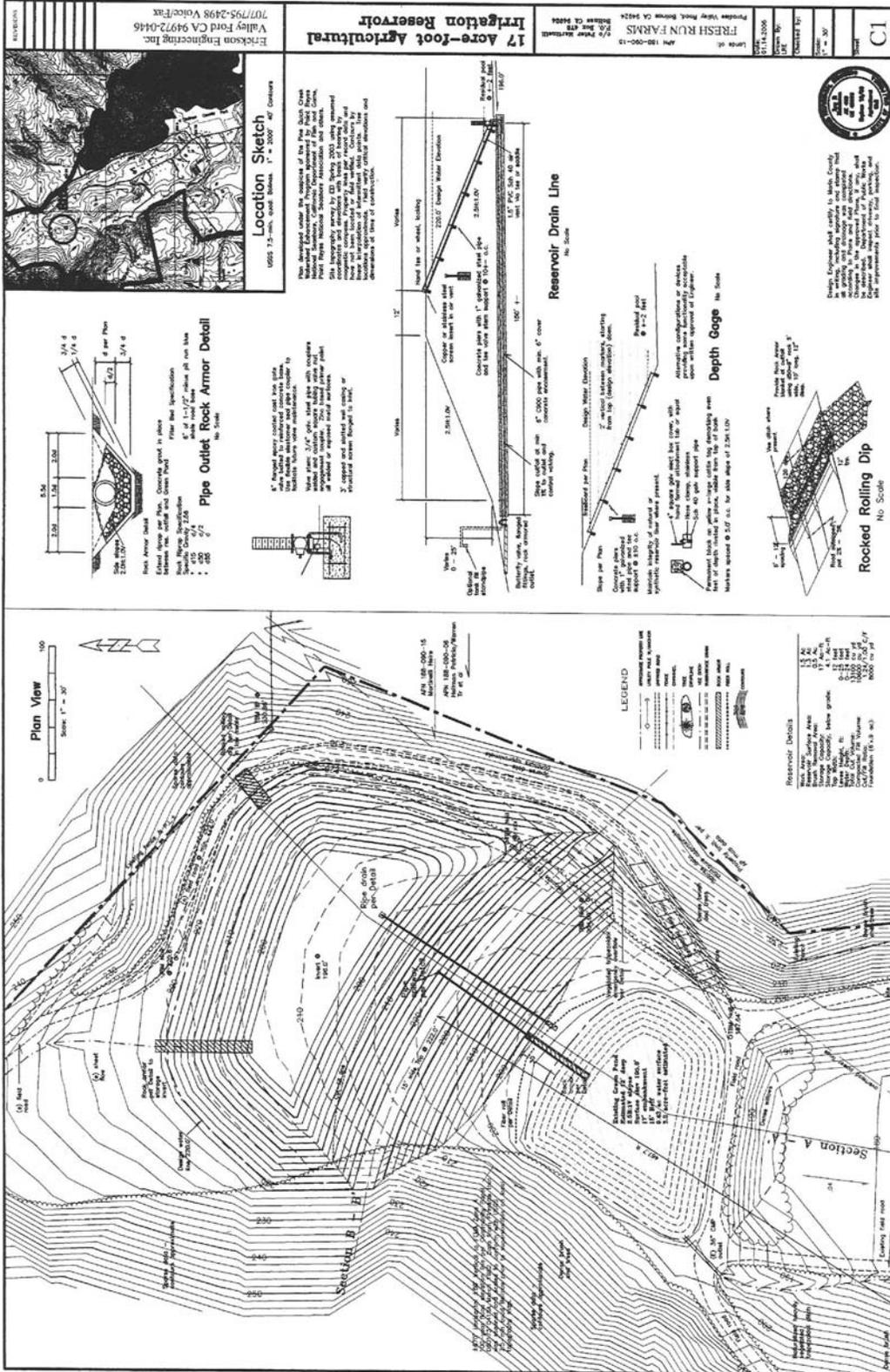


Figure 1. Pine Gulch Creek Watershed Enhancement Project





# Plans: pond 1B



**17 Acre-foot Agricultural Irrigation Reservoir**

**FRESH RUN FARMS**  
481 180-000-13  
720 Lakeview Blvd  
Petaluma, CA 94954

**Erickson Engineering Inc.**  
707/795-2498 Voice/Fax  
Valley Ford CA 94972-0416

**Sheet: C1**

**Project No: 17A-000-13**

**Scale: 1" = 20'**

**Date: 10/11/07**

**Author: [Name]**

**Checker: [Name]**

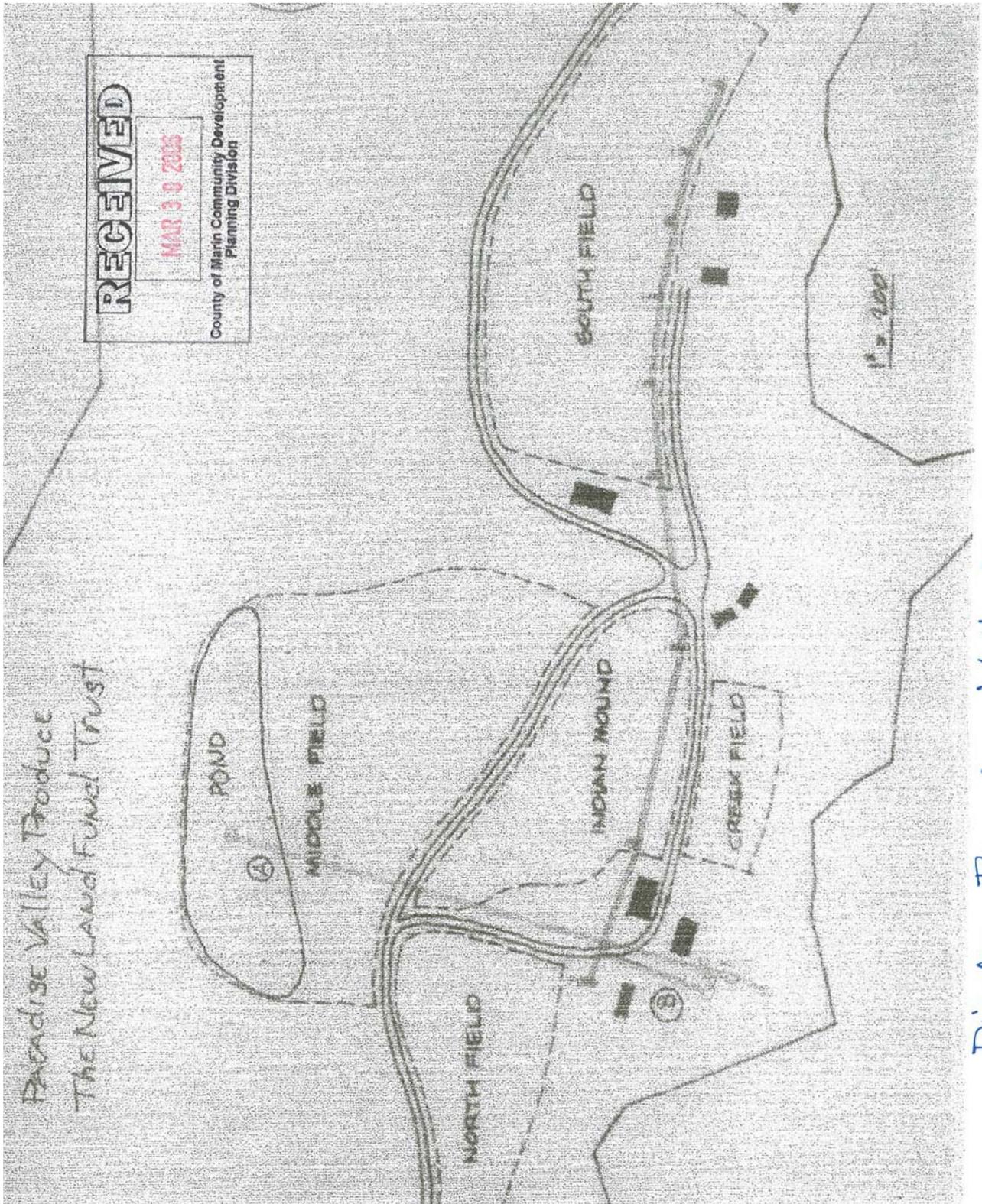
**Project: 17A-000-13**



I hereby certify that I am a duly Licensed Professional Engineer in the State of California, License No. 45678, and that I am the author of the above design. I am not providing this design for any other project without the written approval of the Engineer.



# Paradise Valley Farm Water Distribution



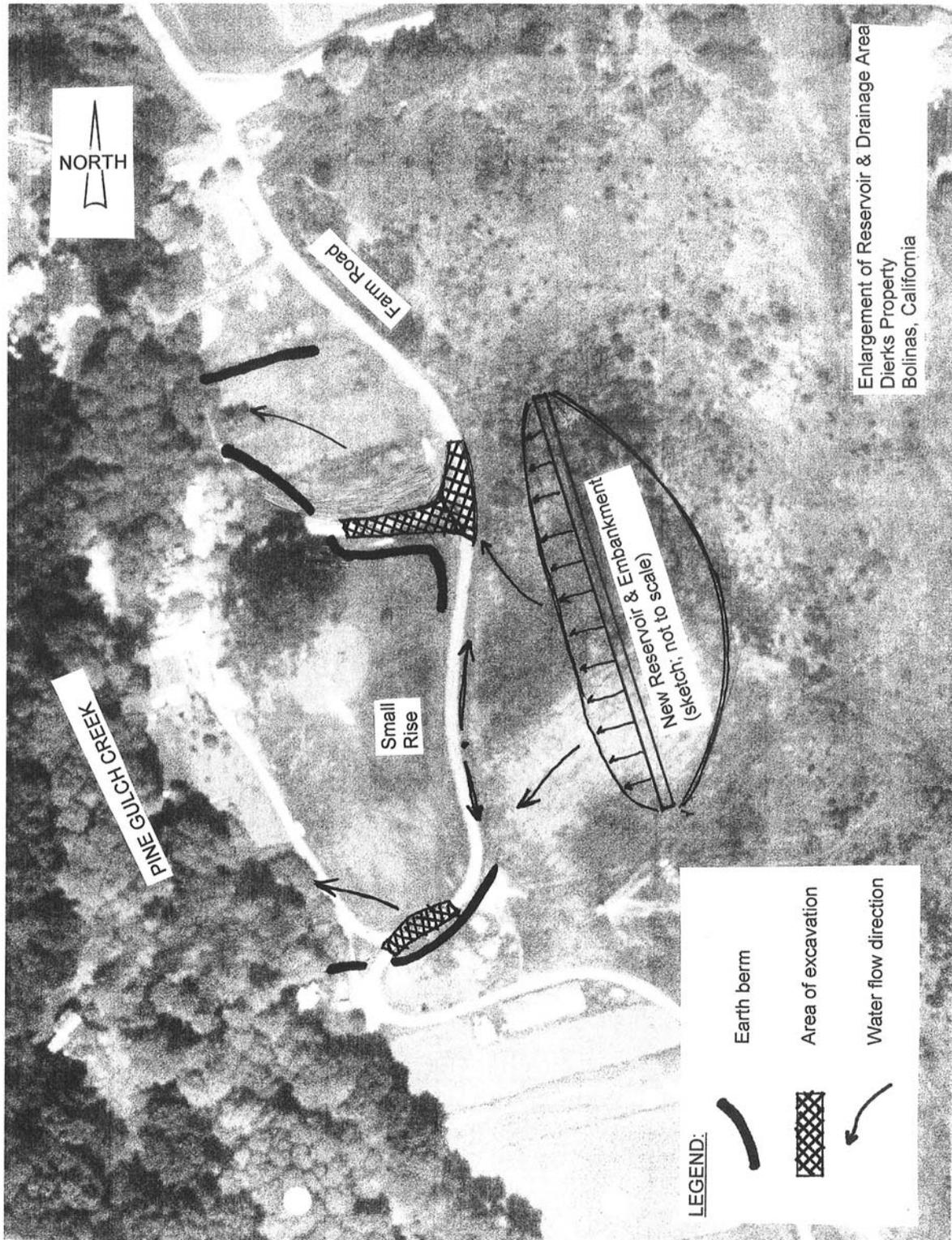
Paradise Valley Produce  
The New Land of Fernal Trust

Dierks - Paradise Valley Farm

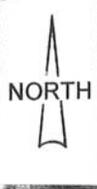




# Pond 2 conceptual hazard mitigation plan



Enlargement of Reservoir & Drainage Area  
Dierks Property  
Bolinas, California



Farm Road

PINE GULCH CREEK

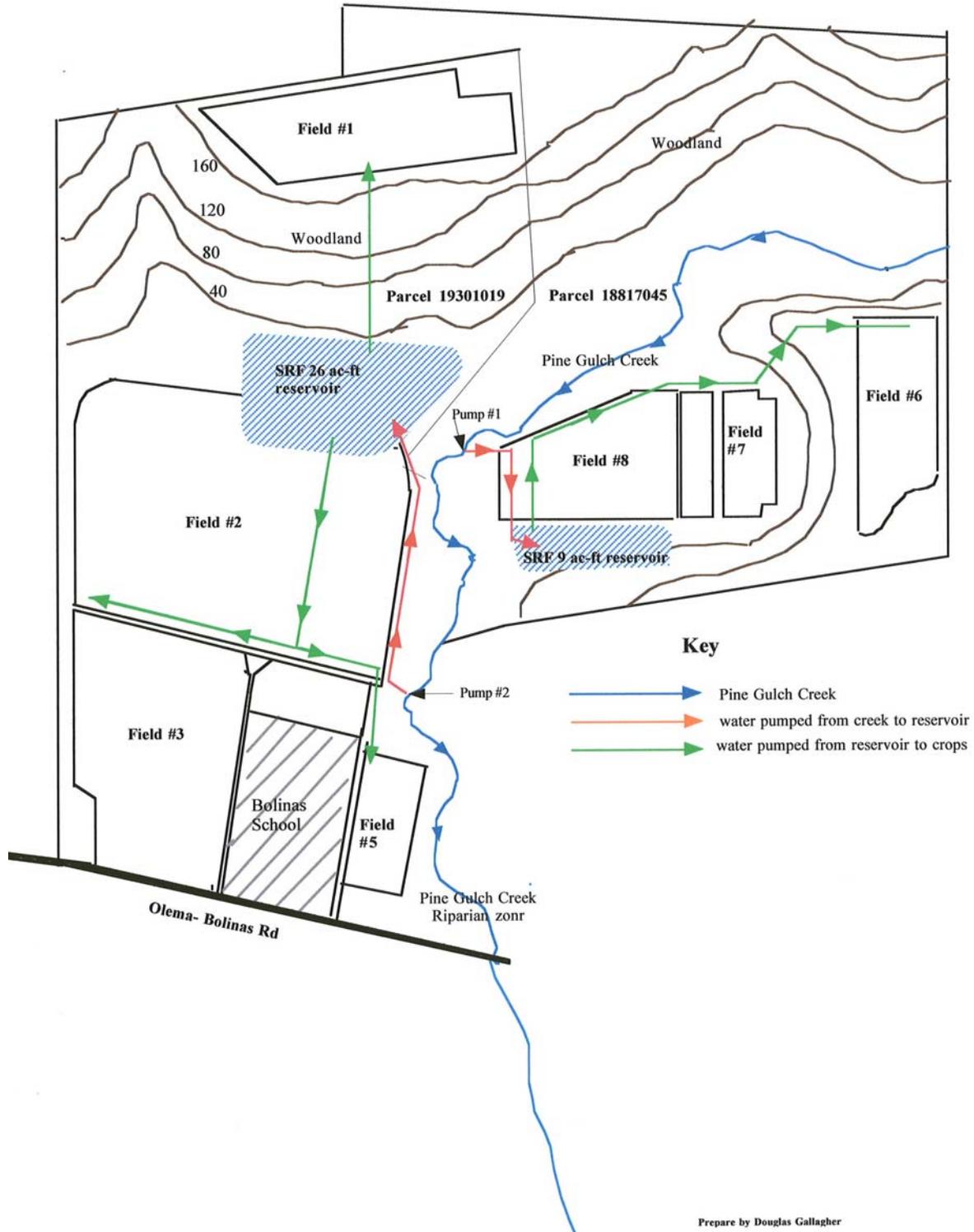
Small Rise

New Reservoir & Embankment  
(subject to scale)

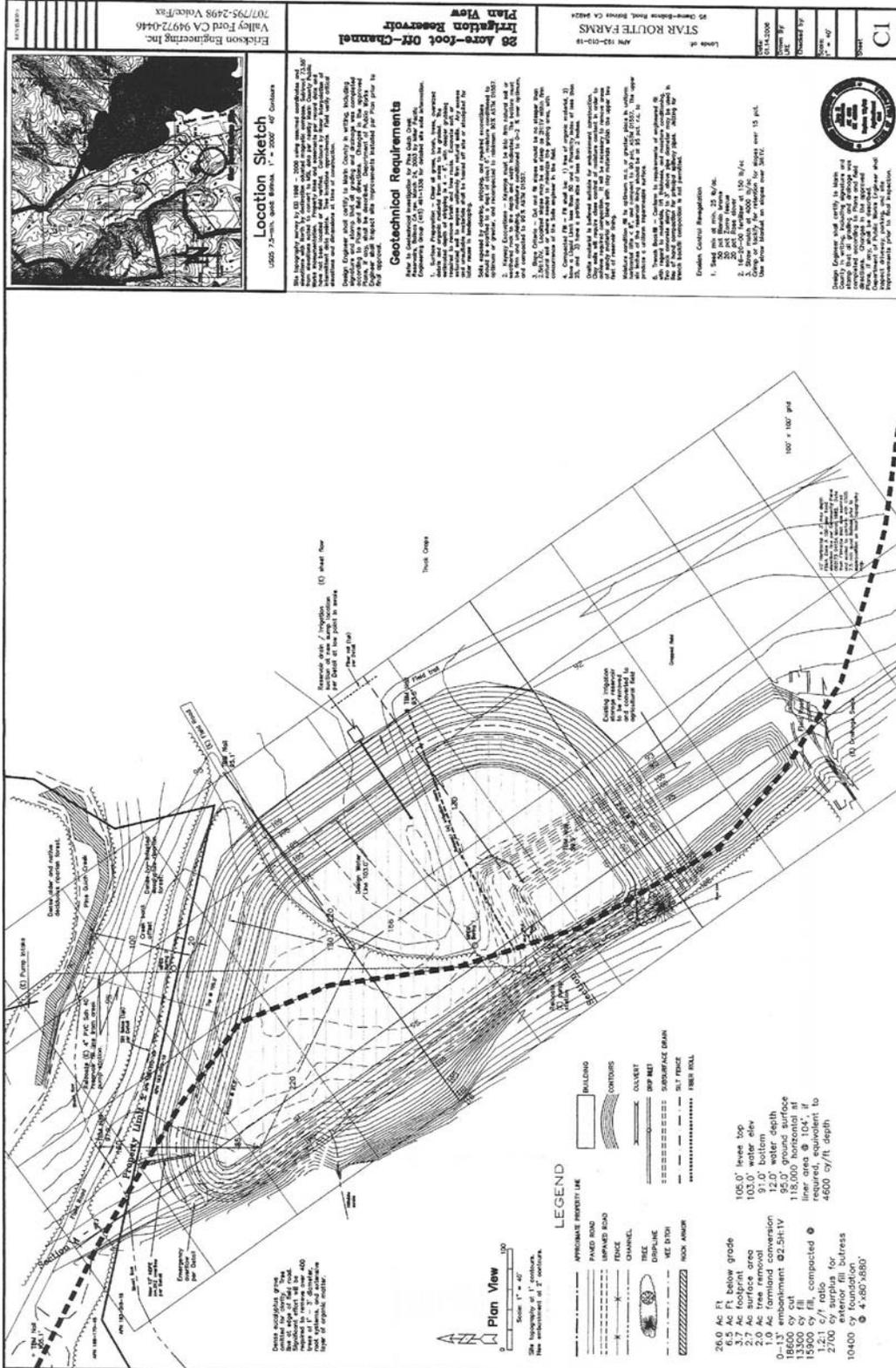
**LEGEND:**

- Earth berm
- Area of excavation
- Water flow direction

# Star Route Farms Water Distribution

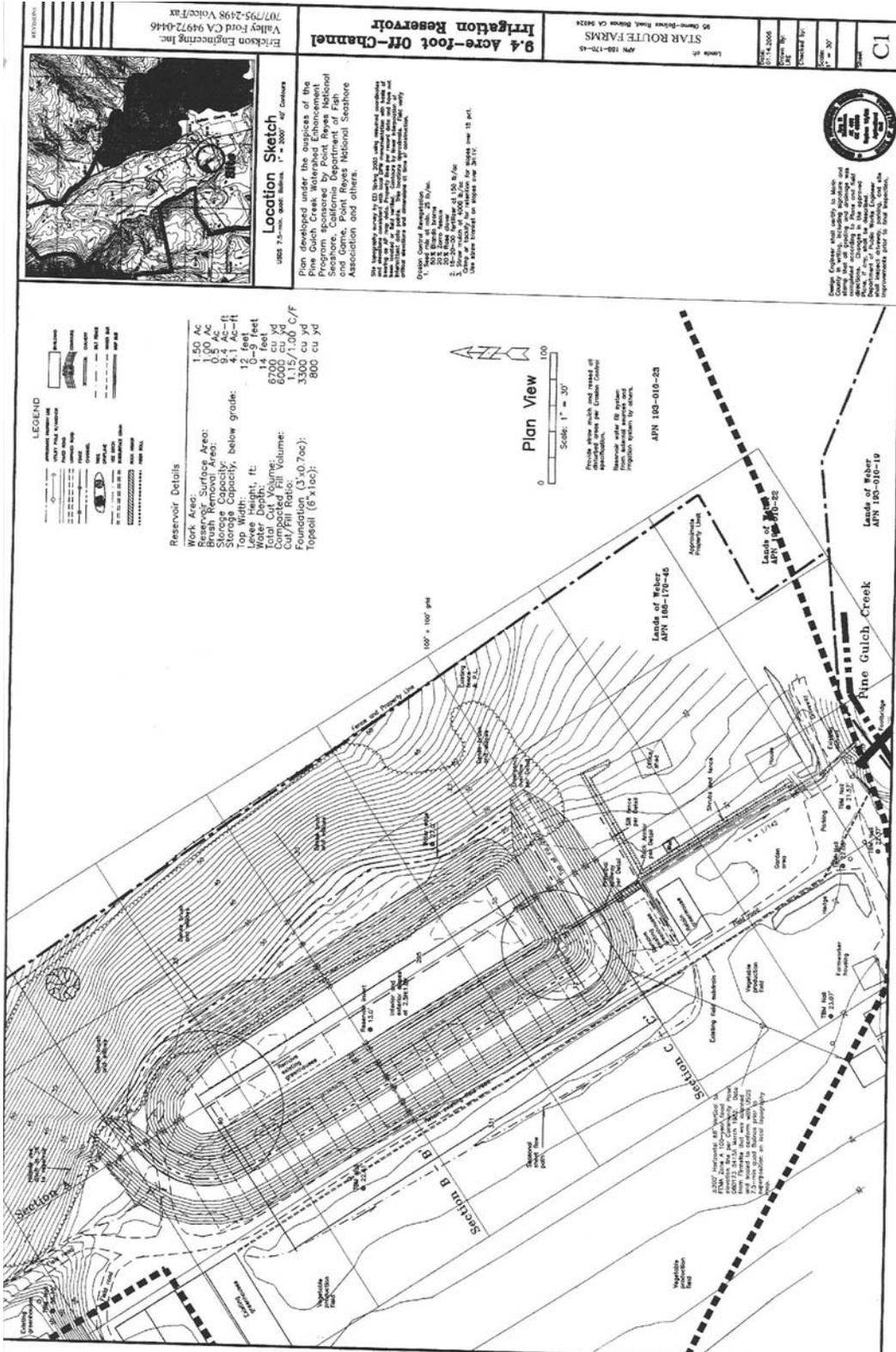


# Plans: pond 3A



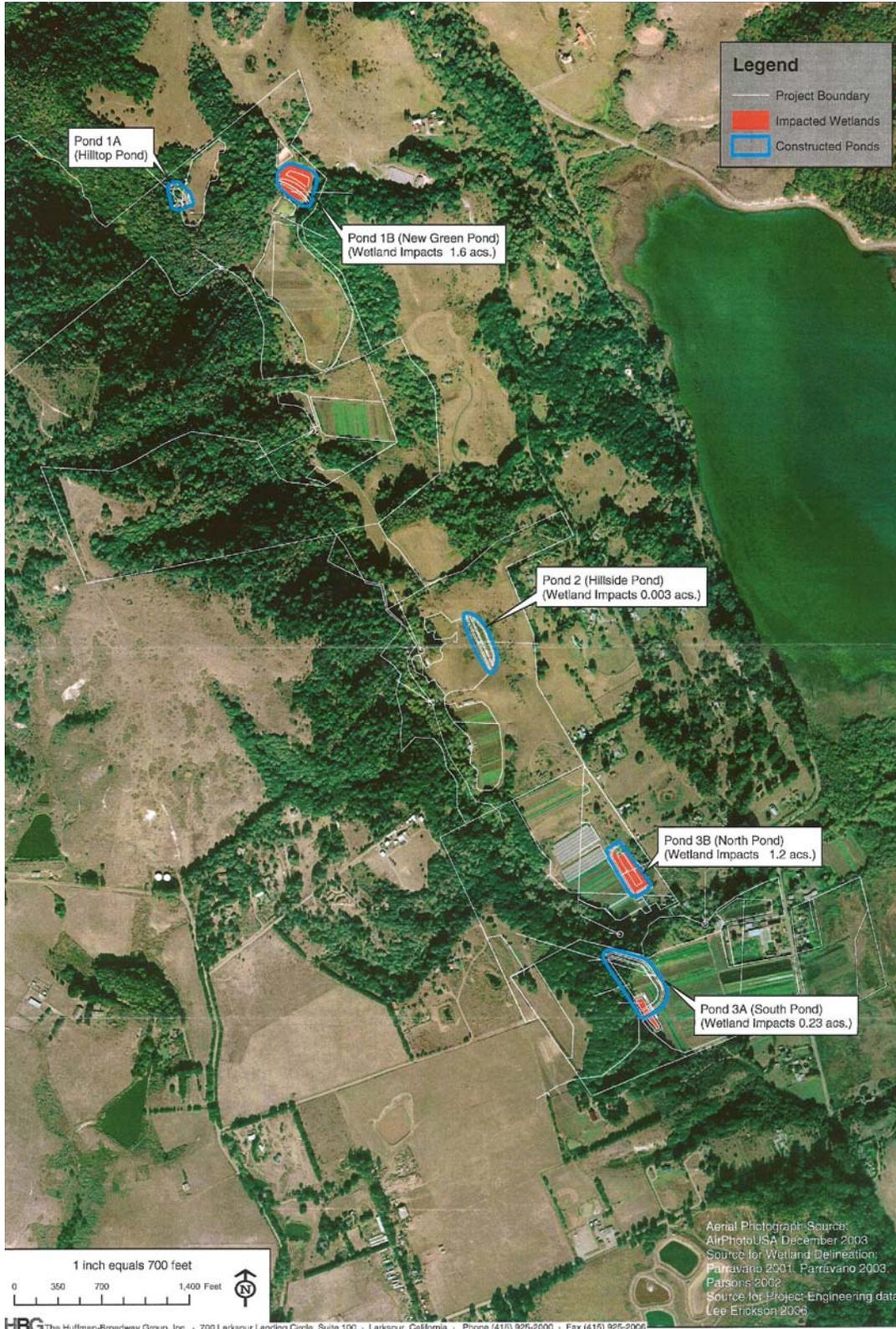


# Plans: pond 3B





# Impacts Map



# Mitigation Map

