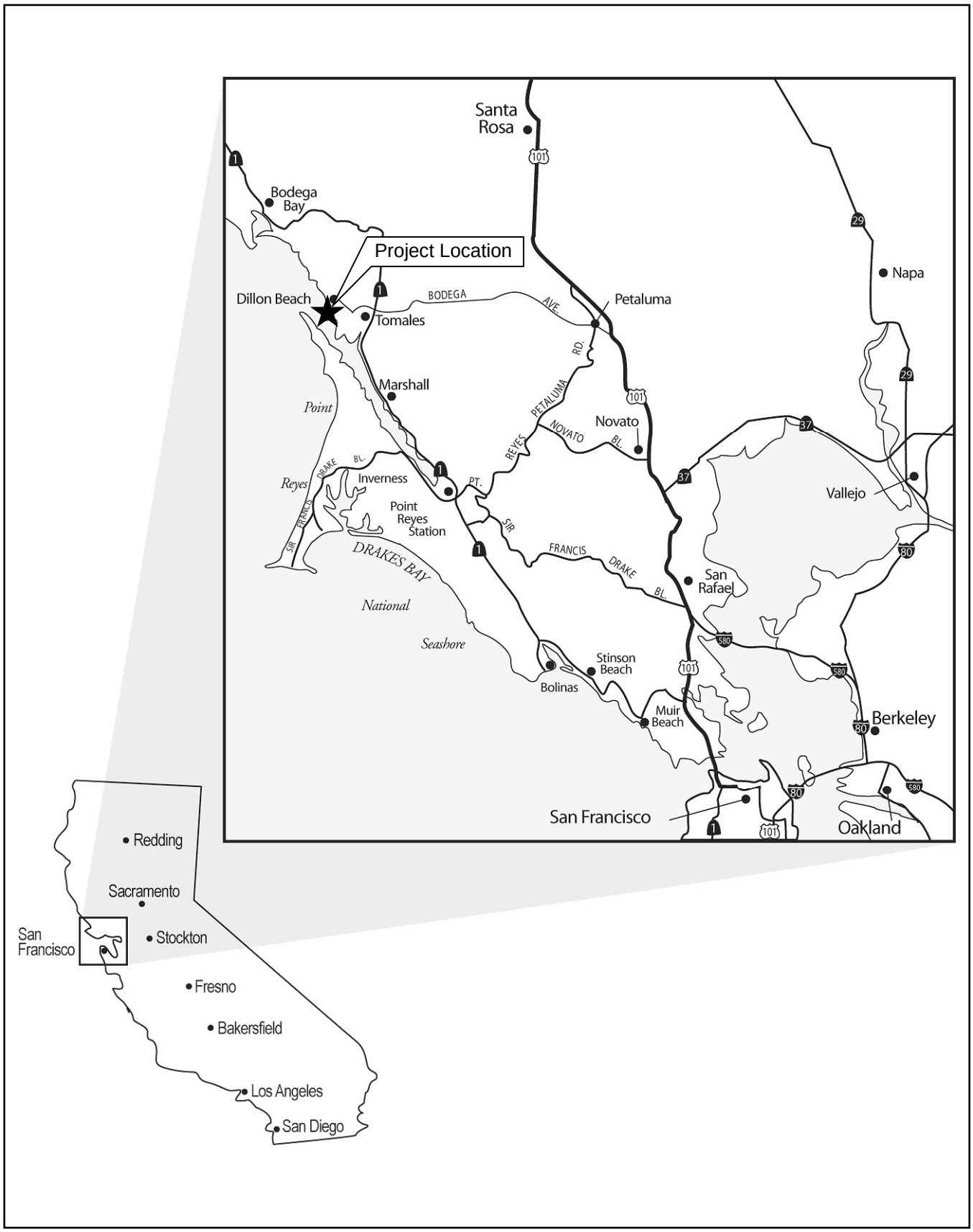


Source: EDAW 2004

Regional Location

EXHIBIT 3-1

Lawson's Landing Master Plan Draft EIR
P 02110069.01 10/04

0 5 10
MILES

NORTH

EDAW

Exhibit No. 1
2-06-018
MAR-08-028
Lawson's Landing
Regional Location Map
Page 1 of 1

Source: Pacific Watershed Associates 2000

Project Site Location

EXHIBIT 3-2

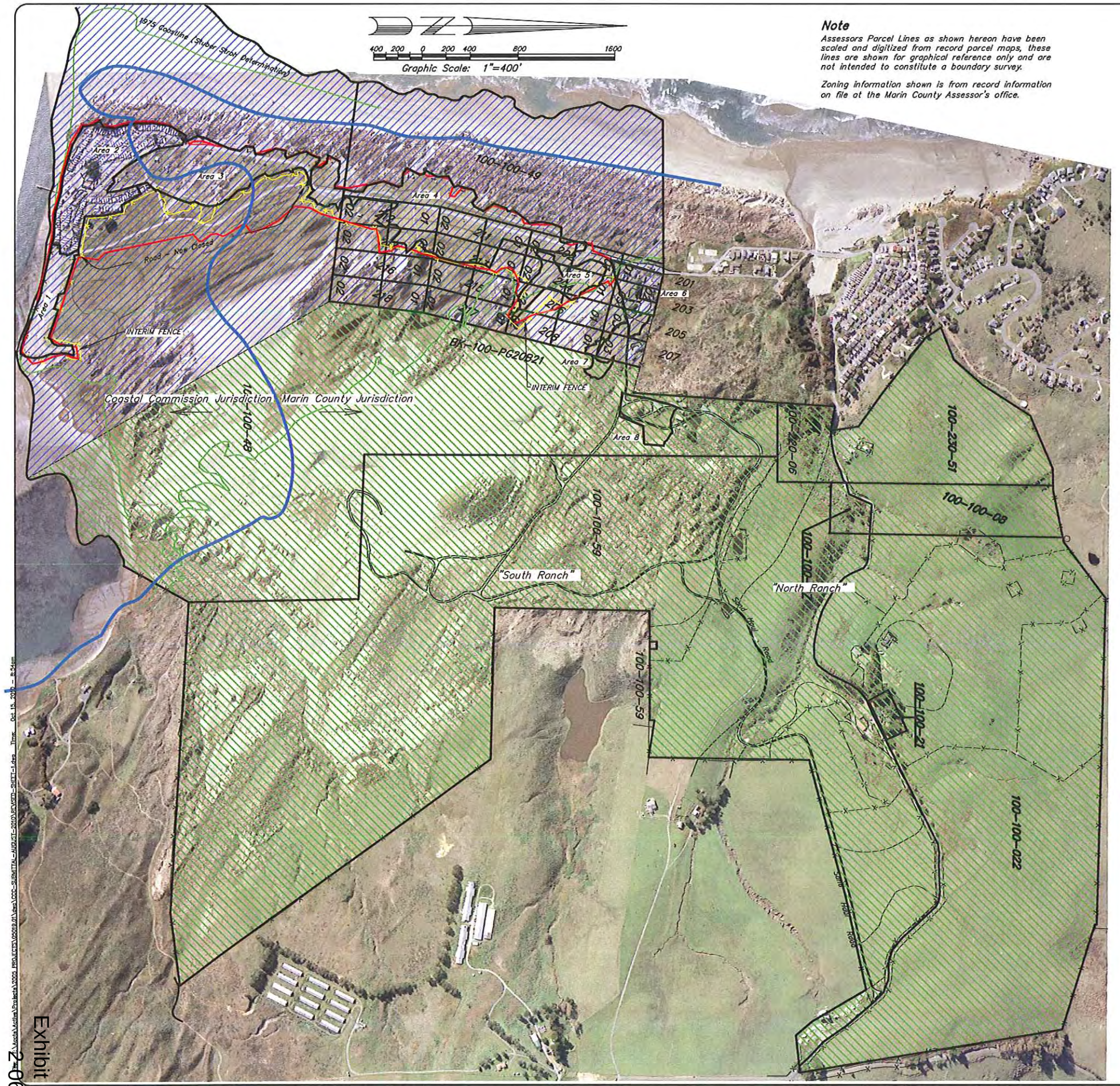
Lawson's Landing Master Plan Draft EIR
P 02110069.01 11/04

0 750 1500
FEET

NORTH

EDAW

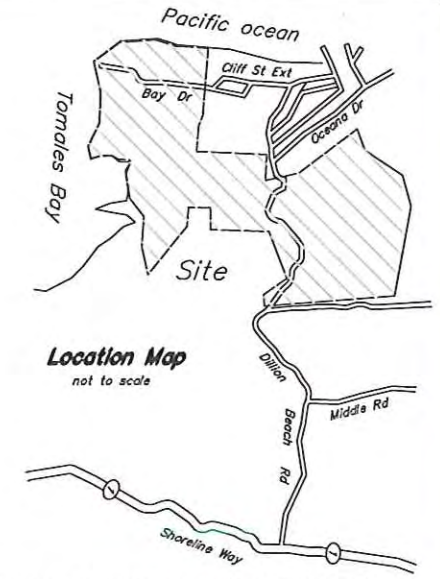
Exhibit No. 2
2-06-018
MAR-08-028
Lawson's Landing
Vicinity Map
Page 1 of 1



Note

Assessors Parcel Lines as shown hereon have been scaled and digitized from record parcel maps, these lines are shown for graphical reference only and are not intended to constitute a boundary survey.

Zoning information shown is from record information on file at the Marin County Assessor's office.



Location Map

not to scale

General Notes

Boundary lines shown hereon are based upon approximate calculations based on the deeds of the ranch. These boundary lines are only for reference on the overall ranch and not for boundary determination for occupation and/or area calculations. Field survey performed by Adobe Associates, Inc., on February 27, and March 5, 2007 and are based upon found iron pipe monuments and record deed information.

Features shown hereon are existing as of the date of the aerial photography. Aerial photography was performed on March 2, 2007, digital mapping and digital orthophotography performed by:
Delta Geomatics
837 Fifth Street
Santa Rosa, CA 95404
Phone: 707-525-9721
Fax: 707-525-9729

For information regarding habitat, and Vegetation Comments See Sheet 2 & Sheets 8 to 15 of the "Vegetation Communities/Habitats Lawson's Landing".

Prepared by:
Monk & Associates, Inc.
Environmental Consultants
1136 Saranap Avenue, Suite
Walnut Creek, CA, 94595
925-947-4867

Map preparation Date: August 17, 2006
Map revision Date: august 24, 2006

Legend:

- Coastal Commission Jurisdictional Boundary
- 1975 Coastline (See Note, Title Sheet)
- Road
- C-RCR: Coastal Resort / Commercial Recreation Planned District
- C-APZ: Agricultural
- Prior Limit of Camping Area
- Proposed Limit of Camping Area
- Interim Fence (Existing Fence, interim ESHA protection measure)
- 20' Contour Tsunami Runup Line

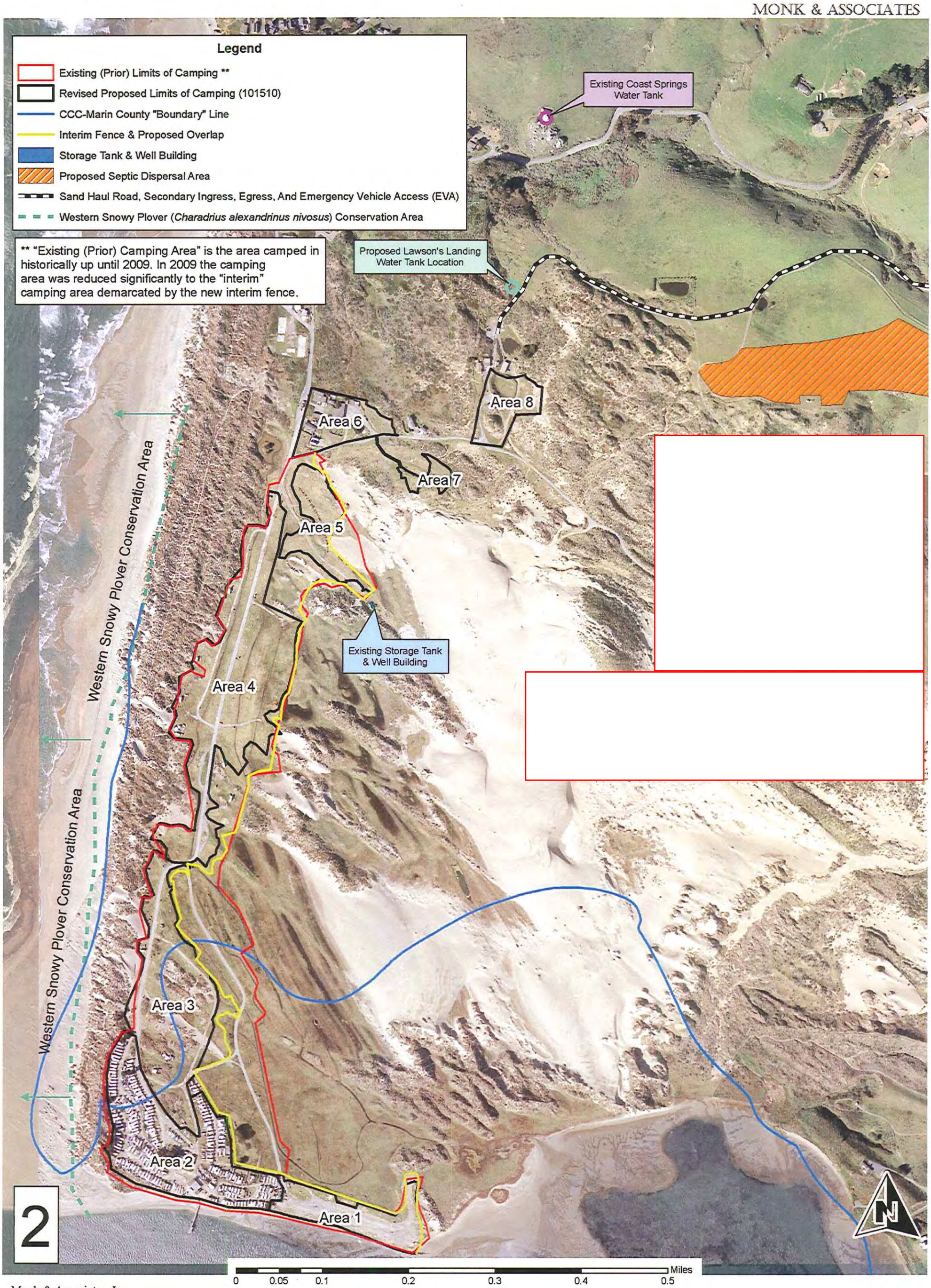
Adobe Associates, Inc.
Civil Engineering, Land Surveying & Land Development Services
1220 N. Dutton Ave
Santa Rosa, CA 95401
707 541 2300
Fax: 707 541 2301

Lawson's Landing Property - Overall with Zoning

Lawson's Landing
Dillon Beach, CA 94929.
Assessor's Parcel Number 100-100-12 & 48

Scale: 1" = 400'
Date: January 2010
Revised: July 2010
Revised: Oct. 2010
Drawn by: PCA3
Checked by: lhg/drs

Sheet 1 of 33 sheets
Job No. 05019

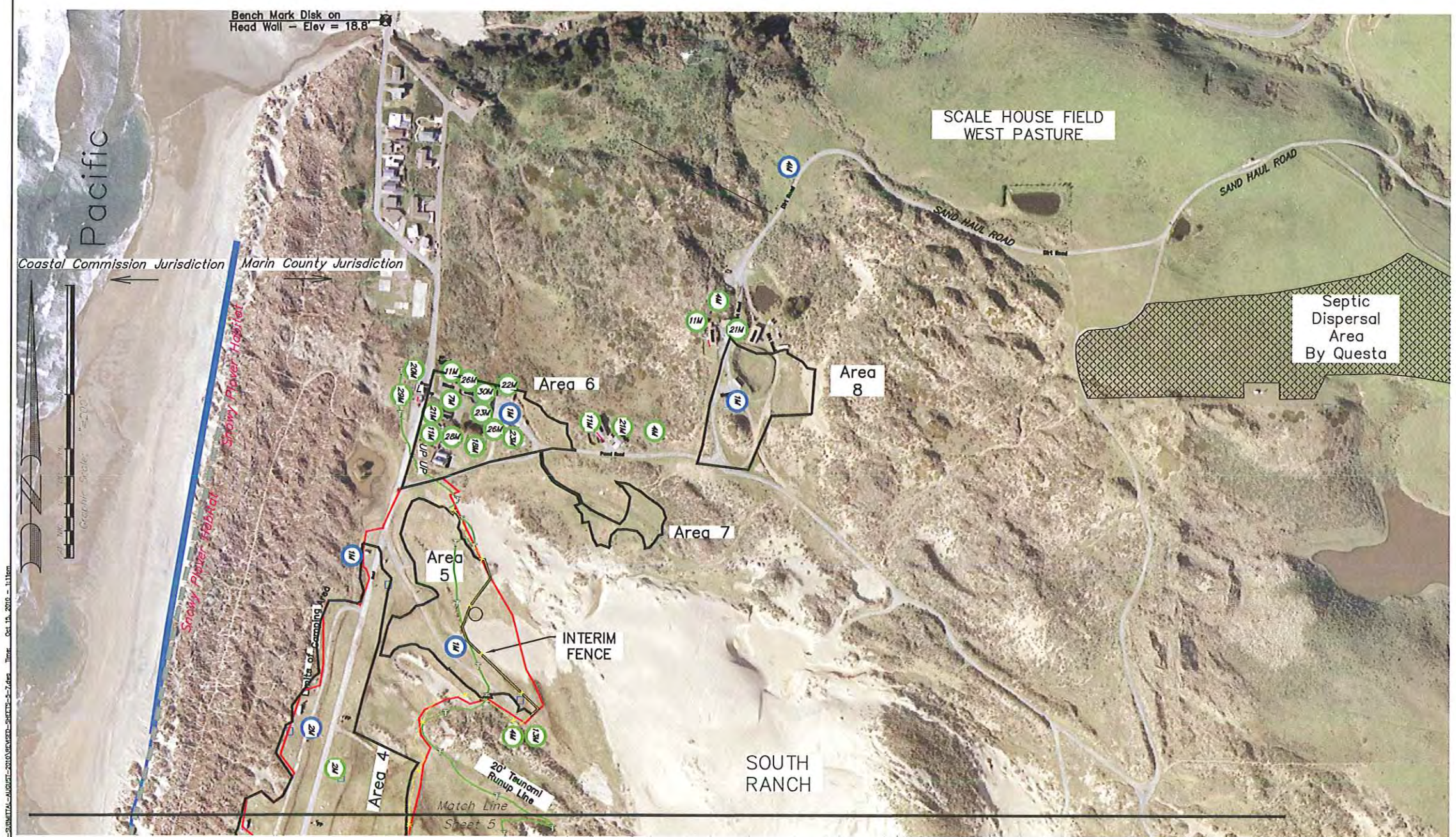


Monk & Associates, Inc.
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Proposed Number of Camping Sites
within Proposed Camping Areas
Lawson's Landing, Dillon Beach, California

Map Revision Date: October 15, 2010
Aerial Photograph Source:
Adobe Associates &
http://marinmapims.marinmap.org

The location of features identified in "Table 1: Lawson's Landing Facilities and Uses (Existing, Retained and Proposed for CCC Retained Jurisdiction)" and in "Table 2: Lawson's Landing Facilities and Uses (Existing, Retained and Proposed for Marin County Jurisdiction)" are for graphical and planning purposes only. These features have been noted in the field and graphically located on aerial photos by IPA,Inc. (International Planning Associates) this information was then digitized to the mapping as shown hereon. This information does not represent field location of the features by this office.



Legend:

- Alternative Septic Leach Field Area, (Preliminary As Identified By Questa)
- Proposed Limit–Camping
- Existing Limit–Camping
- Coastal Commission Juristictional Boundary
- Snowy Plover Area
- Tree Dripline
- Interim Fence
- Drainage
- Culvert
- Retaining Wall
- Trail
- 20' Tsunami Runup Line
- Utility Pole W/Anchor
- Paved Road
- Brush
- Unpaved Road
- Building
- Contours
- Elevation
- Control Point
- Utility Pole
- Power Pole
- Existing & To Be Removed
- Existing & Retained Feature
- Proposed Feature

General Notes

The "20' Tsunami Runup" line, as shown hereon, has been digitized from the 20' contour line from the Aerial Topography (from which 10' contour intervals were generated; National Mapping Standards state that 90% of the elevations determined from contours shall have an accuracy with respect to true elevation of one–half (1/2) contour interval). This should be used as a reference only as the horizontal location of this line will vary.

Uses, Facilities in Marin County Jurisdiction

	RETAINED	REMOVED	NEW	TOTAL PROPOSED IN MARIN JURISDICTION
1G2	2 Restrooms locating		8 New restrooms at Camping Area and Landing Center	10 Restrooms in site, with addition of 8 new restrooms in Camping Area and Landing Center
2M	2 Water Faucets		3 New water faucets	12 water faucets total
3M	16 Showers		12 New showers in all restrooms	28 Showers total in all restrooms, 2 which will be removed
4M	8 Existing water tanks, 4 tanks and 1 pump house retained near owner's bar (bar of camping Area 5	1 (40,000 gal) redwood storage tank removed	2 new water tanks constructed, one 20,000 gal. to replace existing tank and one 10,000 gal. at back bar of Camping Area 6, providing additional storage for fire protection	8 Existing water tanks, 4 tanks and 1 pump house retained 2 new tanks total 30,000 gal. and 10,000 gal. near existing tank and one 100,000 gal. in back part of Camping Area 6, providing additional storage for fire protection
5M			New SFDT System proposed to serve new Landing Center, boat ramp stores, concessions and residence	New SFDT System proposed to serve new Landing Center, boat ramp stores, concessions and residence
6M			New septic dispersal with leach field and irrigation at 9.15 acres, to serve Scale House, Hatchery and Stone House Field West Pasture	New septic dispersal with leach field and irrigation 9.15 acres to serve Scale House, Hatchery and Stone House Field West Pasture. New wastewater lines to the septic dispersal area and all station have only gate
7M	Area Day-Use Parking 5.2 Acres, near Hatchery, adjacent to Scale House			Existing area will remain as parking, adjacent the Scale House
8M	4 Fire Hydrant		2 New Fire Hydrants	6 Fire Hydrants (4 existing and 2 new)
9M	4 Street Lights			4 Street Lights
10M	2 Area lights			New lights (all the same lights, location to be determined by Septic
11M	2 Furnished Permanent Homes for Hatchery, River Tender and employees			2 Furnished Permanent Homes for Hatchery, River Tender and employees
12M	Existing trail with Hatchery Tender Scale House only		Only single sign marking Tender access	Existing trail with Hatchery Tender Scale House only, replaced with Hatchery Tender sign marking Beach access
13M	Pump House near Camping Area 6			Pump House near Area 5 section only
14M	RV and Tent Campsites (50)		Area E Hunting Camp 2 Campsites Area F Adventure 24 Campsites Area R Deer Hunt Area 40 Campsites	90 Campsites (Hunting Camp Tender protection)
15M	50 Tent Frames	Remove frame for an open field area south of cabin (Cabin)		50 Tent Frames
16M			New 8 high System proposed to serve Hatchery and residence	New SFDM system proposed to serve Hatchery and residence
17M	Restroom 15,000 gal. septic and pre-fabricated concrete used for residence and operations		New Lawson's Landing Center, pre-fab tank, the 50 feet, the Boat Ramp, Boat Rental Store, office, concessions, Hatchery, Tender Area, Hatchery Tender Residence, Beach Access	New Lawson's Landing Center, pre-fab tank, the 50 feet, the Boat Ramp, Boat Rental Store, office, concessions, Hatchery, Tender Area, Hatchery Tender Residence, Beach Access for 28,000 sq. ft.
18M	8 Picnic Benches with shade tree		2 New Picnic Benches with shade	8 Picnic benches with shade tree
19M	22 1 Acre acres of camping adjacent to Scale House	12 acres removed	5.5 acres now Tender camping area in Area 7 and 4	25.5 Acre proposed acres of camping
20M	Gate House			California and storage will remain and relocated
21M	3 Campsite near owner's home retained			3 Campsite near owner's home retained
22M	Maintenance Shed			Will be modified as part of new Landing Center
23M	Old Storage Shed			Will be modified as part of new Landing Center
24M	Water Lines for restroom, pump, use facilities		New Water Lines for new Landing Center new water system (Potable) water Backflow Device and Water Meter for Domestic Use, Fire Hydrant Water Meter connected to existing water system, some of existing lines in roadway installed	Most existing Water Lines remain except where replaced, Backflow Device, Fire Hydrant, Auto upgrade, or in area of work
25M	Gate Breaking on, retained near 3 cars and repaired gate destroyed on site road			3 Gates Stations, Gate Breaking on, Gate and Hatchery Gate replaced and Gate used
26M	Eucalyptus Recreation trees retained			New to be modified for new use
27M	Private trail built on the property and deeded with the County of Marin, Dirt Road connecting Lawson's Landing Area 6 to the Hatchery area and also lower to the Hatchery parking area	Dirt road to be lined and used as a lower parking area, and upper road for 3 emergency vehicle, pedestrian and bike use		Private trail built on the property and deeded with the County of Marin, Dirt Road connecting Lawson's Landing Area 6 to the Hatchery area and also lower to the Hatchery parking area. Dirt Road
28M	Bark storage			Bark storage will continue in the county of Lawsing Center
29M	Shed near Farmhouse			Retained shed near farmhouse
30M	Tool Shed			Will be modified as part of new Landing Center
31M	Maintenance Shed			Will be modified as part of new Landing Center
32M	Electrical utilities retained and upgraded when relocated to roadway and placed underground		New electrical lines for new restrooms and new SFDP system and for some Campsites	Electrical utilities retained and upgraded when relocated to roadway and placed underground. New electrical lines for new restrooms and new SFDP system and for some campsites
33M			Utility and Storage Buildings temporal from proposed lines 1. Trailer Garage 2. Utility and storage shed 3. Boat garage 4. Storage containers	

Lawson's Landing Property – County Of Marin Permit Jurisdiction

Lawson's Landing
Dillon Beach, CA 94929
Assessor's Parcel Number 100-100-12 & 48

Adobe Associates, Inc.
Civil Engineering, Land Surveying & Land Development Services
1220 N. Dutton Ave.
Santa Rosa, CA 95401
707 541 2300
Fax: 707 541 2301

Scale: 1" = 200'
Date: January 2010
Revised: October 2010
Revised:
Drawn by: PCA3 /fhg
Checked by: ars

Sheet 5 of 33 sheets
Job No. 05019

Exhibit No. 3
2-06-018
/ A-2-MAR-08-028
Lawson's Landing
Project plans
Page 3 of 18

*See revised project description for changes to the details in the chart

Uses, facilities in Marin County Jurisdiction			
RETAINED	REMOVED	NEW	TOTAL PROPOSED IN MARIN JURISDICTION
1M. 2 Restrooms existing		8 New restrooms in Camping Area and Landing Center	10 Restrooms total; 4M addition of 8 new restrooms in Camping Area and Landing Center
2M. 2 Water Faucets		5 New water faucets	7 water faucets total
3M. 16 Showers		16 New showers in all restrooms	32 Showers total (in all restrooms including 2 which will be remodeled)
4M. 2 Drinking water tanks, 4 wells and 1 pump house retained; new water tower to be removed	1 Well and pump house removed	2 new water tanks generated, one 30,000 gal. to replace existing tank and one 100,000 gal. to be built at Camping Area 5 providing additional storage for fire protection	3 Drinking water tanks, 4 wells and 1 pump house retained; 2 new water tanks constructed; one 30,000 gal. tank at Camping Area 5 providing additional storage for fire protection
5M.		New STEP System proposed to serve new Landing Center and round restaurant, campground and restrooms	New STEP System proposed to serve new Landing Center and round restaurant, campground and restrooms

Uses, facilities in Marin County Jurisdiction			
RETAINED	REMOVED	NEW	TOTAL PROPOSED IN MARIN JURISDICTION
6M.		New septic dispersal with leach field and irrigation in 5.0 acre area shown as leach field area in Area 5 (Hoffman and Sullivan report) and 5 acre reserve if 50% failure occurs	New septic dispersal with leach field and irrigation in 5.0 acre area shown as leach field area in Area 5 (Hoffman and Sullivan report) and 5 acre reserve if 50% failure occurs. New recreational fields to the south; dispersal area will drain near entry gate
7M. 1 Fire Hydrant	1 New Fire Hydrants		Parking area will remain at upper entrance; fire hydrant relocated
8M. 4 Street Lights		4 Street Lights	8 Street Lights
9M. 2 Area lights		New lights, will be area lights, number to be determined by locals	7 Area lights
10M. 1 Pay-to-use Campground across from restroom, boat storage and employees			1 Pay-to-use Campground across from restroom, boat storage and employees

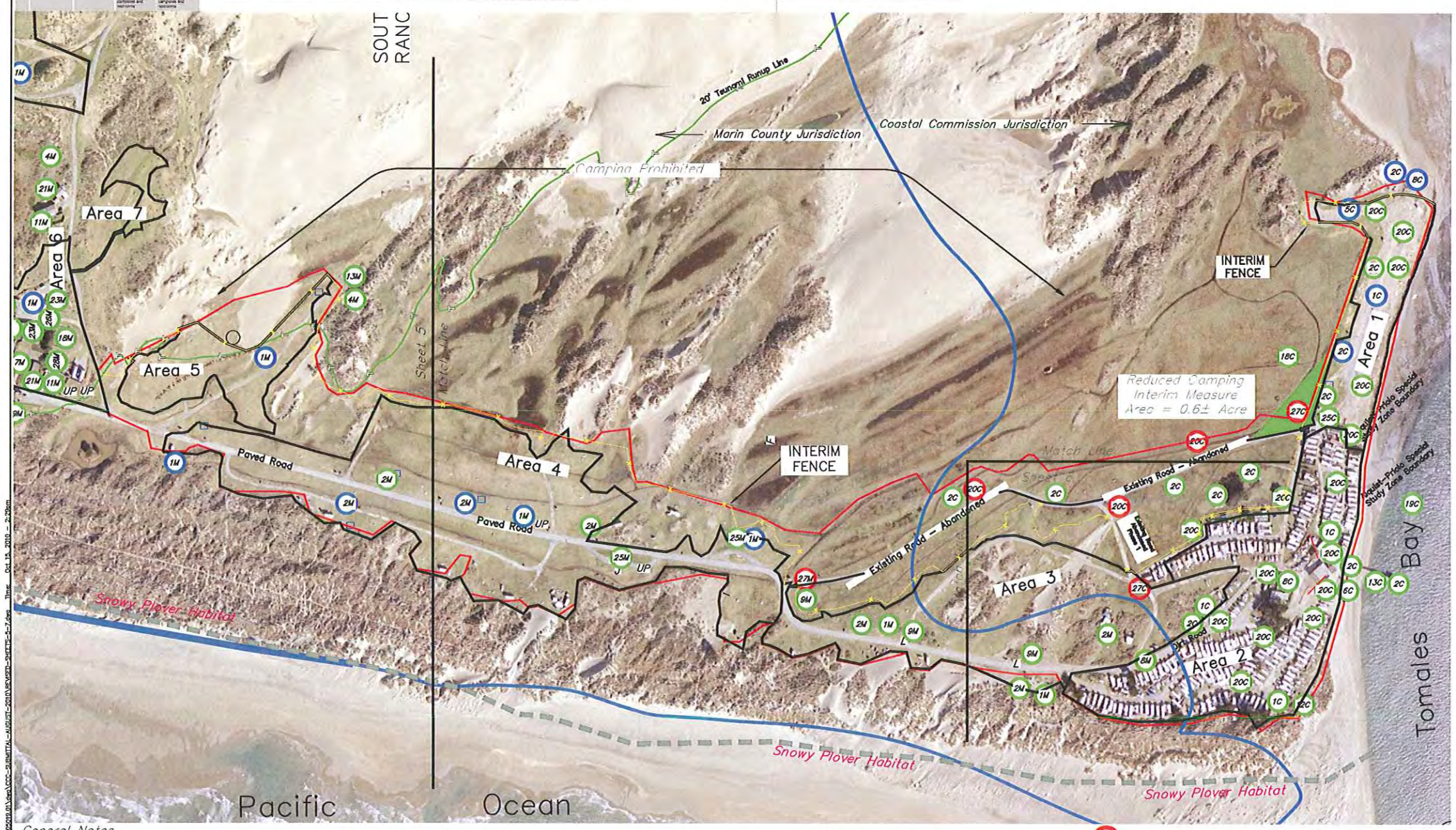
Uses, facilities in Marin County Jurisdiction			
RETAINED	REMOVED	NEW	TOTAL PROPOSED IN MARIN JURISDICTION
11M. Existing main water tank adjacent to Area 5		Only single high mounting tank at access	2 Existing tanks; one tank located in Area 5 and one tank at Camping Area 3
12M. Public house near Camping Area 3		Area 2 Landing Center Food Concession; 20 Restrooms; 2 Showers; Area 3 Wine Hall Restaurant; 45 Campsites	New Concession proposed in future promotion
13M. RV and Tent Campsites Site			
14M. 20 Trailer Trailers	20 Trailer Trailers removed		20 Trailer Trailers
15M. Restaurant 12,000 sq.ft. footprint area previously used for restaurant, equipment and operations		New STEP System proposed to serve year round restaurant and restrooms. New Landing Center at the top from the Entrance Gate to include Administration office, meeting room, food concession, boat storage, bank restroom, boat house	New STEP System proposed to serve year round restaurant and restrooms. New Landing Center at the top from the Entrance Gate to include Administration office, meeting room, food concession, boat storage, bank restroom, boat house for 12,000 sq. ft.

Uses, facilities in Marin County Jurisdiction			
RETAINED	REMOVED	NEW	TOTAL PROPOSED IN MARIN JURISDICTION
16M. 6 Water troughs with supply line		2 New trough with supply line	8 Water troughs with supply line
17M. 10.1 total acres of Camping retained in revised area	12 acres removed	0.6 acres new Interim Camping area in Area 3 and 7	10.7 total proposed acres of camping
18M. Clark House		Greenhouse in Area 3 will remain; garage removed	Greenhouse in Area 3 will remain
19M. 3 Garages near Camping Area 3		3 Garages near Camping Area 3	6 Garages near Camping Area 3
20M. Equipment Shed			Will be modified as part of new Landing Center
21M. Old Storage Barn			Will be modified as part of new Landing Center
22M. Water Lines for restroom, public use, faucets		New Water Lines for new restrooms and drinking fountains. Some water lines would be removed as needed for maintenance; some would be relocated on roadbeds. Most water lines in Area 7 (trailer area) would be replaced when septic system is installed	Most existing Water Lines remain except replaced where needed for maintenance; some would be removed as part of septic replacement. New water lines for new restrooms and drinking water fountains

Uses, facilities in Marin County Jurisdiction			
RETAINED	REMOVED	NEW	TOTAL PROPOSED IN MARIN JURISDICTION
23M. Dump Stations (2) retained near 8 bays and restrooms on south side of area		2 Dump Stations retained near the 4 bays and restrooms on north side of area	2 Dump Stations retained near the 4 bays and restrooms on north side of area
24M. Employee Restroom retained		May be modified for new use	May be modified for new use
25M. Roads that exist on the property and in the Coastal Zone, including the "Old Road" connecting Lawson's Landing road to the East shell area and south road to the trailer parking area	Old road to East shell area and south road to trailer parking area	Roads that exist on the property and in the Coastal Zone, including the "Old Road" connecting Lawson's Landing road to the East shell area and south road to the trailer parking area will remain except for "Old Road"	Roads that exist on the property and in the Coastal Zone, including the "Old Road" connecting Lawson's Landing road to the East shell area and south road to the trailer parking area will remain except for "Old Road"
26M. Boat storage		Boat storage will continue in the Coastal Zone	Boat storage will continue in the Coastal Zone
27M. Shed near Stairtower		Retained shed near stairtower	Retained shed near stairtower
28M. Tack Shed		Will be modified as part of new Landing Center	Will be modified as part of new Landing Center
29M. Maintenance Shed		Will be modified as part of new Landing Center	Will be modified as part of new Landing Center

Uses, facilities in Marin County Jurisdiction			
RETAINED	REMOVED	NEW	TOTAL PROPOSED IN MARIN JURISDICTION
30M. Electrical utilities retained and upgraded when relocated to roadway and placed underground		New electrical lines for new restrooms and new STEP system and for some of RV sites	Electrical utilities retained and upgraded when relocated to roadway and placed underground. New electrical lines for new restrooms and new STEP system and for some Campsites
31M.		Utility and Storage Buildings removed from proposed Area 5: 1 Tractor Garage; 2 Utility and Storage; 3 Shed; 4 Garage; 5 Storage containers	

The location of features identified in "Table 1: Lawson's Landing Facilities and Uses (Existing, Retained and Proposed for CCC Retained Jurisdiction)" and in "Table 2: Lawson's Landing Facilities and Uses (Existing, Retained and Proposed for Marin County Jurisdiction)" are for graphical and planning purposes only. These features have been noted in the field and graphically located on aerial photos by IPA,Inc. (International Planning Associates) this information was then digitized to the mapping as shown hereon. This information does not represent field location of the features by this office.



USES, FACILITIES IN CCC JURISDICTION 10/18/10			
RETAINED	REMOVED	NEW	TOTAL PROPOSED IN CCC JURISDICTION
1C. Restrooms 3. Main Restroom near Store (1,623 sq. ft.). Restroom on E. row between E 10 & E 11 (235 sq. ft.). Restroom north of large boat storage and Mobile Homes (235 sq.ft.) (To be rebuilt)		2 New restrooms with showers	Main Restroom and 2 existing restroom block restrooms would be remodeled to meet ADA requirements and 2 new restrooms added, each with showers planned
2C. Water Faucets 13 public use faucets. 181 hose faucets between travel trailers		2 New drinking fountains	13 public use faucets. 181 hose faucets between travel trailers. 2 new drinking fountains
3C. Showers 6 (building that now is the showers is now an employee laundry room and storage) 286 sq.ft.		5 New showers	5 new showers
4C.	Existing full size Store, Boat Rental Shop and Office removed from Boat House and moved to Landing Center	New Boat Shop with theater, tackle, and other storage space. Footprint of Existing Boat House	New tackle shop with theater, tackle, and other storage consolidated within footprint of existing Boat House
5C. Parking Lot Area approx. 7,500 sq.ft (6 spaces) for use by 50 cars adjacent to Boathouse plus boat parking for 13 launched boats		New parking areas north of new bait shop and at northeastern end of Area 1 for approximately 50 cars	Parking area will remain approximately this same near bait shop 2 new areas for a total of approximately 100 day use parking spaces plus boat parking for 13 launched boats
6C. Boat launching at landing to remain			Boat launching at landing to remain
7C. Boat storage for day use			Boat storage for day use
8C. Fire Hydrants 1		2 New Fire Hydrants	3 Total
9C. Lighting: 2 Street Lights, 6 Area Lights		New lighting will be primarily lower level area lights	New lighting will be primarily lower level area lights
10C. Signage: Store Building Sign and 3 informational signs on building. National Park Signs near gate		New signage for RV camping and travel trailer areas, possibly some signage identifying the area as nesting habitat for the snowy plover	Signage will remain much the same with the addition of signage for RV parking and travel trailer areas and snowy plover education program signs
11C. 4 Carrollers Mobile Homes. 2 near Bakehouse and Parking Lot which serviced spaces Row E 1 & 2 (1,296 sq.ft.) and 3, 4, 5 (1,310 sq.ft.) and 2 at 911 and 912			4 Carrollers Mobile Homes, 2 on Row E near Bakehouse and Parking Lot, and 2 on Row B
12C. One trail near restroom, between E 18 and E 19 in E row in northwest corner of trailers			One trail near restroom, between E 18 and E 19 in E row in northwest corner of trailers
13C. Bar 2707 sq.ft			Same size bar to remain
14C. Number of RV and Tent Campsites 170	227 Camp sites removed		170 Campsites, 60 Tent sites and 110 RV's
15C. Travel Trailers 174 which serviced approximately 50,000 sq.ft footprint. (Note: 174 travel trailers at minimum size (250 sq.ft) = 43,500 sq.ft. Area of each trailer space approximately 1,200 sq.ft. Total area 261,000 sq.ft (5.99 acre)	6 Travel trailers removed		174 Travel Trailers (including approximately 59,000 sq.ft. footprint and area of trailer spaces approximately 261,000 sq.ft (5.99 acre)
16C. Year Round Residents in Travel trailers 18	4		Year Round Residents in Travel trailers 18
17C. 18.1 total acres	13.9 acres removed		18.3 total proposed acres of camping in CCC
18C. 1 Water trough with supply line			1 Water trough with supply line will remain
19C. Mooring Poles 15			15 Mooring Poles will remain
20C. Dumpsters 24	3 Dumpsters removed		21 Dumpsters will remain
21C. Garage: 1,234 sq.ft near Carollerary Mobile Homes and near Bookhouse Bakehouse			1,234 sq.ft garage near Carollerary Mobile Homes will remain
22C. Utility Shed: 324 sq.ft			324 sq.ft will remain
23C. 1000 gal Propane Tank and Dispenser 51 sq.ft			Propane Tank and Dispenser will remain
24C. Water Lines for restroom, public use faucets		New Water Lines for new restrooms and drinking water fountains. Some water lines would be removed as needed for maintenance; some would be relocated on roadbeds. Most water lines in Area 7 (trailer area) would be replaced when septic system is installed	Most existing Water Lines remain except replaced where needed for maintenance; some would be removed as part of septic replacement. New water lines for new restrooms and drinking water fountains
25C.	Dump Station in Area 1		
26C.	Walk-in Freezer: 320 sq.ft		Walk-in Freezer will be converted to new Freezer in consolidated bait shop and storage area within old Boat House footprint
27C. Roads that exist on the property and within the CCC's original jurisdiction (all roads on the property will remain with the exception of the "Old Road" connecting Lawson's Landing road to the East shell area and south road to the trailer parking area	Various Access Road to Sea Wall area, and spur to the removed "Old 2000 5 foot" & 8 wide road will be gated off and reclaimed by wetland		Roads that exist on the property and within the CCC's original jurisdiction, with the exception of the "Old Road" will remain. Access Road will remain only pedestrian and bicycle use and may serve as E.V.A.
28C. Boat Storage: 2 areas. 1 approx. 8,000 sq.ft. 2 approx. 16,000 sq.ft. Some of this area may be used by RV's	Chain link fence around 8,000 sq.ft boat storage area removed, plus some of boat storage will be moved to Landing Center	Some Boat storage area 1, (8,000 sq. ft.) will be removed to parking area and but one rescue boat will be retained in this area. Most of Boat Storage area 2 will be converted to RV campsites and parking	Boat Storage: 2 areas. 1 approx. 8,000 sq.ft. 2 approx. 16,000 sq.ft. Most of this area will be converted to RV campsites and parking
29C.	Storage (Shipping) Container 320 sq.ft		
30C.	Tractor Shed		
31C.	Sewage Treatment Systems Tank: 150 Lines: 1000	New Septic Tank, Effluent Pump ("EFF") System proposed to serve year round trailers and restrooms	New STEP System proposed to serve year round trailers and restrooms
32C. Electrical utilities retained but when upgraded relocated to roadway and placed underground		New electrical lines for new restrooms and new STEP system and for some of RV sites	Electrical utilities retained and upgraded when relocated to roadway and placed underground. New electrical lines for new restrooms and new STEP system and for some of RV sites
33C.	Gas Tank/Fuel Bunker: 460 sq.ft will be removed and relocated to the Landing Center		
34C. Paint and Gas Storage Shed			Paint and Gas storage shed will be retained in non-combustible container
35C. Employee Laundry			Employee Laundry

General Notes

The "Coastal Commission Juristictional Boundary" and "1975 Coastline" was obtained from Stuber Stroeh Inc., as shown hereon and has been 'best fit' to available aerial imagery resident in both that aerial imagery utilized by Monk & Associates and that digital orthophotography utilized by Adobe Associates. The "Coastal Commission Juristictional Boundary" and "1975 Coastline" is included for graphical representation only, and is not locateable on the ground of record.

The "San Andreas Fault", and "Alquist-Priolo Special Study Zone Boundary" as shown hereon have been scaled, and digitized, from sheet one of nine of that "Lawson's Landing Master Plan" originally prepared by "Hoffman & Associates" on April 1991, and revised by "Shannon' Associates Wesco, Inc.", on April 1994, December 1994, & November 1997.

The "20' Tsunami Runup" line, as shown hereon, has been digitized from the 20' contour line from the Aerial Topography (from which 10' contour intervals were generated; National Mapping Standards state that 90% of the elevations determined from contours shall have an accuracy with respect to true elevation of one-half (1/2) contour interval). This should be used as a reference only as the horizontal location of this line will vary.

Graphic Scale: 1"=200'

Legend:

Tree Dripline
Brush
Elevation
Control Point
Contours
Building
Unpaved Road
Interim Fence
Light
Power Pole
Paved Road
Drainage
Culvert
Trail
20' Contour Tsunami Runup Line
Existing & To Be Removed
Existing & Retained Feature
Proposed Feature
Coastal Commission Juristictional Boundary (See Note, Title Sheet)
Proposed Limit-Camping
Existing Limit-Camping

Adobe Associates, Inc.
Civil Engineering, Land Surveying & Land Development Services
1220 N. Dutton Ave
Santa Rosa, CA 95401
707 541 2300
Fax 707 541 2301

Lawson's Landing Property – Coastal Commission & County of Marin Permit Jurisdiction With Details of Existing, Retained, and Proposed Features

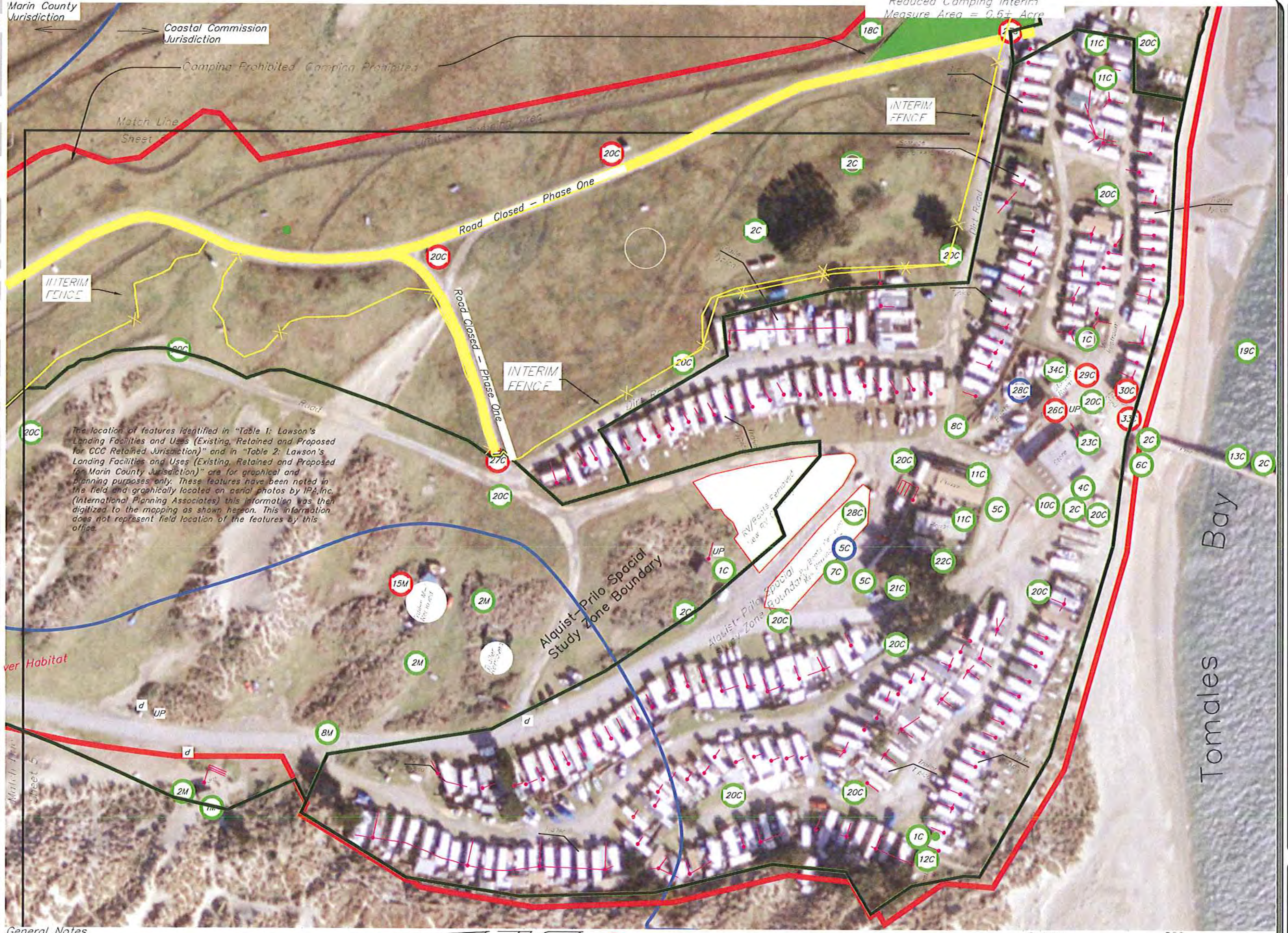
Lawson's Landing
Dillon Beach, CA 94929
Assessor's Parcel Number 100-100-12 & 45

Scale: 1" = 200'
Date: January 2010
Revised:
Revised: October 2010
Drawn by: PCA3/thg
Checked by: ars

Sheet 6 of 33 sheets
Job No. 05019

*See revised project description for changes to details in the chart

	USES, FACILITIES IN CCC JURISDICTION 9/21/08 RETAINED	REMOVED	NEW	TOTAL PROPOSED IN CCC JURISDICTION
1C	Restrooms 3 Main Restroom near Store (482.6 sq ft.) Restroom on E row between E 18 & E 19 232.5 sq ft Restroom north of large boat storage and Mobile Homes 236 sq ft (To be rebuilt)		2 New restrooms with showers	Main Restroom and 2 existing concrete block restrooms would be remodeled to meet ADA requirements and 2 new restrooms added, each with showers planned
2C	Water Faucets 13 public use faucets, 161 hose faucets between travel trailers		2 New drinking fountains	13 public use faucets 161 hose faucets between travel trailers 2 new drinking fountains
3C	Showers: 0 (building that was to be showers is now an employee laundry room and storage) 256 sq ft		5 New showers	5 new showers
4C		Existing full size Store, Bait Repair Shop and Office removed from Boat House and moved to Landing Center	New Bait Shop with freezer, tractor, and other storage within footprint of Existing Boat House	New bait shop with freezer, tractor and other storage consolidated within footprint of existing Boat House
5C	Parking Lot Area: approx. 7,800 sq (18 acre) for up to 30 cars adjacent to boathouse plus boat parking for 10 launched boats		New parking areas south of new bait shop and at northeastern end of Area 1 for approximately 50 cars	Parking area will remain approximately the same near bait shop 2 new areas for a total of approximately 100 day use parking spaces plus boat parking for 10 launched boats
6C	Boat launching at landing to remain			Boat launching at landing to remain
7C	Boat storage for day use			Boat storage for day use
8C	Fire Hydrants: 1		2 New Fire Hydrants	3 Total
9C	Lighting: 2 Street Lights, 4 Area Lights		New lighting will be primarily lower level area lights	New lighting will be primarily lower level area lights
10C	Signage: Store Building Sign and 1 informational signs on building National Park Signs near pier		New signage for RV camping and travel trailer areas, possibly some signage identifying the area as wintering habitat for the snowy plover	Signage will remain much the same with the addition of signage for RV camping and travel trailer areas and snowy plover education program signs
11C	4 Caretakers Mobile Homes: 2 near Baitshop and Parking Lot which occupy spaces Row F 1,2 (1,298 sq ft) and 3, 4, 6 (1,352 sq ft) and 2 at B11 and B12			4 Caretakers Mobile Homes, 2 on Row F near Baitshop and Parking Lot and 2 on Row B
12C	One trail near restroom, between E18 and E19 in E row in northwest corner of trailers			One trail near restroom, between E18 and E19 in E row in northwest corner of trailers
13C	Pier 2787 sq ft			Same size pier to remain
14C	Number of RV and Tent Campsites 173)	227 Camp sites removed		173 Campsites, 80 Tent sites and 113 RV's
15C	Travel Trailers: 174 which occupy approximately 50,000 sq ft footprint (Note: 174 travel trailers of maximum size (400 sq ft) = 69,600 sq ft Area of each trailer space approximately 1,500 sq ft Total area 261,000 sq ft (5.99 acre)	2 Travel trailers removed		174 Travel Trailers occupying approximately 69,600 sq ft footprint and area of trailer spaces approximately 261,000 sq ft (5.99 acre)
16C	Year Round Residents in Travel trailers: 18	4		Year Round Residents in Travel trailers: 10
17C	18.3 total acres	13.9 acres removed		18.3 total proposed acres of camping
18C	1 Water trough with supply line			1 Water trough with supply line will remain
19C	Mooring Poles 15			15 Mooring Poles will remain
20C	Dumpsters 24	3 Dumpsters removed		21 Dumpsters will remain
21C	Garage: 1,294 sq ft near Caretakers Mobile Homes and near Boathouse/ Baitshop			1,294 sq ft garage near Caretakers Mobile Homes will remain
22C	Utility Shed 324 sq ft			324 sq ft will remain
23C	1000 gal Propane Tank and Dispenser 51 sq ft			Propane Tank and Dispenser will remain
24C	Water Lines for restroom, public use faucets		New Water Lines [illegible]	Most existing Water Lines [illegible]
25C	Dump Station near east end of Area 1 (proposed)			Dump Station (proposed)
26C		Walk-in Freezer 320 sq ft		Walk-in Freezer [illegible]
27C	Roads [illegible]	[illegible]		Roads [illegible]
28C	Boat Storage: 2 areas [illegible]	[illegible]	[illegible]	Boat Storage: 2 areas [illegible]
29C		Storage (Shipping) Container 320 sq ft		
30C		Trapper Shed		
31C		Sewage Treatment System [illegible]	New Septic Tank [illegible]	New STEP System [illegible]
32C	Electrical utilities [illegible]		New electrical lines [illegible]	Electrical utilities [illegible]
33C		Gas Tank/Fuel Dispenser [illegible]		
34C	Paint and Gas Storage Shed			Paint and Gas storage [illegible]
35C	Employee Laundry			Employee Laundry



General Notes

The "San Andreas Fault", and "Alquist-Priolo Special Study Zone Boundary" as shown hereon have been scaled, and digitized, from sheet one of nine of that "Lawson's Landing Master Plan" originally prepared by "Hoffman & Albritton" on April 1991, and revised by "Shannon" Associates Wesco, Inc.", on April 1994, December 1994, & November 1997.
The "20' Tsunami Runup" line, as shown hereon, has been digitized from the 20' contour line from the Aerial Topography (from which 10' contour intervals were generated; National Mapping Standards state that 90% of the elevations determined from contours shall have an accuracy with respect to true elevation of one-half (1/2) contour interval). This should be used as a reference only as the horizontal location of this line will vary.

Graphic Scale: 1"=50'

Legend:

Coastal Commission Juristictional Boundary (See Note, Title Page)

Existing & To Be Removed
Existing & Retained Feature
Proposed Feature
Building

Existing Septic
Utility Pole W/Anchor
Interim Fence
UP Utility Pole
PP Power Pole
d Dumpster
Existing Limits of Camping
Proposed Limits of Camping

Drainage
Retaining Wall
Paved Road
Trail
Unpaved Road
Culvert

Contours
Elevation
Control Point
Tree Dripline
Brush

Lawson's Landing Property – Coastal Commission Retained Permit Jurisdiction
Details of Existing, Removed, Retained and Proposed Features
Lawson's Landing
Dillon Beach, CA 94929.
Assessor's Parcel Number 100-100-12 & 48

Scale: 1" = 60'
Date: January 2010
Revised:
Revised: October 2010
Drawn by: PCA3/lhg
Checked by: ors

Sheet 7 of 33 sheets
Job No. 05019

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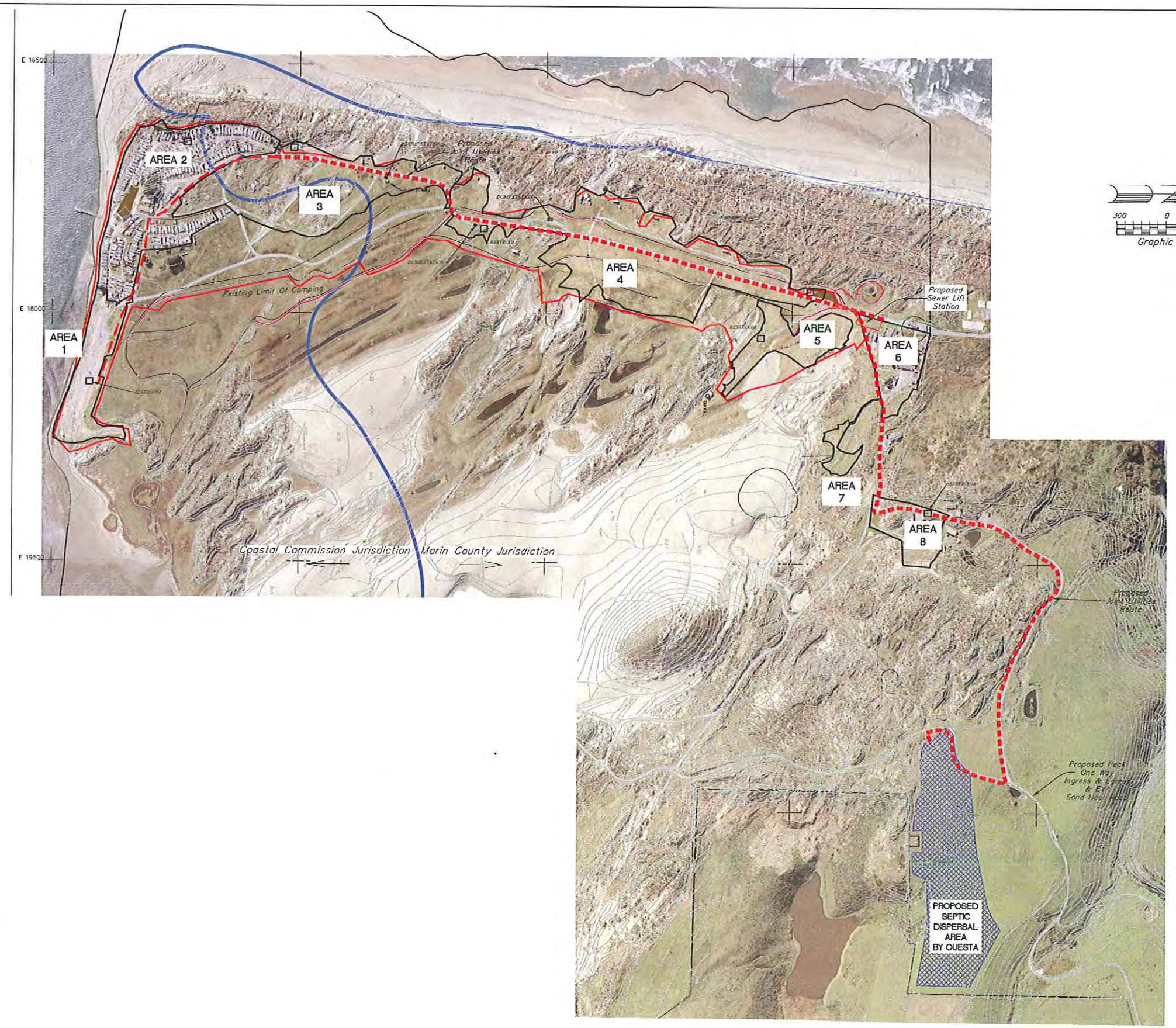
Fax 707 541 2301

*See revised project description for changes to the detail in the chart

Exhibit No. 3
2-06-018
/ A-2-MAR-08-028
Lawson's Landing
Project plans
Page 5 of 18



300 0 150 300 600 1200

Graphic Scale: 1"=300'

Legend:

Linework Digitized From Information Provided By:
CSW/ST2, CSW/Stuber-Stroeh
Engineering Group, Inc
45 Leveroni Court
Novato CA 94949
Phone: 415-883-9834
Fax: 415-883-9835

Areas As Shown On That Ammended Vegetation Communities & Update On Special Status Species Issues, Dated October 30, 2006, Provided By Monk & Associates, Inc.

- Proposed Septic Dispersal Area (Questa Engineering)
- Utility Pole W/Anchor
- Fence
- Drainage
- Culvert
- Retaining Wall
- Paved Road
- Building
- 500 / 525 — Contours
- X 1045.5 — Elevation
- Water Tanks
- D.U.P. — Day Use Parking
- Trail
- Coastal Commission Juristictional Boundary
- Proposed Limit of Camping Area
- Prior Existing Limit of Camping Area
- Septic Line (Questa) (See note sheet 3)
- Unpaved Road
- 2 △ 1000.0 — Control Point
- Tree Dripline
- Brush

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Lawson's Landing Property – Consolidated Coastal Development Permit

Utility Concept

Lawson's Landing
Dillon Beach, CA 94929.
Assessor's Parcel Number 100-100-12 & 48

Scale: 1" = 300'
Date: January 2010
Revised: Sept. 2010
Revised: Oct. 2010
Drawn by: PCA3/lhg
Checked by: ars

Sheet 8 of 33 sheets
Job No. 05019

Lawson's Landing
Campsite Area 1

Note: This exhibit is a tentative layout and is intended to show the viability of the number and type of campsites within the limits of the proposed camping areas. Overall layout of campsites and ratio of RV sites to Tent sites may vary from that shown.

25 foot buffers from wetlands and central dune scrub are implemented with exceptions as noted, based on site-specific conditions.

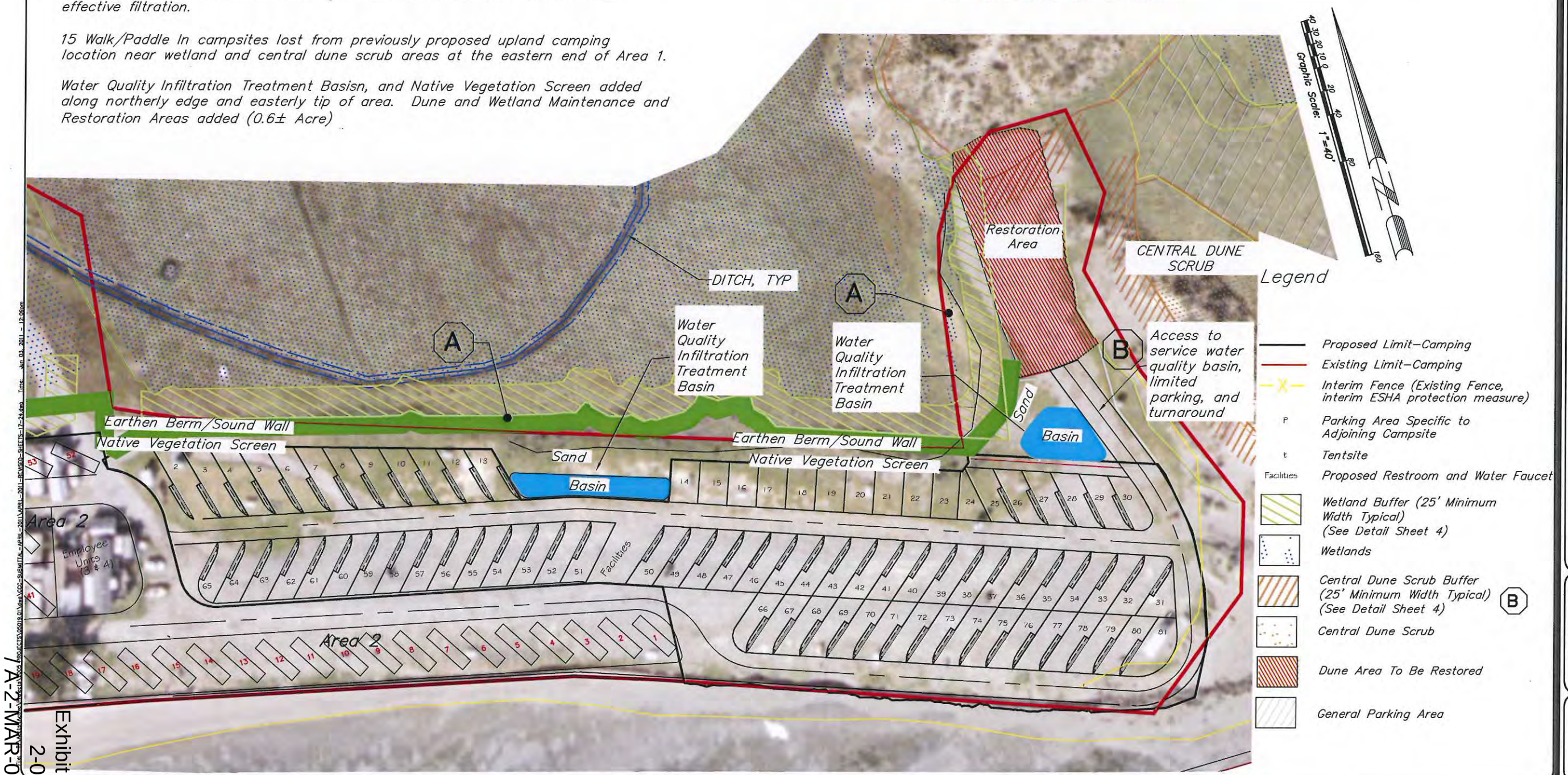
On the northern and western edges of Area 1, buffer width varies according to the shape of the existing sloped bank. Water quality bio-retention area to be installed along the northern edge of camping, adjacent to the widest section of the sloped bank, and along the western edge of the parking area. Runoff will be collected and treated in this bio-retention area and released to a sloped bank vegetative filter in such a manner as to minimize disturbance and maximize effective filtration.

15 Walk/Paddle In campsites lost from previously proposed upland camping location near wetland and central dune scrub areas at the eastern end of Area 1.

Water Quality Infiltration Treatment Basisn, and Native Vegetation Screen added along northerly edge and easterly tip of area. Dune and Wetland Maintenance and Restoration Areas added (0.6± Acre)

Area 1:		
January 2010 Layout	June 2011 Layout	Change In Layout
Area 4.5± Acres 2 Facilities Areas 105 RV Campsites 15 Walk/Paddle Tent Sites	Area 2.9± Acres 1 Facilities Areas 81 RV Campsites 0 Walk/Paddle Tent Sites	−1.6± Acres −1 Facilities −24 RV Campsites −15 Walk/Paddle Tent Sites
Total 120 Campsites	Total 81 Campsites	−39 Change Overall Campsites

(A) Note: For Resource Protection Measure Vertical Buffer see detail sheet 4



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Lawson's Landing Property – Campsite Layout – Area 1

Lawson's Landing
Dillon Beach, CA 94929.
Assessor's Parcel Number 100-100-12 & 48

Scale: 1" = 40'
Date: January 2010
Revised: June/Oct. 2010
Revised: June 2011
Drawn by: PCA?
Checked by: lhg/cns

Sheet 17 of 33 sheets
Job No. 05019

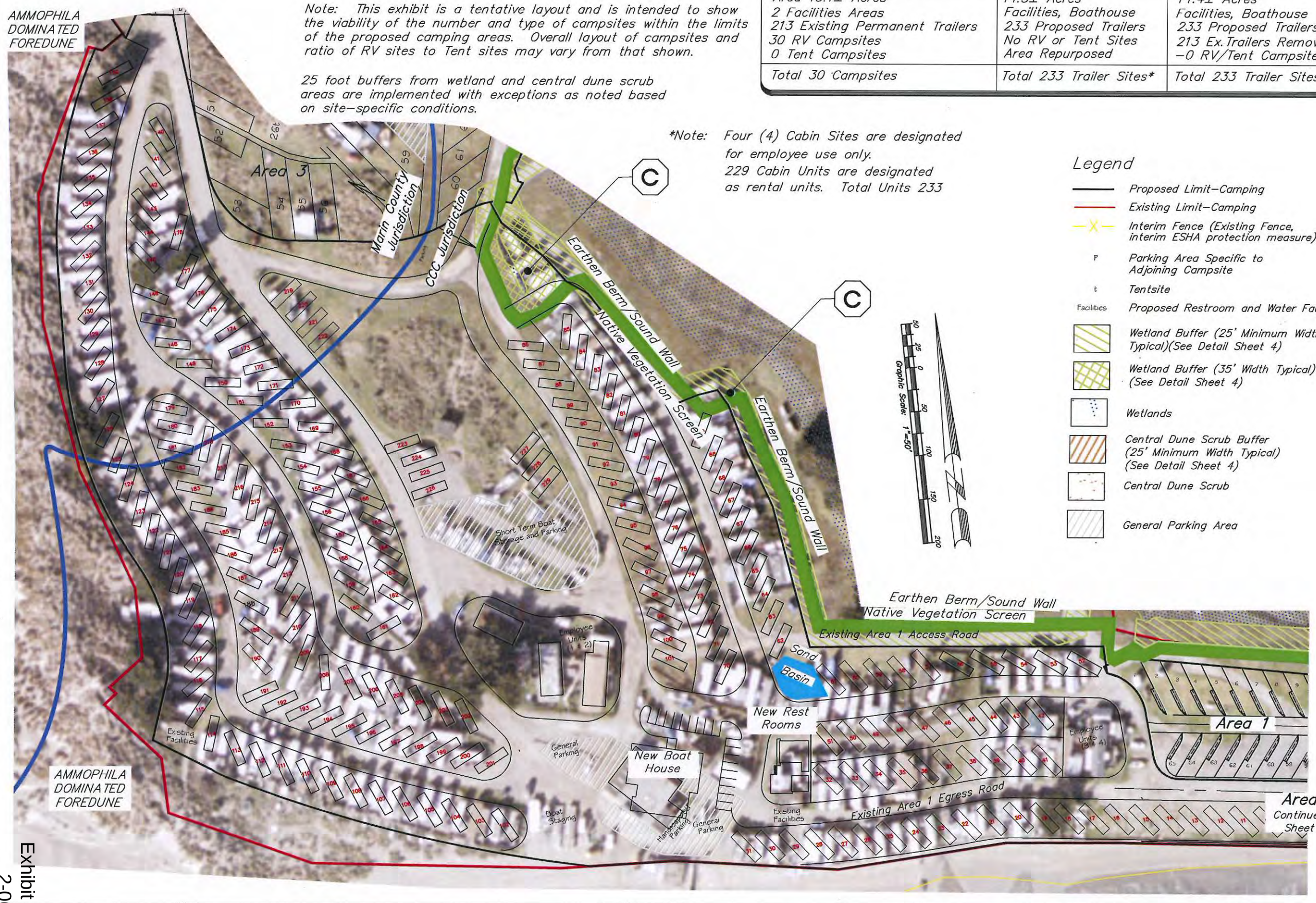
Lawson's Landing Campsite Area 2

Note: This exhibit is a tentative layout and is intended to show the viability of the number and type of campsites within the limits of the proposed camping areas. Overall layout of campsites and ratio of RV sites to Tent sites may vary from that shown.

25 foot buffers from wetland and central dune scrub areas are implemented with exceptions as noted based on site-specific conditions.

Area 2:		
January 2010 Layout	June 2011 Layout	Change In Layout
Area 13.1± Acres 2 Facilities Areas 213 Existing Permanent Trailers 30 RV Campsites 0 Tent Campsites	14.5± Acres Facilities, Boathouse 233 Proposed Trailers No RV or Tent Sites Area Repurposed	+1.4± Acres Facilities, Boathouse 233 Proposed Trailers 213 Ex. Trailers Removed −0 RV/Tent Campsites
Total 30 Campsites	Total 233 Trailer Sites*	Total 233 Trailer Sites

*Note: Four (4) Cabin Sites are designated for employee use only.
229 Cabin Units are designated as rental units. Total Units 233



Legend

- Proposed Limit–Camping
- Existing Limit–Camping
- Interim Fence (Existing Fence, interim ESHA protection measure)
- P — Parking Area Specific to Adjoining Campsite
- t — Tentsite
- Facilities — Proposed Restroom and Water Faucet
- Wetland Buffer (25' Minimum Width Typical)(See Detail Sheet 4) (C)
- Wetland Buffer (35' Width Typical) (See Detail Sheet 4) (C)
- Wetlands
- Central Dune Scrub Buffer (25' Minimum Width Typical) (See Detail Sheet 4)
- Central Dune Scrub
- General Parking Area

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1220 N. Dutton Ave
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Lawson's Landing Property – Composite Layout – Area 2
Lawson's Landing
Dillon Beach, CA 94929
Assessor's Parcel Number 100-100-12 & 48

Scale: 1" = 50'
Date: January 2010
Revised: June/Oct. 2010
Revised: June 2011
Drawn by: PCA3
Checked by: lhg/ars

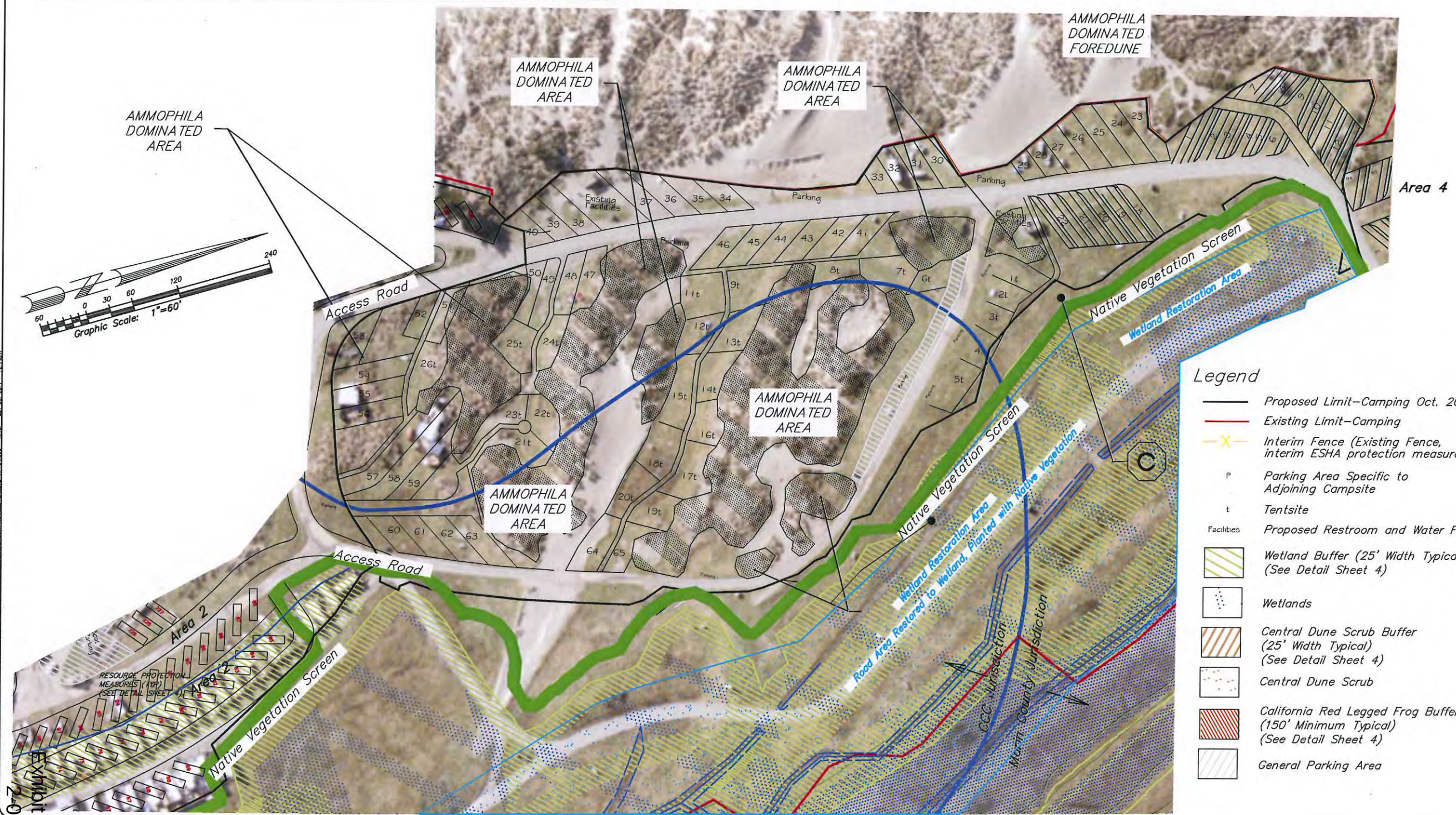
Sheet 18 of 33 sheets
Job No. 05019

Lawson's Landing
Campsite Area 3

Area 3:		
January 2010 Layout	June 2011 Layout	Change
Area 9.6± Acres	6.9± Acres	−2.7 ± Acres
2 Facilities Areas	3 Facilities Areas (Existing)	Unchanged
20 RV Campsites	60 RV Campsites	+40 RV Campsites
120 Walk−In Tent Campsites	26 Walk−In Tent Campsites	−94 Tent Campsites
Total 140 Campsites	Total 86 Campsites	−54 Campsites

Note: This exhibit is a tentative layout and is intended to show the viability of the number and type of campsites within the limits of the proposed camping areas. Overall layout of campsites and ratio of RV sites to Tent sites may vary from that shown.

25 foot buffers from wetland and central dune scrub areas to be implemented with exceptions as noted based on site−specific conditions.



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Lawson's Landing Property − Campsite Layout − Area 3

Lawson's Landing
Dillon Beach, CA 94929.
Assessor's Parcel Number 100−100−12 & 48

Scale: 1" = 60'

Date:	January 2010
Revised:	March/Oct. 2010
Revised:	April 2011
Revised:	June 2011
Drawn by:	PCA3
Checked by:	ara/lbg

Sheet 19 of 33 sheets
Job No.05019

Lawson's Landing
Campsite Area 4

Note: This exhibit is a tentative layout and is intended to show the viability of the number and type of campsites within the limits of the proposed camping areas. Overall layout of campsites and ratio of RV sites to Tent sites may vary from that shown.

Graphic Scale: 1"=80'

Legend

- Camping Removed April 2010
- Proposed Limit–Camping Oct. 2010
- Existing Limit–Camping
- Interim Fence (Existing Fence, interim ESHA protection measure)
- P — Parking Area Specific to Adjoining Campsite
- t — Tentsite
- Facilities — Proposed Restroom and Water Faucet
- Wetland Buffer (25' Minimum Width Typical) (See Detail Sheet 4) (C)
- Wetlands
- Central Dune Scrub Buffer (25' Minimum Width Typical) (See Detail Sheet 4) (B)
- Central Dune Scrub
- California Red Legged Frog Buffer (200' Minimum Typical) (See Detail Sheet 4)
- General Parking Area (E)

Wetland Buffer (35' Width Typical) (See Detail Sheet 4) (C)

California Red–Legged Frog Vegetated Refugia

25 ft. buffer from wetlands and central dune scrub and 200' minimum buffer from CRLF pond with exceptions as noted based on site–specific conditions. A wider buffer (35 ft.) will be employed on the northern and eastern edges of wetlands in southeastern Area 4, due to surface and ground water flow direction. Elsewhere, 25 ft. buffers are employed as surface and groundwater flow in a westerly and southerly direction, away from wetlands.

(D) Note: For Resource Protection Measure manmade drainage ditch buffer, See Detail Sheet 4.

(F) Note: For Resource Protection Measure manmade drainage ditch, see detail sheet 4.

Note: Hatched area in red is 200 minimum buffer from California Red Legged Frog breeding pond. Out of necessity, existing primary access would be fenced between road and pond.

Note: Hatched area in magenta is area impinged upon by piezometer placement 1) Area impinged upon is approximately 0.93 acre. 15 Proposed RV sites, and 7 Proposed Tent Sites are impinged upon by this buffer.

Area 4:

January 2010 Layout	June 2011 Layout	Change in layout
Area 19± Acres	Area 17.0± Acres	–2.0± Acres
2 Facilities Areas	Unchanged	Unchanged
225 RV Campsites*	184 RV Campsites*	–30 RV Campsites
120 Tent Campsites	66 Tent Campsites	–70 Tent Campsite
Total 345 Campsites	Total 250 Campsites	–95 Campsites

*Includes 3 Group Campsites with 41 Total Proposed Campsites contained within.

Note: Group Campsites are all RV Campsites, which may also be used for Tent Campsites.

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Lawson's Landing Property – Campsite Layout – Area 4

Lawson's Landing
Dillion Beach, CA 94929.
Assessor's Parcel Number 100–100–12 & 48

Scale: 1" = 80'

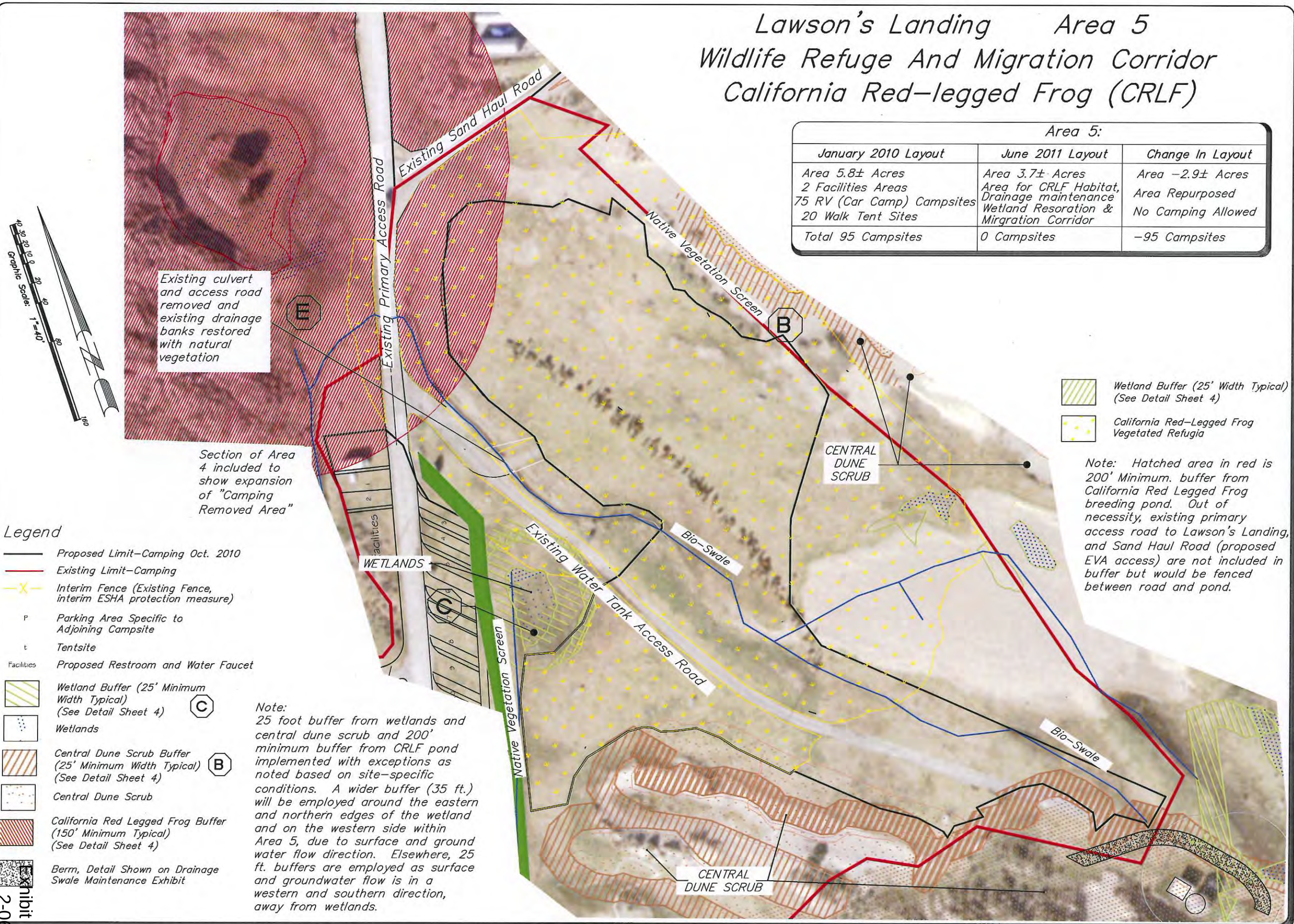
Date: January 2010
Revised: March 2010
Revised: June/Oct. 2010
Revised: June 2011

Drawn by: PCA3
Checked by: ajs/jhg

Sheet 20 of 33 sheets
Job No. 05019

Lawson's Landing Area 5
Wildlife Refuge And Migration Corridor
California Red-legged Frog (CRLF)

Area 5:		
January 2010 Layout	June 2011 Layout	Change In Layout
Area 5.8± Acres 2 Facilities Areas 75 RV (Car Camp) Campsites 20 Walk Tent Sites	Area 3.7± Acres Area for CRLF Habitat, Drainage maintenance Wetland Resoration & Mirgration Corridor	Area −2.9± Acres Area Repurposed No Camping Allowed
Total 95 Campsites	0 Campsites	−95 Campsites



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Lawson's Landing Property – Campsite Layout – Area 5
Lawson's Landing
Dillion Beach, CA 94929
Assessor's Parcel Number 100-100-12 & 48

Scale: 1" = 40'
Date: January 2010
Revised: March 2010
Revised: June/Oct. 2010
Revised: June 2011
Drawn by: RCA3
Checked by: ces/lhg

Sheet 21 of 33 sheets
Job No. 05019

Lawson's Landing
Lawson's Landing Center
Area 6

25 foot buffers from wetlands and central dune scrub, and 200' Minimum foot buffers from CRLF (California Red Legged Frog) will be implemented with exceptions noted, based on site-specific conditions.

5 RV Campsites lost from previously proposed upland camping locations near central dune scrub areas at eastern end of Area 6.

Note: Hatched area in red is 200' minimum buffer from California Red Legged Frog breeding pond. Out of necessity, existing primary access road to Lawson's Landing, and Sand Haul Road (proposed EVA access) are not included in buffer but would be fenced between road and pond.

Note: This exhibit is tentative as improvements to Area 6 will be proposed after the feasibility of improvements to "Sand Haul Road" have been determined.

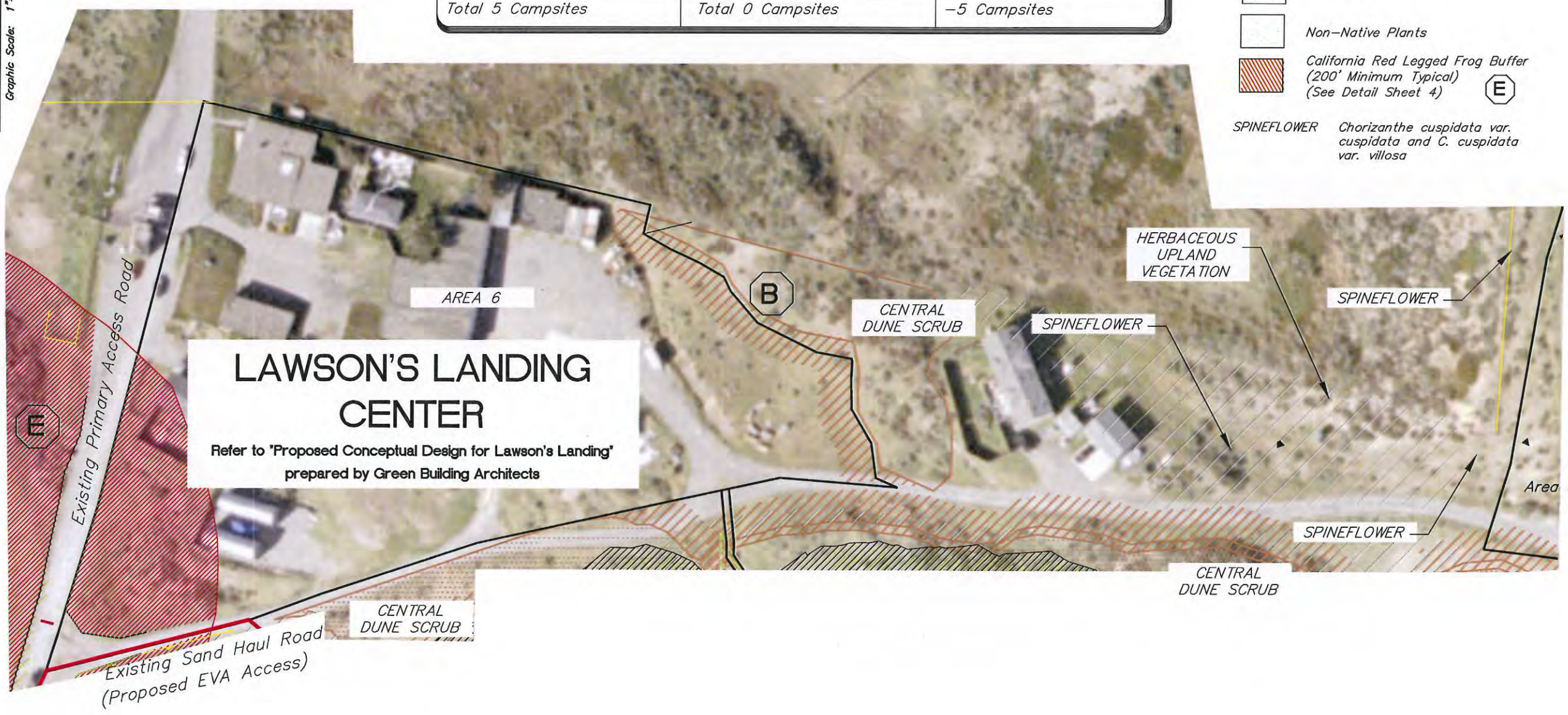
Area 6:

January 2010 Layout	October 2010/June 2011 Layout	Change In Layout
5.28± Acres Total Area	3.46± Acres	−1.82± Acres Total Area
Area 0.5± Acres For Camping (The rest of this area to be developed at a later time)	Area 0.0± Acres For Camping	Unchanged
5 RV Campsites	0 RV Campsites	−5 RV Campsites
Total 5 Campsites	Total 0 Campsites	−5 Campsites

Legend

- Proposed Limit–Camping
- Existing Limit–Camping
- Interim Fence (Existing Fence, interim ESHA protection measure)
- P — Parking Area Specific to Adjoining Campsite
- t — Tentsite
- Facilities — Proposed Restroom and Water Faucet
- Wetland Buffer (25' Minimum Width Typical) (See Detail Sheet 4)
- Wetlands
- Central Dune Scrub Buffer (25' Minimum Width Typical) (See Detail Sheet 4) (B)
- Central Dune Scrub
- Non–Native Plants
- California Red Legged Frog Buffer (200' Minimum Typical) (See Detail Sheet 4) (E)
- SPINEFLOWER — Chorizanthe cuspidata var. cuspidata and C. cuspidata var. villosa

Graphic Scale: 1"=40'



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Santa Rosa, CA 95401
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Fax: 707 541 2301

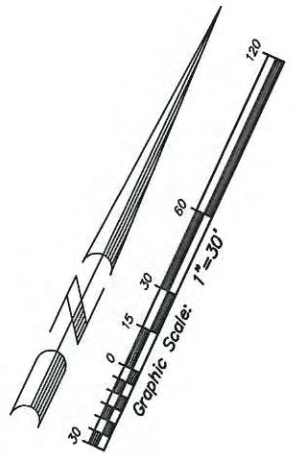
Lawson's Landing Property – Campsite Layout – Area 6
Lawson's Landing
Dillon Beach, CA 94929
Assessor's Parcel Number 100-100-12 & 48

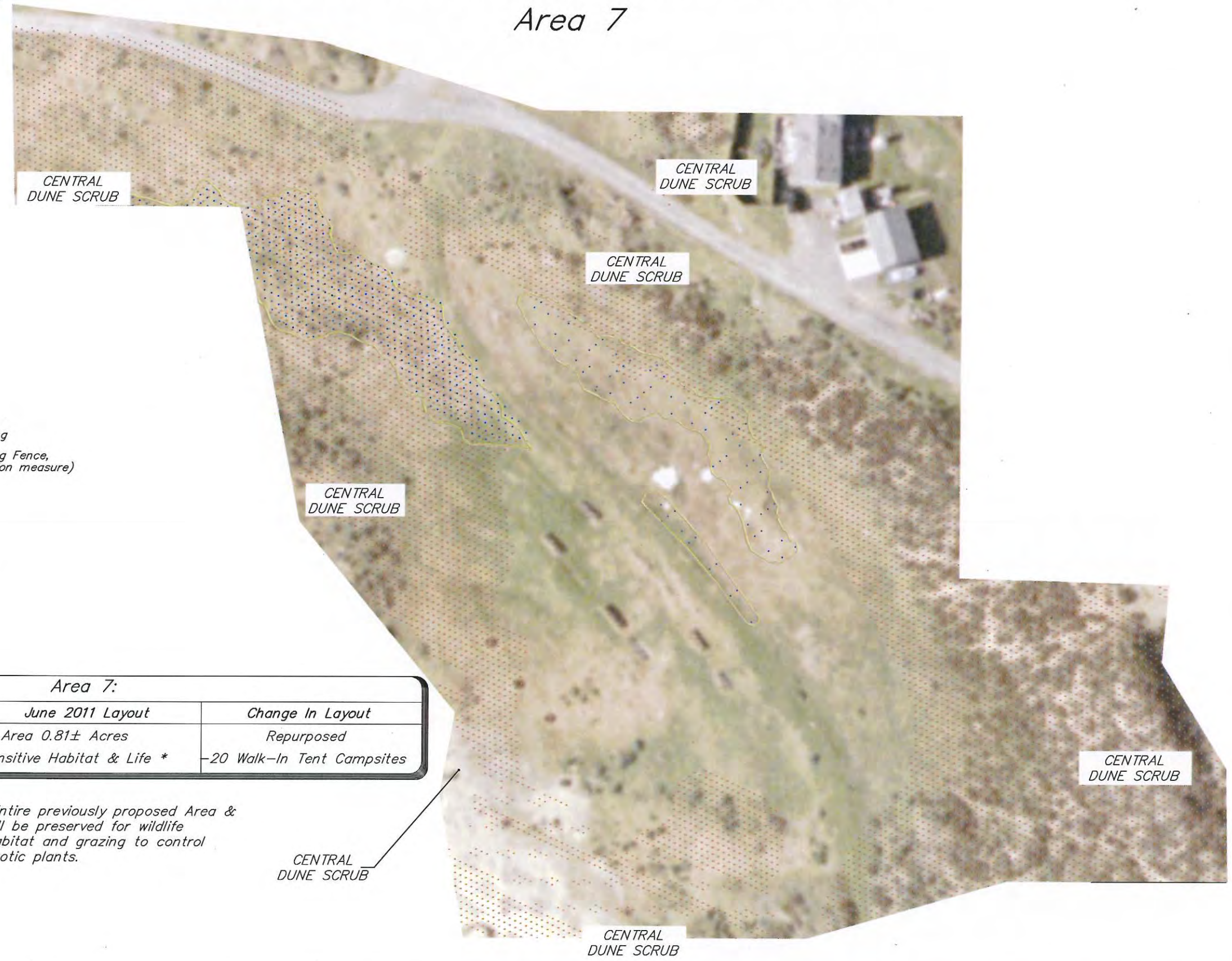
Scale: 1" = 40'
Date: January 2010
Revised: June/Oct. 2010
Revised: June 2011
Drawn by: PCA3
Checked by: tha/ars

Sheet 22 of 33 sheets
Job No. 5019

Lawson's Landing
Sensitive Habitat and Wildlife Preservation
Area 7

Area 6





Legend

- Existing Limit–Camping
- Interim Fence (Existing Fence, interim ESHA protection measure)
- Wetlands
- Central Dune Scrub
- Non–Native Plants

Area 7:		
January 2010 Layout	June 2011 Layout	Change In Layout
Area 1.41± Acres	Area 0.81± Acres	Repurposed
20 Walk–In Tent Campsites	Sensitive Habitat & Life *	–20 Walk–In Tent Campsites

*Entire previously proposed Area & will be preserved for wildlife habitat and grazing to control exotic plants.

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Santa Rosa, CA 95401
707 541 2300
Fax: 707 541 2301

Lawson's Landing Property – Campsite Layout – Area 7

Lawson's Landing
Dillon Beach, CA 94929.
Assessor's Parcel Number 100–100–12 & 48

Scale: 1" = 30'
Date: January 2010
Revised: June 2010
Revised: June 2011
Drawn by: PCA?
Checked by: ars/lhg

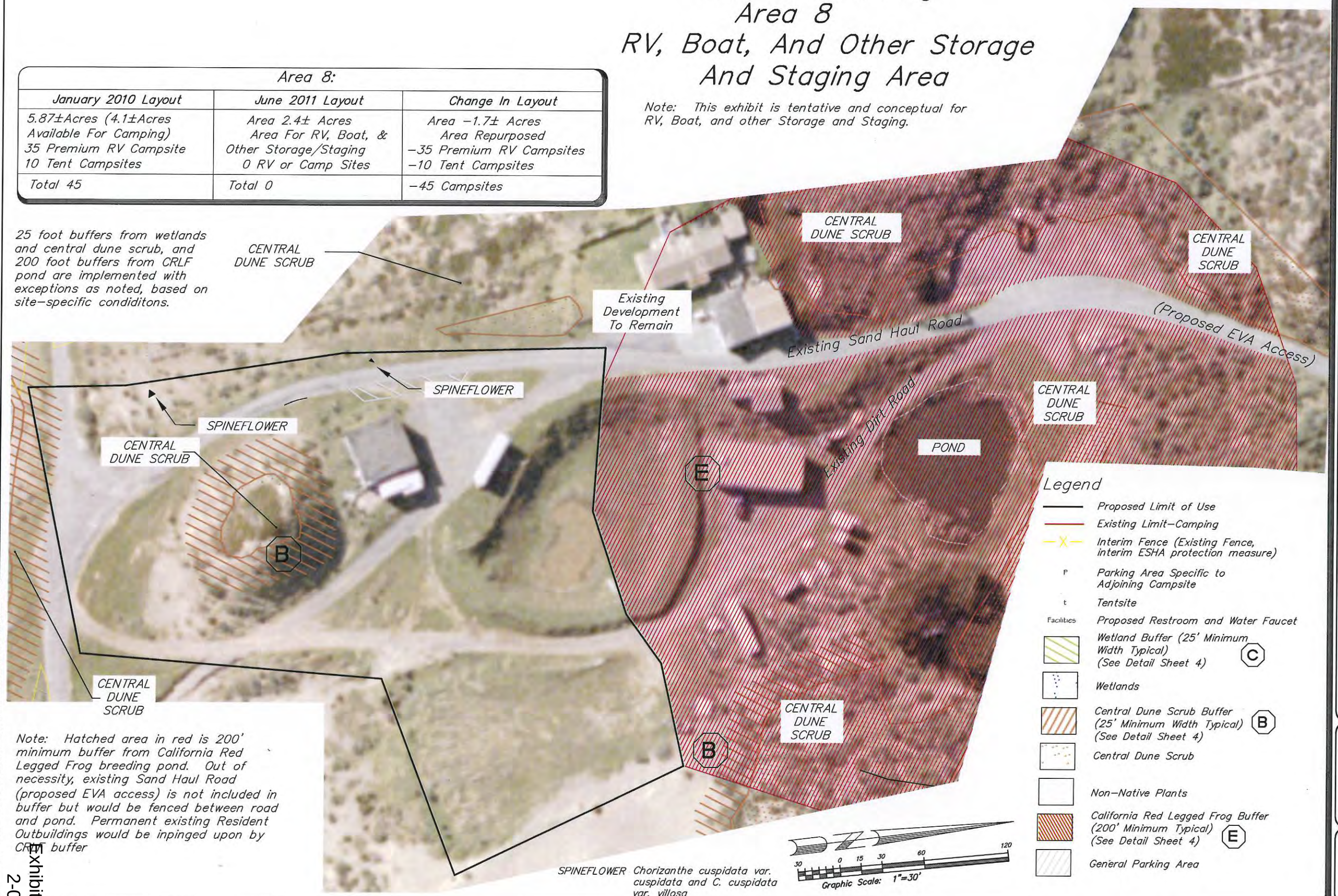
Sheet 23 of 33 sheets
Job No. 05019

Lawson's Landing
Area 8
RV, Boat, And Other Storage And Staging Area

Note: This exhibit is tentative and conceptual for RV, Boat, and other Storage and Staging.

Area 8:		
January 2010 Layout	June 2011 Layout	Change In Layout
5.87±Acres (4.1±Acres Available For Camping) 35 Premium RV Campsite 10 Tent Campsites	Area 2.4± Acres Area For RV, Boat, & Other Storage/Staging 0 RV or Camp Sites	Area −1.7± Acres Area Repurposed −35 Premium RV Campsites −10 Tent Campsites
Total 45	Total 0	−45 Campsites

25 foot buffers from wetlands and central dune scrub, and 200 foot buffers from CRLF pond are implemented with exceptions as noted, based on site-specific condiditons.



Note: Hatched area in red is 200' minimum buffer from California Red Legged Frog breeding pond. Out of necessity, existing Sand Haul Road (proposed EVA access) is not included in buffer but would be fenced between road and pond. Permanent existing Resident Outbuildings would be inpinged upon by CRLF buffer

SPINEFLOWER *Chorizanthe cuspidata var. cuspidata and C. cuspidata var. villosa*

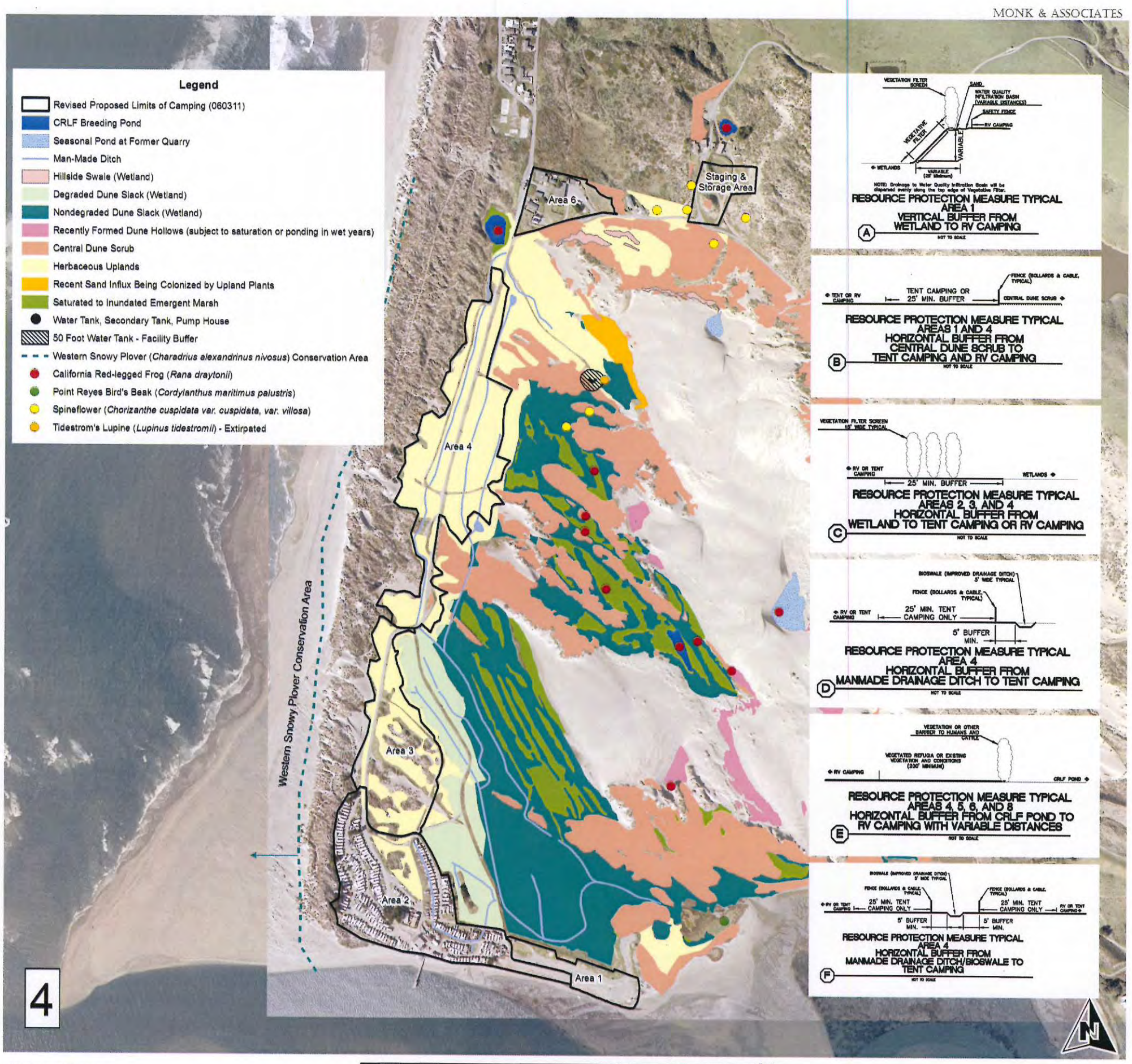
Adobe Associates, Inc.
Civil Engineering, Land Surveying & Land Development Services
1220 N. Dutton Ave
Santa Rosa, CA 95401
707 541 2300
Fax: 707 541 2301

Lawson's Landing Property – Campsite Layout – Area 8

Lawson's Landing
Dillion Beach, CA 94929
Assessor's Parcel Number 100–100–12 & 48

Scale: 1" = 30'
Date: January 2010
Revised: March 2010
Revised: June 2011
Drawn by: lhg/PC43
Checked by: ars

Sheet 24 of 33 sheets
Job No. 05019



Monk & Associates, Inc.
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Sheet 4. Resource Protection Measures for Camping Areas
Lawson's Landing, Dillon Beach, California

Map Revision Date: June 3, 2011
Aerial Photograph Source:
Adobe Associates &
http://marinmapims.marinmap.org

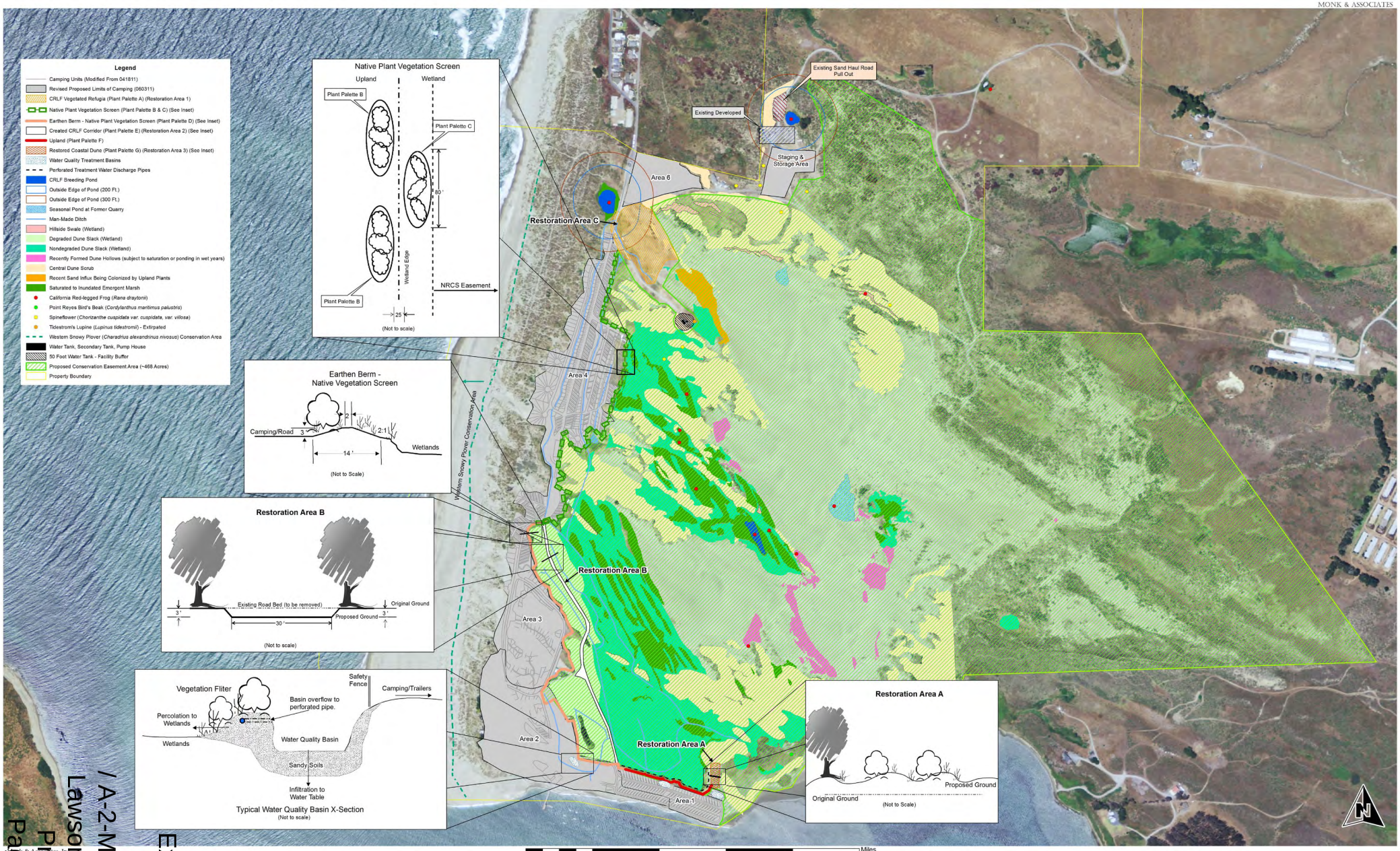
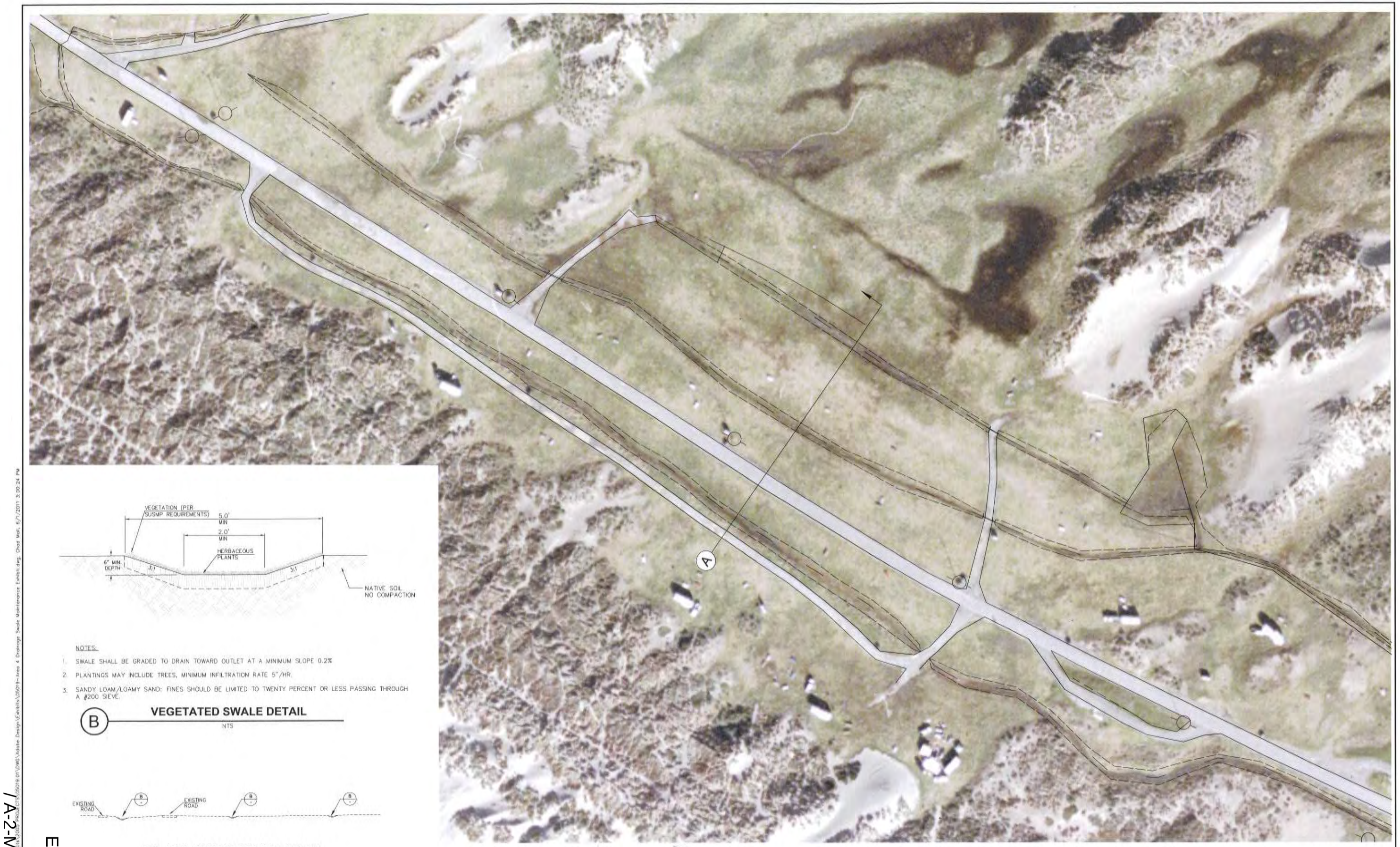


Exhibit C. Resource Protection, Restoration, and Enhancement
Lawson's Landing, Dillon Beach, California

Map Revision Date: June 3, 2011
Aerial Photograph Source: http://www.atlas.ca.gov (2009)

& Associates, Inc.
Environmental Consultants
Springhouse Lane, Suite D
Point Creek, California 94595
(925) 947-4


A
VEGETATION (PER SUSMP REQUIREMENTS)
5.0' MIN
2.0' MIN
HERBACEOUS PLANTS
6" MIN. DEPTH
3:1
3:1
NATIVE SOIL NO COMPACTION
NOTES:
1. SWALE SHALL BE GRADED TO DRAIN TOWARD OUTLET AT A MINIMUM SLOPE 0.2%
2. PLANTINGS MAY INCLUDE TREES, MINIMUM INFILTRATION RATE 5"/HR.
3. SANDY LOAM/LOAMY SAND: FINES SHOULD BE LIMITED TO TWENTY PERCENT OR LESS PASSING THROUGH A #200 SIEVE.
B
VEGETATED SWALE DETAIL
NTS
EXISTING ROAD
EXISTING ROAD
A
AREA-4 SWALE MAINTENANCE SECTION
1"=60' HORIZONTAL
1"=30' VERTICAL
60' 30' 0 30' 60' 120' 180'
Graphic Scale: 1" = 60'
June 1, 2011
AREA-4 DRAINAGE SWALE MAINTENANCE EXHIBIT
LAWSON'S LANDING
Dillon Beach, CA
APN 100-100-12 & 48
Adobe Associates, Inc.
Civil Engineering, Land Surveying & Land Development Services
1220 N. Dutton Ave
Santa Rosa, CA 95404
707 541-2300
Fax: 707 541-2301

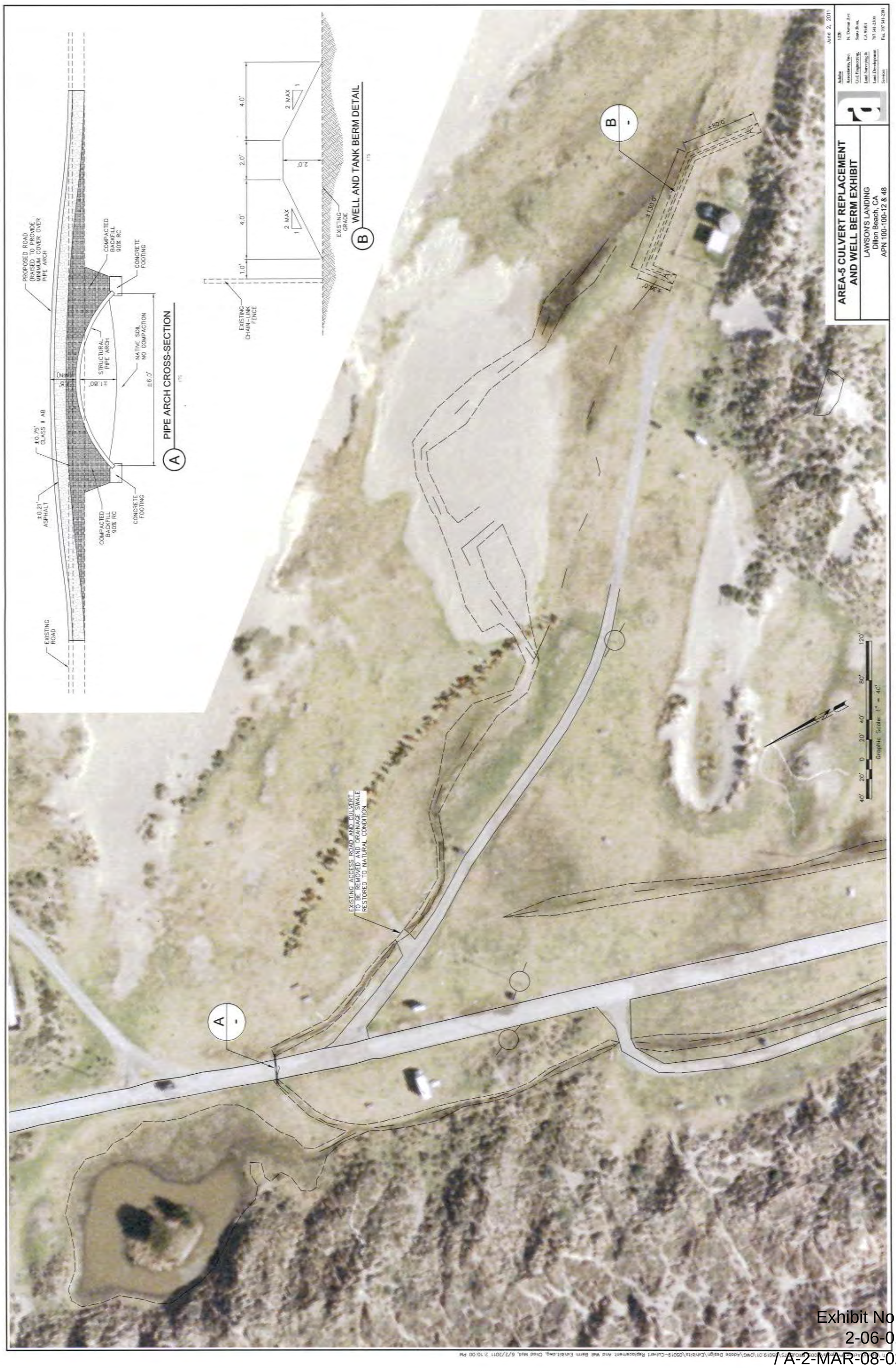


Exhibit No. 3
2-06-018
/ A-2-MAR-08-028
Lawson's Landing
Project plans
Page 18 of 18

Table 1: Lawson's Landing Facilities and Uses
(Existing, Retained and Proposed for CCC Retained Jurisdiction)

USES, FACILITIES IN CCC JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN CCC JURISDICTION**
1C.	Restrooms 3 Main Restroom near Store (482.6 sq ft.) Restroom on E row between E 18 & E 19 236.5 sq ft. Restroom north of large boat storage and Mobile Homes 236 sq ft (To be rebuilt)		2 New restrooms with showers. Hot tub and 2 massage rooms added near Main Restroom	Main Restroom and 2 existing concrete block restrooms would be remodeled to meet ADA requirements and 2 new restrooms added, each with showers planned. Hot tub and 2 massage rooms added near Main Restroom
2C.	Water Faucets 13 public use faucets. 161 hose faucets between travel trailers		2 New drinking fountains	13 public use faucets. 161 hose faucets between travel trailers 2 new drinking fountains
3C.	Showers: 0 (building that was to be showers is now an employee laundry room and storage) 298 sq ft		5 New showers	5 new showers

USES, FACILITIES IN CCC JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN CCC JURISDICTION**
4C.	Functions of existing boat house to remain including New Boat House including, Office, Store and Snack Bar with freezer, tractor storage, and other storage	Boat Repair and some storage moved to Area 6 where other equipment, maintenance, repair and storage has been ongoing	New Boat House including, Office, Store and Snack Bar with freezer, tractor storage, and other storage with footprint similar to existing Boat House. Double doors would open to sitting area screened from the wind	New Boat House including, Office, Store and Snack Bar with freezer, tractor storage, and other storage with footprint similar to existing Boat House. Double doors would open to sitting area screened from the wind
5C.	Parking Lot Area: approx. 34,000 (.78 acre) for approximately 142 parking spaces in Areas 1 and 2			Parking Lot Area: approx. 34,000 (.78 acre) for approximately 142 parking spaces in Areas 1 and 2
6C.	Boat launching at landing to remain			Boat launching at landing to remain
7C.	Boat storage for day use			Boat storage for day use
8C.	Fire Hydrants: 1		2 New Fire Hydrants	3 Total
9C.	Lighting: 2 Street Lights, 6 Area Lights		New lighting will be primarily lower level area lights	New lighting will be primarily lower level area lights
10C.	Signage: Store Building Sign and 3 informational signs on building. National Park Signs near pier		New signage for RV camping and travel trailer areas; possibly some signage identifying the area as wintering habitat for the snowy plover	Signage will remain much the same with the addition of signage for RV camping and travel trailer areas and snowy plover education program signs.
11C.	4 Caretakers' Mobile Homes. 2 near Bait shop and Parking Lot which occupy existing spaces Row F 1,2 (1,298 sq ft.) and 3, 4, 5 (1,350 sq ft)			4 Caretakers Mobile Homes, 2 on Row F near Bait shop and Parking Lot, and 2 on Row B.

USES, FACILITIES IN CCC JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN CCC JURISDICTION**
	and 2 at B11 and B12			
12C.	One trail near restroom, between existing E18 and E19 in E row in northwest corner of trailers			One trail near restroom, between E18 and E19 in E row in northwest corner of trailers
13C.	Pier 2797 sq ft			Pier 2,797 sq ft to remain
14C.	97 RV and Tent Campsites 173) ***	203 Camp sites removed (estimate) ***		173 Campsites, 60 Tent sites and 113 RV's ***
15C.	Travel Trailers: 184 -which occupy approximately 73,600 sq. ft. footprint (Note: 184 travel trailers of maximum size (400 sq. ft.) = 73,600 sq. ft. Area. Each trailer space approximately 1,500 sq. ft. Total area 276,000 sq. ft. (6.34 acre).	10 travel trailers*	10 Travel Trailers owned by 14 additional in Marin jurisdiction will bring the total number of trailers to 233, the number of lots with drains, permitted by the State of California HCD. **	184 Travel Trailers occupying approximately 73,600 sq. ft. footprint and area of trailer spaces approximately 276,000 sq. ft. (6.34 acre).
16C.	Year-Round Residents in Travel trailers: 16	4 relocated*		Year Round Residents in Travel trailers: 16
17C.	17.99 total acres	14.19 acres removed		17.99 total proposed acres of camping in CCC
18C.	1 Water trough with supply line			1 Water trough with supply line will remain
19C.	15 Mooring Poles			15 Mooring Poles will remain
20C.	Dumpsters 24	3 Dumpsters removed		21 Dumpsters will remain
21C.	Garage: 1,294 sq ft near Caretakers' Mobile Homes and near Boathouse/ Bait shop			1,294 sq ft garage near Caretakers' Mobile Homes will remain

*Corrected by Commission Staff

**owned by Lawson's

***See corrected description in staff report

USES, FACILITIES IN CCC JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN CCC JURISDICTION**
22C.	Utility Shed: 324 sq ft			Utility Shed: 324 sq ft will remain
23C.	1000 gal Propane Tank and Dispenser 51 sq ft			1000 gal Propane Tank and Dispenser 51 sq ft will remain
24C.	Water Lines for restroom, public use faucets		New Water Lines for new restrooms and drinking water fountains. Some water lines would be replaced over time as needed for maintenance; some would be relocated in roadway. Most water lines in Area 2 (trailer area) would be replaced when septic system is installed	Most existing Water Lines remain except replaced where needed for maintenance, code upgrades, or in area of septic replacement. New water lines for new restrooms and drinking water fountains.
25C.		Dump Station in Area 1		
26C.		Walk-in Freezer: 320 sq ft.		Walk-in Freezer will be converted to new freezer in consolidated bait shop and storage area within old Boat House footprint
27C.	Roads that exist on the property and within the CCC's original jurisdiction that exist on the property will remain with the exception of the vehicle access road connecting Lawson's Landing road to the Sea Wall area and spur road to the trailer parking area.	Vehicle access road to Sea Wall area, and spur will be removed. The 2000 ft long, 8 ft wide road area will be gated off and reclaimed as wetland.		Roads that exist on the property and within the CCC's original jurisdiction, with the exception of the vehicle access road to Sea Wall area, and spur

USES, FACILITIES IN CCC JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN CCC JURISDICTION**
28C.	Boat Storage: 1 area approx. 19,000 sq ft and one rescue boat will be retained in this area.	Chain link fence around 8,000 sq ft boat storage area removed, and some of boat storage will be moved to Area 6 where already ongoing	Much Boat storage will be converted to parking area. Most of Boat Storage area 2 will be converted to parking	Boat Storage approx. 19,000 sq ft Most of this area will be converted to RV campsites and parking cars and boats short term.
29C.		Storage (Shipping) Container 320 sq ft		
30C.		Tractor Shed		
*31C.		Sewage Treatment Systems Tanks: 136 Lines: 139	New Septic Tank Effluent Pump ("STEP") System proposed to serve year round trailers and restrooms	New STEP System proposed to serve year round trailers and restrooms
32C.	Electrical utilities retained, but when upgraded relocated to roadway and placed underground		New electrical lines for new restrooms and new STEP system and for some of RV sites.	Electrical utilities retained and upgraded when relocated to roadway and placed underground. New electrical lines for new restrooms and new STEP system and for some of RV sites.
33C.		Gas Tank/Fuel Bunker: 460 sq ft was removed and will be relocated to the Landing Center when it is developed		
34C.	Paint and Gas Storage Shed			Paint and Gas storage shed will be retained in non-combustible container
35C.	Employee Laundry			Employee Laundry

*See correct description in Staff Report

Table 2: Lawson's Landing Facilities and Uses (Existing, Retained and Proposed for Marin County Jurisdiction)

USES, FACILITIES IN MARIN COUNTY JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN MARIN JURISDICTION**
1M.	2 Restrooms existing		8 New restrooms in Camping Area and Landing Center	10 Restrooms in total, with addition of 8 new restrooms in Camping Area and Landing Center
2M.	7 Water Faucets		5 New water faucets	12 water faucets total
3M.	No Showers:		10 New showers (in all restrooms)	10 Showers total (in all restrooms including 2 which will be remodeled
4M.	5 Existing water tanks, 4 wells and 1 pump house retained near eastern border of camping Area 5	1 Old 35,000 gal. redwood storage tank removed	2 new water tanks constructed, one 35,000 gal. to replace existing tank and one 100,000 gal. in back part of Camping Area 8, providing additional storage for fire protection	5 Existing water tanks, 4 wells and 1 pump house retained 2 new water tanks constructed, one 35,000 gal. near existing tank and one 100,000 gal. in back part of Camping Area 8, providing additional storage for fire protection
5M.			New STEP System proposed to serve new Landing Center, year round trailers, campsites and restrooms	New STEP System proposed to serve new Landing Center year round trailers campsites and restrooms

USES, FACILITIES IN MARIN COUNTY JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN MARIN JURISDICTION**
6M.			New septic dispersal with leach field and irrigation in 6-10 acre area known as Scale House Hayfield and Scale House Field West Pasture New wastewater lines to the septic dispersal area and lift station near entry gate	New septic dispersal with leach field and irrigation in 6-10 acre area known as Scale House Hayfield and Scale House Field West Pasture New wastewater lines to the septic dispersal area and lift station near entry gate
7M.	Free Day-Use Parking Lot Area: near entrance, adjacent to owners garage			Parking area will remain at approximately the same location
8M.	1 Fire Hydrant		5 New Fire Hydrants	6 Fire Hydrants (1 existing and 5 new)
9M.	4 Street Lights			4 Street Lights
10M.	2 Area lights			New lights will be area lights, number to be determined by layouts
11M.	7 Permitted Permanent Homes for owners, their family and employees			7 Permitted Permanent Homes for owners, their family and employees
12M.	Existing trail with beach access near Gate House entry		Only single sign marking beach access	Existing trail with beach access near Gate House entry remaining with addition of single sign marking beach access.
13M.	Pump House near Camping Area 5			Pump House near Area 5 will remain

USES, FACILITIES IN MARIN COUNTY JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN MARIN JURISDICTION**
14M.	249 RV and Tent Campsites *			249 Campsites proposed in Marin jurisdiction *
15M.	49 Travel Trailers	Removed trailer M1 in open field area north of other trailers		49 Travel Trailers
16M.			New STEP System proposed to serve year round trailers and restrooms	New STEP System proposed to serve year round trailers and restrooms
17M.	Boat and equipment maintenance, repair and storage will continue in Area 6		New Lawson's Landing Center up the hill from the entry gate. Store, Administrative office, community meeting room, fuel bunker to be proposed in future.	New Lawson's Landing Center up the hill from the entry gate. Store, Administrative office, meeting room, fuel bunker, boat storage, boat repair for 15,000 sq. ft.
18M.	6 Water troughs with supply line		2 New Water troughs with supply line	8 Water troughs with supply line
19M.	24.96 acres of camping retained in Marin jurisdiction	14.54 acres removed		24.96 total proposed acres of camping in Marin jurisdiction
20M.	Gate House			Gatehouse will remain but will be improved
21M.	3 Garages near owner's homes retained			3 Garages near owner's homes retained
22M.	Equipment Shed			Will be modified as part of new Landing Center
23M.	Oil Storage Shed			Will be modified as part of new Landing Center

* See correct description in staff report

USES, FACILITIES IN MARIN COUNTY JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN MARIN JURISDICTION**
24M.	Water Lines for restroom, public use faucets		New Water Lines for new Landing Center* new restrooms and drinking water fountains. Some water lines would be replaced over time as needed for maintenance, some would be relocated in roadway installed	Most existing Water Lines remain except where replaced when needed for maintenance, code upgrades, or in area of septic replacement. New water lines for new restrooms and drinking fountains.
25M.	Dump Stations (2) retained near S turn and reopened just northwest on side road			2 Dump Stations retained near the S turn and reopened just northwest on side road
26M.	Employee Recreation room retained			May be modified for new use *
27M.	Roads that exist on the property will remain with the exception of the vehicle access road connecting Lawson's Landing road to the Sea Wall area and spur road to the trailer parking area.	Vehicle access road to Sea Wall area and spur to trailer area to be removed		Roads that exist on the property and within Marin County original jurisdiction will remain except for the vehicle access road.
28M.	Boat storage			Boat storage will continue in the vicinity of Landing Center
29M.	Shed near Gatehouse			Retained shed near gatehouse
30M.	Truck Shed			Will be modified as part of new Landing Center *
31M.	Maintenance Shed			Will be modified as part of new Landing Center *

*Not proposed at this time

USES, FACILITIES IN MARIN COUNTY JURISDICTION 10/19/10				
	RETAINED	**REMOVED**	**NEW**	**TOTAL PROPOSED IN MARIN JURISDICTION**
32M.	Electrical utilities retained and upgraded when relocated to roadway and placed underground		New electrical lines for new restrooms and new STEP system and for some Campsites	Electrical utilities retained and upgraded when relocated to roadway and placed underground New electrical lines for new restrooms and new STEP system and for some Campsites.

LAWSON'S LANDING

137 Marine View Drive • P.O. Box 67 • Dillon Beach, CA 94929 • 707-878-2443 • Fax: 707-878-2942

June 6, 2011

Ms. Ruby Pap
North Central Coastal District Supervisor
California Coastal Commission
45 Fremont St. Suite 2000
San Francisco, CA 94105-2219

Re: Filing determination for CDP Application Nos. 2-06-018 and A-2-MAR-08-028

Dear Ms. Pap:

We appreciate working with you and your colleagues to complete the Coastal Commission approval process. The process has produced a proposed CDP that maximizes protection of coastal natural resources and hopefully will retain enough coastal recreational use to preserve affordable coastal access, recreation, and overnight stays for all Californians. Based upon our communications over the past several months, we are pleased to have developed a revised draft Project Description that incorporates the intent and substance of recent Coastal Commission staff recommendations, and we are glad that our collaborative efforts has produced the least environmentally damaging feasible alternative.

The revised project description proposes:

- A reduction of 58.3% number of campsites, a total of 417 RV and tent sites down from the 1000 RV/tent sites permitted by California Department of Housing and Community Development (HCD)
- A reduction of over 42% acreage of camping area; the proposed 42.95 acres is reduced from the original 75.3 acres, which clusters and concentrates camping into the least amount of possible area
- Limiting peak usage of the 417 campsites to only 40 nights a year

The revised project description is offering to:

- Preserve 465 acres, the vast majority of our South Ranch, into a conservation easement that will be managed in perpetuity for the benefit of wildlife and wildlife habitat by the Natural Resources Conservation Service
- Remove all camping from Area 5, which is near the California red-legged frog (CRLF) breeding pond, and enhancing this area with drainage improvement and plantings of native California vegetation, which will provide cover and a migration corridor for CRLF
- Create a California native vegetation screen and buffer between camping areas

and wetlands and environmentally sensitive areas for the benefits of wildlife and water quality

- Restore a dune scrub area in Area 1 and planting with California native vegetation
- Install water quality retention basins and environmentally improving man made drainage ditches so they serve as Best Management Practices (BMP) to provide sand and vegetative filtration, water quality treatment and enhancement and directing flow of runoff to wetlands and away from the ocean and Tomales Bay
- Remove culverts from man made drainage ditches to a) enhance a CRLF migration route and b) retain more high quality, treated water for longer periods in wetlands for the benefit of wildlife

With this huge reduction in allowed peak recreational intensity, Lawson's Landing is attempting a new experiment to test the economic feasibility of converting some of our permitted Special Occupancy Park trailer lots into short-term vacation rentals. This is in keeping with Coastal Commission staff recommendation and Coastal Act priorities, and will offer a new100% visitor-serving opportunities year round. Our goal is that this new venture can help offset the huge loss in campsite revenue we will be facing and help us maintain an economically sustainable business, providing affordable coastal access, recreation, and overnight visits.

The threatened closure of taxpayer supported campgrounds make protecting affordable non-subsidized coastal campgrounds even more of a priority. We are committed to protecting and enhancing the environment of our home and land, while preserving a family business that provides a unique coastal opportunity for folks from throughout state to spend time at one of the cleanest beaches in California.

We are look forward to your staff report and are glad to answer any questions.

Sincerely,

Michael J. Lawson Carl W. Vogler Tad Vogler

Michael J. Lawson, Carl W. Vogler Jr., and Tad Vogler

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400
TDD (415) 597-5885

MEMORANDUM

FROM: John Dixon, Ph.D.
Ecologist

TO: Ruby Pap

SUBJECT: Lawson's Landing

DATE: June 23, 2011

Materials Reviewed:

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Lawson, M. and C.W. Vogler, Jr. (Lawson's Landing). 2010b. Letter to R. Pap (CCC) regarding "Filing determination for CDP Application Nos. 2-06-018 and A-2-MAR-98-028" dated March 15, 2010.

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Introduction

Dune fields of various sizes occur only at about two dozen locations along the California coast (Cooper 1967). These dune fields are characterized by the presence of a dune sheet that either arises directly from the beach or that is separated from the tides by vegetated foredunes. The dune sheet is comprised of both active unvegetated dunes and dunes that have been stabilized by vegetation. At their inland extreme, these younger dunes may encroach upon an older, completely vegetated Pleistocene dune. Within deflation plains[1], the water table is often apparent as perennial ponds or seasonal dune slack wetlands. Under natural conditions this is a very dynamic system with the location of topographic details, such as hummocks and slacks, shifting over time – sometimes gradually, sometimes precipitously. Many dune fields are now constrained by agricultural and urban development and by the effects of planting exotic stabilizing vegetation. Some,

[1] Deflation plains are areas where the sand has been removed by wind-scour, generally to the level of the wet season water table.

such as the San Francisco, Point Hueneme, and El Segundo Dunes, have been severely damaged or destroyed by human activities.

Lawson's Landing is located within the Tomales Dunes near Dillon Beach. This dune complex is mostly undeveloped but has been significantly altered by European beach grass (*Ammophila arenaria*) and the invasive yellow bush lupine (*Lupinus arboreus*). European beach grass was first introduced in California to stabilize the coastal dunes at Golden Gate Park around 1868 (Cooper 1967, Pickart & Barbour 2007). This extremely invasive species was subsequently widely planted to facilitate coastal development. *Ammophila* changes the physical characteristics of the foredune and drastically alters the biological community. It is thought that foredunes in northern California were similar to those in the south prior to human disturbance, i.e, relatively low, sparsely vegetated, and dynamic (Pickart & Sawyer 1998; cf. Figures 1 & 2, below). When *Ammophila* is established, it develops an extensive system of roots and horizontal rhizomes that stabilize the sand. When moving sand buries the *Ammophila*, it responds by vigorously producing vertical rhizomes (Pickart & Sawyer 1998). This cycle results in vertical dune building, decreased lateral sand movement, and loss of native cover. Unlike *Ammophila*, yellow bush lupine is native to California but its natural distribution and habitat is unresolved. The native distribution has been variously described as from Ventura County to Marin County or to Sonoma County (Pickart 2000; Sawyer, et al., 2009). It remains questionable whether it is a natural member of the coastal dune community at Tomales Dunes (Baye & Wright 2004). Like European beach grass, yellow bush lupine has been planted to stabilize dune systems. As a result of adding nitrogen to the soil, this member of the legume family also tends to facilitate colonization of coastal dunes by non-native grasses. More work needs to be done to document the natural ecological role of *Lupinus arboreus* in the California flora.

At Lawson's Landing, the lack of sand replenishment coupled with continuing wind scour is the probable cause of the widening deflation plain beyond the high stabilized foredunes. Photographs thought to have been taken in the 1920s show the partially vegetated dune sheet rising from the back beach (Figures 1 & 2). A narrow foredune is evident. *Ammophila* is reported to have been planted by the Soil Conservation Service during the 1930s to stabilize the foredune (Monk and Assoc. 2002). By 1952, a deflation plain had formed in the northern portion of Lawson's Landing (Figure 3). Subsequently, the boundary between the deflation surface and the active dune has continued to move eastward at a rate of about seven feet per year (Pacific Watershed Assoc. 2004). This is due to sand being moved inland by the wind but not being replenished from the shore. Dune slack wetlands and emergent marsh, which are characteristic of deflation plains, were probably much more extensive when the deflation plain was newly formed, as suggested by the fact that over 7,000 feet of ditches have been constructed to drain the low-lying areas and facilitate grazing (Huffman-Broadway Group 2007).[2] Portions of these drained areas are now also used for camping.

[2]Staff's examination of historical aerial photographs suggests that the ditching in the southern dune slack wetland began prior to 1952. However, there is no evidence of ditches in the northern deflation plain (Areas 4 & 5) in the 1952 aerial photograph (Figure 10). The northern entrance pond is apparent as are several similarly dark patches in Areas 4 & 5 east of the road. The 1965 aerial photograph is a relatively low contrast image but shows the entrance pond and the ditch west of the road (Figure 11). The 1970 aerial photograph is a medium resolution but high contrast image (Figure 12). The entrance pond, the ditch west of the road, several ponds east of the road (which correspond with dark areas in

A related effect of stabilizing the foredunes and introducing exotic species is the reduction of the extent of the active dune system from about 390 acres in 1954 to about 170 acres in 2000 (Pacific Watershed Assoc. 2004). This trend has resulted both from the loss of sand supply from the beach and from colonization by vegetation (particularly European beach grass and yellow bush lupine), which is facilitated by the decreased influx of beach sand.

Vegetation Communities

In their natural state, northern foredunes are characteristically sparsely to moderately[3] vegetated by native dunegrass and dune mat species, such as dunegrass (*Leymus mollis*), yellow sand-verbena (*Abronia latifolia*), beach bursage (*Ambrosia chamissonis*) and beach morning glory (*Calystegia soldanella*). Due to invasion by European beach grass and yellow bush lupine, only vestiges of this community remain[4]. It is now classified as a European beach grass community, but still supports sparse populations of native species (although the native foredune species are now more abundant on interior dunes at Lawson's Landing).

Beyond the deflation plain, the geologically recent dune sheet is comprised of both active and vegetated dunes with a trend toward the conversion of the former to the latter. The vegetated dunes are classified as central dune scrub[5], a rare plant community dominated by mock heather (*Ericameria ericoides*). At Tomales Dunes, yellow bush lupine is a co-dominant shrub in many areas. The herbaceous layer supports a diverse native flora, including many species also found in northern foredunes.

The deflation plain is broadly characterized as "wet meadow" in the EIR (EDAW 2007) and includes mesic grasslands, seasonal wetlands, and emergent marsh. The wetter the habitat, the greater the proportion of native species. The grassland has become increasingly dominated by the invasive kikuyu grass, but still supports many native species of rushes, sedges and other wetland plants.

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the 1952 photo), and a sinuous line in Area 5 that may be a ditch are visible in the image. In the 1972 oblique color aerial photograph (Figure 13), three of the four 1970 ponded areas are present and blue; the area corresponding to the fourth pond appears dry. Nearly all of Area 4 is vegetated and there appears to be a strong admixture of shrubs. No ditches are evident in Area 4. The 1979 oblique color aerial photograph (Figure 14), shows linear disturbed features where ditches occur today. The shrubby vegetation is no longer present in a linear area adjacent to the road but is present in much of the rest of the area broken up by patches of sand. By the time of the 1987 oblique color aerial photograph (Figure 15), Area 4 appears much as it does today with a uniform pasture-like appearance divided by two ditches running north and south (Figures 16 & 17). East of the camping area the vegetation appears much as it did throughout Area 4 in 1972 and 1979.

[3] 25% - 75% vegetative cover (Pickart & Sawyer 1998).

[4] The native dunegrass-sand verbena community is so impacted throughout its range that it is classified as "critically imperiled by the nature conservancy.

[5] The geographic modifiers of these communities are potentially confusing because the communities broadly overlap in latitude. Northern foredunes occur from Point Conception to Oregon, whereas central dune scrub occurs from Point Conception to Bodega Bay.

Rare Species (Figures 4 & 5)

Plants

Of 38 special-status plant species that have the potential to occur in the Tomales Dunes based on geography and habitat affinities, three are known to be present. A fourth, Tidestrom's lupine (*Lupinus tidestromii*), was identified in 1992, but is no longer present in the same area and may be locally extinct. There are also numerous examples of plants that are geographically distinctive (e.g., at the edge of their range) or taxonomically unique (hybrids or undescribed species) in the Tomales dunes (Baye & Wright 2004).

Point Reyes bird's beak (*Cordylanthus maritimus* ssp. *palustris*) is a California Native Plant Society (CNPS) 1B species[6]. *Cordylanthus* is a hemiparasite, obtaining water and nutrients from the roots of other plants but producing carbohydrates by photosynthesis. It is found in the salt marsh at the southern end of the site east of Area 1 (Figure 4).

Wooly-headed spineflower (*Chorizanthe cuspidata* var. *villosa*) is a CNPS 1B species. This spineflower is an annual herb found in both coastal dunes and coastal scrub. It occurs in several locations at Lawson's Landing (Figure 4).

San Francisco spineflower (*Chorizanthe cuspidata* var. cuspidata) is also a CNPS 1B species. Like its conspecific, it inhabits coastal dunes and coastal scrub. It has been observed growing with wooly-headed spinflower at Lawson's Landing (Figure 4).

Animals

The California red-legged frog is federally listed as threatened and is a California Species of Special Concern. Its range extends from Baja California to Sonoma County. The area immediately north of Lawson's Landing has been designated Critical Habitat Unit MRN-1 (USFWS 2010). Viable populations of red-legged frogs require "aquatic and upland areas where suitable breeding and nonbreeding habitat is interspersed throughout the landscape, and are interconnected by continuous dispersal habitat" (USFWS 2001). The red-legged frog requires standing water for an average of 20 weeks to complete metamorphosis, generally at least through August. Three perennial ponds (entry pond, Area 8 pond, and interior dune slack pond) have been found to support breeding red-legged frogs. Any wet area could potentially be utilized for shelter, foraging, predator avoidance, or aquatic dispersal at some time during the year. For example, frogs have been observed occupying flooded ditches of western dune slacks adjacent to the camping area[7] (Baye & Wright 2004). Dispersal is generally in straight lines, often across considerable expanses of dry uplands. In their designations of critical habitat, the U. S. Fish and Wildlife Service (2001, 2006, 2010) found that the habitats necessary to sustain the frog were aquatic breeding habitat, associated uplands and non-breeding aquatic and

[6] These are plants that are rare, threatened, or endangered in California and elsewhere.
[7] And being captured by children.

riparian habitats, and barrier-free dispersal corridors between nearby breeding ponds[8]. The three breeding ponds at Lawson's Landing are all within about 0.7 mile of one another (Figure 5). Direct dispersal corridors would cross Area 5 and the northernmost part of Area 4 and would pass through and around the buildings near the entrance. Other than the buildings, there are no physical barriers. Although the roads near the entrance and in Area 8 are potential sources of mortality, they are not heavily travelled especially at night when the frogs are most active.

The western snowy plover (*Charadrius alexandrinus nivosus*) is federally listed as threatened and is a California Species of Special Concern. The Pacific coast populations breed on sandy beaches from Baja California to southern Washington. Wintering habitat is also critically important to the species and includes many beaches not used for nesting. The beach at Lawson's Landing is used as wintering habitat by "substantial numbers" of western snowy plovers and Dillon Beach has been designated "critical habitat" by the U.S. Fish and Wildlife Service (EDAW 2007). Lawson's Landing has entered into a Cooperative Agreement[9] with the Service to implement a conservation strategy. The project description includes the following:

> Lawson's Landing also has one of the largest wintering populations of western snowy plovers between San Francisco and the northern end of its range in Washington State with upwards of 120 plovers between December and January. This beach has seasonally heavy recreation use, which coincides with the plover's breeding season. A few observations have been made in the past 14 years of breeding behavior and at least one nest scrape; however no plover nests have been documented. Snowy plover education programs similar to what we have proposed have been implemented successfully elsewhere in the range of the species to reduce disturbance and have resulted in increases in wintering populations and the reestablishment or expansion of plover breeding on beaches with high recreation uses. We believe implementation of a snowy plover program at Lawson's Landing would have the potential to at least improve physiological condition (sic) of wintering plovers to improve their breeding success elsewhere. The beachside education and protection measures are essential for this to occur and are a proven approach to enhance the survival and recovery of this species.

The principal source of disturbance associated with recreational activities is simply walking through the dunes and along the beach. Wintering birds are less sensitive to disturbance than when nesting, but still tend to react to humans and especially to dogs by flying when approached within about 120 feet (Lafferty 2001). Dogs will often chase shorebirds and repeatedly flush them. If this occurs frequently, it will exact a significant physiological toll on the individuals affected.

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[8] Each successive "Final Rule" has been more general than the last. In 2001, the primary constituent elements of critical habitat were two or more breeding ponds within 1.25 miles of one another, upland habitat within 300 feet of the breeding ponds, and barrier-free dispersal habitat at least 300 feet wide. In 2006, the necessary elements were revised to include two or more breeding ponds within 0.7 miles of one another, nearby non-breeding aquatic habitat, upland habitat within 200 feet of essential aquatic habitat, and barrier-free dispersal habitat of unspecified width between aquatic breeding habitat. Finally, in 2010, the primary constituent elements include aquatic breeding habitat, non-breeding aquatic and riparian habitat, upland habitat adjacent to the aquatic habitat of unspecified width but no more than 1 mile, and accessible dispersal habitat between occupied or previously occupied sites within 1 mile of one another.

[9] Partners for Fish and Wildlife Cooperative Agreement #81420-A-J503

As is generally the case, the insect fauna in the Tomales Dunes is poorly known. However, the presence of at least two federal Species of Concern has been documented. Both the Pacific sand bear scarab beetle (*Lichnanthe ursina*) and the globose dune beetle (*Coelus globosus*) live in coastal sand dunes. Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*) is federally listed as endangered and there is an unconfirmed sighting from the Tomales Dunes. The habitat is appropriate and nectar sources are present. The recovery plan identifies the Tomales dunes as a high-priority area for reintroduction. Several other rare insect species have the potential to occur based on geography and habitat affinity.

Wetlands

A wetland delineation based on the federal definition of wetlands and following the methods of the Army Corps of Engineers 1987 Wetlands Delineation Manual was conducted in July 1992 (WESCO 1992). The delineation was certified by the Corps in 1993 and again in 1998. The results are shown in Figure 6. Monk and Associates did a new delineation for the Corps in October and November 2002, which was certified in 2003 (Figure 7). The boundaries are very similar, although two areas in the shadow of the foredunes that were delineated in 1991 were no longer mapped in 2003. The Huffman Broadway Group (2007) mapped wetlands following the definition in the Coastal Act and the Commission's Regulations based on field work conducted in August 2005 and September 2006 (Figure 8). Although there were spot checks of hydrology and soil characteristics, the wetland boundaries were determined primarily by the presence of a preponderance of wetland indicator plants as mapped by Monk and Associates (2006). Finally, Monk & Associates (2009a, Lynch & Monk 2009, Lynch 2009a, b) mapped the wetlands in winter and spring 2009, following the definition in the Coastal Act and the Commission's Regulations (Figure 9).

The northern portions of the deflation plain, especially, have been profoundly affected by the invasion of kikuyu grass (*Pennisetum clandistinum*), a species native to tropical Africa. Kikuyu grass is both highly drought tolerant and capable of spreading rapidly by rhizomes and stolons under mesic conditions (Youngner & Goodin 1961). Kikuyu grass was not identified in the 1992 botanical survey (WESCO 1992), was present in unknown abundance in 1998 (S. Lynch, personal communication on November 22, 2010), and was a dominant species in much of the deflation plain in 2002 (Monk & Assoc. 2002). Northern areas categorized as "degraded dune slack" wetlands in 2006 were generally dominated by FAC[10] grasses, kikuyu grass, and the deep-rooted Baltic rush (OBL) with a smattering of other OBL and FACW species and were adjacent to large areas characterized as *Pennisetum* grassland. From 2006 to 2009, the kikuyu grass continued to spread and most of the areas that were identified as wetlands based solely on a

[10] The U.S. Fish and Wildlife Service places plants in categories by the estimated percentages of total occurrences that are in wetlands: > 99% for OBL, 66 – 99% for FACW, 33-66% for FAC, 1 – 33% for FACU, and < 1% for UPL species (Reed, P.B. 1988. National list of plant species that occur in wetlands: National Summary. Biological Report 88(24). U.S. Fish and Wildlife Service, Washington, D.C.). Plants are generally considered wetland indicator species if they are designated OBL, FACW, or FAC.

predominance of wetland indicator species in 2006 (so-called "1-parameter wetlands[11]") were categorized as *Pennisetum* grassland uplands in 2009. In addition, a scoured portion of Area 5 that had wetland hydrology in 2006 and was mapped as non-degraded dune slack wetlands was converted to sparsely vegetated upland by an influx of sand. Due to the changed circumstances, Monk and Associates conducted intensive wetlands surveys in February, April, May, and June 2009, assessing vegetation, soils, and hydrology at 114 sample points (Monk & Assoc 2009a, Lynch & Monk 2009, Lynch 2009a,b). Based on an examination of the field data sheets and on the results of a site visit, I believe the resultant wetland delineation is an accurate reflection of the wetland definition in the Coastal Act and the Commission's Regulations (Figure 9).

With the exception of drainage ditches, ponds, and small areas of dune slack wetland, the camping areas in Areas 4 and 5 were characterized as uplands (*Pennisetum* grassland) in 2009. Essentially all those areas that were characterized as wetlands in 2006 based solely on the predominance of wetland indicators among the dominant plants had converted to uplands. In order to document the shift in the vegetation and compare the various habitat types, I calculated a Prevalence Index[12] for each of the sample points and averaged them for each habitat type identified during the wetland delineation. The Prevalence Index is based on all species present (both dominants and subdominants) and is a measure of the relative "wetness" of the vegetation community[13], with lower values indicating "wetter" vegetation. The Corps has defined wetland vegetation as a plant community with a Prevalence Index less than or equal to 3.0. In my experience, areas meeting the wetlands definition in the Coastal Act and Commission's Regulations that have been mapped solely on the basis of wetland vegetation often have Prevalence Indices in the low 3s. The index values for 2009 sample points correlate well with the expected values for the several habitat types. In particular, uplands have an average Prevalence Index of greater than 3.0, whereas the average Prevalence Indices for wetlands are less than 3.0. Table 1 gives the Prevalence Index (PI) for the various wetland and upland habitat types delineated in 2009.

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[11] The wetland "parameters" are (1) wetland vegetation, (2) wetland ("hydric") soil, and (3) wetland hydrology. Wetland vegetation ("predominance of hydrophytes") is considered present if more than 50% of the dominant species are classified as OBL, FACW, or FAC. Hydric soils are identified based on very technical criteria developed by the National Technical Committee on Hydric Soils of the Natural Resources Conservation Service. The Army Corps of Engineers defines wetland hydrology as continuous inundation or shallow soil saturation for at least 14 days during most years. The Commission's Regulations do not provide a definition of wetland hydrology based on duration and frequency of inundation or saturation, but consider a predominance of hydrophytes or hydric soils as sufficient evidence of wetland hydrology. Federal agencies require field evidence of all three parameters, whereas the Commission only requires field evidence of one parameter. Hence, the common reference to "3-parameter" or "1-parameter" delineations or wetlands.

[12] The Prevalence Index is a weighted average whereby abundant species contribute more to the average than rarer species. The abundance (percent cover) of each species is multiplied by the index value (OBL=1, FACW=2, FAC=3, FACU=4, UPL=5) of the species. The sum of these values is then divided by the total vegetative percent cover.

[13] The primary determinant of a "predominance" or "prevalence" of hydrophytes developed by the Army Corps of Engineers is the dominance ratio. Only dominant species (the most abundant species adding to more than 50% cover plus individual species with 20% or more cover) are considered. Wetland vegetation (i.e. a prevalence or predominance of hydrophytes) is defined as present if more than 50% of dominant species are wetland indicator plants. Unlike the dominance ratio, the prevalence index takes into account the wetland indicator status of all species present.

Table 1. Prevalence Index (PI) for various habitat types in 2009. The mean and its 95% Confidence Interval (CI), minimum and maximum values, and sample size are tabulated. For comparison, the average Prevalence Indices from the 1992 Corps delineation are 1.77 for 3-parameter wetlands, 2.07 for 1- and 2-parameter wetlands, and 3.5 for uplands. The generally wetter character of the vegetation in 1992 may partially be due to the absence of kikuyu grass.

Habitat Type	Mean	95% CI	MIN	MAX	N[14]	Percent with Wetland Hydrology or Hydric Soil Indicators
2009 Ditch Wetland	1.58	0.40	1.00	3.00	11	100
2009 Dune Swale Wetland	2.24	0.30	1.75	3.25	9	89
2009 Degraded Dune Swale Wetland	2.88	0.35	1.86	3.91	15	93
2009 *Pennisetum* Grassland Upland That Was Degraded Dune Swale Wetland in 2006	3.54	0.10	3.10	4.20	39	0
Pennisetum Grassland Upland Present in Both 2006 and 2009	3.85	0.09	3.35	4.15	21	0

A question that naturally arises is what effect, if any, have the recreational and associated maintenance activities had on wetlands in the deflation plain. Monk and Associates (2002) pointed out that, "Dune slacks in the Study Area have been disturbed over the years by cattle grazing and recreational activities such as camping, campsite mowing, vehicle parking, campfires, and draining via ditches. These disturbances have altered the plant species composition and as a result, non-native grassland and ruderal species have become established in portions of the dune slacks." In 2006, Monk and Associates established what they termed a "Line of Degradation" separating uplands and disturbed dune slack areas from undisturbed wetlands. This line was intended to show areas where camping and vehicle parking over the last 50 years had degraded the dune slack and where currently the area is characterized by soil compaction, sand buildup and an absence of hydrology. By 2009, these authors appear to have undergone a shift in their opinion regarding the effects of recreational activities, at least with regard to kikuyu grass (Monk & Assoc. 2009a). After noting that *Pennisetum* also dominates the vegetation in a non-camping area, they concluded that "*Pennisetum* grassland colonization of the study area is an independent process unaffected by camping" and that "there is not an apparent relationship between camping or vehicle compaction and colonization by *Pennisetum*." In my opinion, these assertions, while possibly true for *Pennisetum*, are much stronger than the data upon which they are based. I think the available evidence suggests that recreational activities do have negative effects on the vegetation community within dune slacks, favoring non-native species adapted to the drier end of the wetland gradient, although the causal relationship to any particular species is unknown.

[14] Sample points for hillside swale wetlands (n=2), sandy mostly unvegetated areas (n=6), and areas affected by a recent sand intrusion (n=9) were not included in the analysis.

The primary evidence that recreational activities change the character of the vegetation consists of a series of vertical and oblique aerial photographs obtained from the Commission's mapping unit or downloaded from the California Coastal Record Project. I am not aware of the existence of any site-specific habitat characterizations for Areas 4 and 5 prior to 1992, so there is not a good baseline for quantitative comparisons with recent field surveys, but inundated areas in the pre-camping photographs suggest that at least a portion of the area was wetland. In a 1952 aerial photograph, the deflation plain in Areas 4 and 5 is dotted with numerous dark areas that were probably inundated (Figure 10). The dark parenthesis-shaped feature below the road at the left margin of the image is what has become known as the entry pond. The 1965 aerial photograph is too low contrast to enable one to distinguish wet areas (Figure 11). However, in 1970 there are six clearly visible ponded areas that correspond to dark features in the 1952 photograph (four in Area 4) and the surrounding vegetated surface appears similar throughout (Figure 12). The pattern in Area 4 appears much the same in 1972 (Figure 13). Three of the wetlands have a blue cast in the photograph, indicating standing water, but the one farthest to the left appears to be dry. In the oblique photograph (Figure 13) much of the vegetation appears shrubby or tussocky – certainly without the appearance of a pasture. By 1979, the vegetation had changed considerably (Figure 14). A broad area just east of the road appears pasture-like and ditches are apparent. By 1987, Area 4 appears uniformly pasture-like in the camping area and irregular and tussocky with scattered shrubs east of the camping area (Figure 15). The appearance of Area 4 is much the same in recent years (Figures 16 & 17). Seasonal ponds no longer occur where they were present in the early 1970s. Converting the area to recreational use has obviously altered the habitat.

Without a pre-camping baseline, we cannot specify the actual floristic changes that were correlated with this change in use, but we can get a rough idea of camping effects on the vegetation community by comparing points placed close to each other across the line between camping and undisturbed dune slack. This was done at six locations along the eastern edge of Area 4 in 2009 to verify the wetland boundary. On the camping side the average Prevalence Index (± 95% confidence interval) was 3.27 (±0.25) compared to 2.1 (±0.14) on the undisturbed side. This difference in the relative "wetness" of the vegetation was not caused by the presence of a distinct upland community in the camping area, but rather by a difference in the relative abundance of the same species. Of the 12 species present in the combined sample (2 OBL, 4 FACW, 3 FAC, 1 FACU & 2 UPL) all occurred in the upland and 8 were present in the wetland. The conversion of this area to recreational use has altered the physical structure of the vegetation from shrubby and tussocky to pasture-like, and is probably ultimately responsible for the decreased proportions of wetland indicator species that are present. Whether continued camping contributed to the recent dramatic increase in the invasive kikuyu grass cannot be determined. In 2006, a transect across the middle of the camping area (Transect 6, PI=2.75) was actually quite similar to two nearby transects in undisturbed dune slack (Transect 2, PI=2.17 & Transect 5, PI=2.65). This is no longer the case. A series of sample points (Points 6,8,9,10 from April 13, 2009) very close to the earlier Transect 6, now have a combined prevalence index of 3.86 resulting from high cover (c. 76%) of kikuyu grass.

Interpreting changes in the southern dune slack wetlands[15] is easier because the whole area was delineated as a Corps wetland in 1992, so we know the habitat type that was present before the area was converted to recreational activities and, since the ditching took place long ago, the effects of the recent change in use are not confounded with changes in hydrology. The area appears more-or-less homogeneous in aerial photographs taken prior to the introduction of camping (Figures 18, 21 & 23). Sometime between 1987 and 1992, probably around 1989[16], roads were built in the wetland and camping was introduced. The same qualitative changes in the vegetation that are visually apparent in the time series of photographs of Area 4 also occurred in the southern dune slack, but in this case the habitat is known to have been wetland before camping was introduced. These changes are apparent in paired photographs taken before and after the introduction of camping. The 1986 vertical aerial photograph shows the dune slack wetland undisturbed by recreational activities (Figure 18). By 1993, new roads had been constructed, but there are no obvious changes in the vegetation (Figure 19). However, by 2002 changes in the structure of the vegetation are apparent[17] (Figure 20). The changes in the vegetation associated with recreational activities are particularly striking in paired "before" and "after" oblique aerial photographs (Figures 21 & 22 and Figures 23 & 24). In the "before" photographs and in the non-camping areas in the "after" photographs, the vegetation has an irregular tussocky appearance, whereas in the "after" photographs the camping areas are pasture-like. This is particularly apparent in the 2002 photograph (Figure 24) where the camping area in the southern dune slack wetland looks like Areas 4 and 5 in the distance. The effects of human activities are reflected in the camping area being designated as "degraded" dune slack wetland as opposed to the contiguous non-camping area, which was classified as "nondegraded" in the 2006 wetland delineation. The effects of camping are quantified in Table 1 where all the degraded dune slack wetland samples are from the southern dune slack wetland camping area. The higher Prevalence Index from the degraded wetlands is statistically significant (P=0.004), indicating a shift in the relative abundance of species toward those with more upland affinities.

Environmentally Sensitive Habitat Areas (ESHA)

Coastal dune habitats are rare, as are the vegetation communities and many of the species associated with them. Coastal dunes are also especially valuable because of their role in the ecosystem of supporting those rare species and communities. They are also easily damaged by human activities, as has been demonstrated throughout California, including at the Tomales Dunes. In its natural state, the entire coastal dune complex at Lawson's Landing, consisting of foredunes, active unvegetated dunes, vegetated backdunes, dune swales and deflation plains, would clearly have met the definition of ESHA contained in the Coastal Act.

[15] That area north of Area 1, south of Area 4 and east of Area 3 labeled dune slack or degraded dune slack in Figure 4.
[16] Willy Volger of Lawson's Landing recalls it was built around 1989 and it was present at the time of the 1992 wetland delineation (Sarah Lynch, email communication on 12/01/10).
[17] Because aerial photographs were taken infrequently, the time of the observed changes can only be roughly bracketed.

What of the more recent situation? Significantly, all the pieces of this dune complex are still present today, albeit in a somewhat to severely degraded condition. Based on the analysis of historical aerial photographs presented above, most of the camping-related deleterious changes to the vegetation in Areas 4 and 5 and in the southern dune slack wetland are relatively recent, having taken place after 1972 for the former and after 1986 for the latter. Despite the significant degradation of the dune habitats and the many stabilizing constraints operating on this dune complex, it still is a dynamic system and the various parts, including the upland portions of the deflation plain, still interact with one another. For example, drifting sand periodically converts areas of deflation plain to dune or blowouts create drainages where there previously were none (Lynch 2009b), providing opportunities for new plant and animal colonization. Therefore, regardless of the fact that the Tomales Dunes at Lawson's Landing is no longer pristine, the dune complex of foredunes, central dune scrub, bare sands, and deflation plains, including the dune-slack wetlands and uplands, is rare, performs the important ecosystem function of supporting a rare plant community, rare plant and animal species, including the Federally Threatened California red-legged frog and western snowy plover, and is easily disturbed by human activities. Therefore, I recommend that the Commission recognize all the existing habitat areas of the dune complex at Lawson's Landing as Environmentally Sensitive Habitat Areas under the Coastal Act. Such areas include Areas 3, 4, and 5, Area 7, and the undeveloped portions of Areas 6 and 8 that are contiguous with the adjacent areas of extensive open space characterized by a mosaic of unvegetated sand and degraded central dune scrub (Figure 4). In prior actions, the Commission has found that even severely degraded dunes meet the definition of an ESHA in Section 30107.5 of the Coastal Act[18]. This determination is a recognition of the presence of a physical habitat that is rare, cannot be created where it does not naturally occur, and is necessary for the colonization and persistence of dune species, including rare species, and the occurrence of rare dune vegetation communities.

Although much of the habitat at Lawson's Landing is degraded ESHA, portions of the site have been so drastically altered by development that they no longer retain the characteristics of a natural habitat. Areas 1 and 2 (adjacent to Tomales Bay) have been denuded of vegetation and graded. Area 2 is occupied by a permanent trailer park and commercial buildings; Area 1 is used for short-term vehicular parking and camping. Similarly, portions of Areas 6 and 8 have been developed with buildings and roads. In addition to roads, scattered through Lawson's Landing there is other infrastructure, such as disposal facilities for recreational vehicle holding tanks, a well house and water tank, and toilet buildings. To the extent that these uses and infrastructure were previously permitted or are otherwise determined to be legal development, I recommend that the Commission find that the land areas supporting them no longer meet the definition of ESHA.

If recreational activities within the dune complex are to continue, the impacts to natural resources will be minimized by concentrating that development within the least sensitive areas, which are those that are currently the most degraded and most constrained by existing development. In my opinion, such areas are Area 1, Area 2, Area 3 and Area 4.

[18] For example: Wheeler 3-09-049 (Asilomar dunes), Malibu LCPA 1-07 (foredunes), Ca Parks & Rec 1-09-026 (Little River foredunes, deflation plain, and stabilized dunes).

Although Area 6 and Area 8 are significantly degraded by existing development, Area 6 is crossed by a likely movement corridor for the frog and Area 8 is adjacent to a California red-legged frog breeding pond. Activities in these areas that would increase vehicular use would put the frog at some additional risk.

Buffers

Habitat buffers, or development setbacks, perform many ecological functions, including keeping disturbance at a distance, reducing night lighting, providing undisturbed upland transitional habitat adjacent to wetlands, and reducing the chances of accidentally released petroleum products or other anthropogenic materials from entering the protected habitat. I recommend that all development and camping be set back 100 feet from delineated wetlands and 50 feet from foredunes and central dune scrub with the exceptions discussed below. In many prior actions the Commission has found a wetland buffer of 100 feet to be adequately protective, and I believe that a setback of this size is also appropriate at Lawson's Landing based on the type and intensity of use. The Commission has variously required 50-foot or 100-foot setbacks from non-wetland ESHA, depending on the circumstances. I think a 50-foot setback from foredunes and from interior central dune scrub is adequately protective based on the nature of the habitat, the relatively low intensity of disturbance, and on the fact that many of these dune features tend to be relatively steeply elevated and, therefore, partially buffered by the topography itself.

There are a number of constraints associated with the proposed recreational uses. In Area 1, the proposed camping area is closer than 100 feet to the adjacent wetlands. In Area 2, existing trailers are immediately adjacent to ditches and other wetlands and abut the foredunes. In Area 3, the potential camping areas are nestled among the remnant foredunes and any significant setback would eliminate camping. In Area 4, 100-foot buffers from the wetland ditches and 50-foot buffers from the foredunes would nearly eliminate camping. If camping is allowed, it is important to minimize impacts to the ecological functions of wetland and upland ESHAs in these camping areas. I think there are a few special cases where smaller buffers or a reduced intensity of use would be sufficient to prevent the significant degradation of adjacent ESHA:

1. Area 1 is sandwiched between a seawall along Tomales Bay and a large wetland to the north. If the existing use is permitted, I recommend either a development set back of 100 feet, or that a wetland buffer of at least 25 feet be established that includes both a sandy earthen berm rising six feet above the level of the graded parking area and native plantings. This feature will mimic the adjacent vegetated dune in habitat function. The berm will prevent runoff from entering the wetland and will physically separate disturbing activities from the wetland. Plantings should be comprised of central dune scrub species on the berm. In addition, native riparian plantings along the edge of the wetland could provide compatible habitat and an additional visual screen.

2. There are two parallel lines of trailers adjacent to the southern dune slack wetland in Area 2 (Figures 4 & 25). There is a ditch immediately adjacent and west of the western-most of these two rows of trailers. This ditch minimally

functions as natural habitat and has no buffer. This ditch and its extension to the east should only drain the developed area and should receive no water from the nearby wetlands, as it appears to do now (Figure 9). On the east side of the trailers, the southern dune slack wetland occurs within a few to about 50 feet of the trailers. To minimize the effects of this development on the adjacent wetland, I recommend that best management practices be instituted as necessary to prevent any polluted runoff from the developed area from entering the wetland, and that appropriate native riparian species be planted in the area, as generally indicated in Figure 25, to screen the wetland and provide complementary native habitat.

3. The relict patch of foredune that comprises Area 3 is separated from the rest of the foredunes by a road and is surrounded to the north, east, and south by a second road. Most of Area 3 is more than 100 feet from the nearby southern dune slack wetland. I recommend that this area be restricted to relatively low impact walk-in camping, that parking be restricted to the western road, and that the perimeter road be abandoned except for the southern connector to the Area 2 trailers (Figure 25).

4. Within Area 4, there are narrow ditches that convey water during the wet season but that are dry during the rest of the year. These ditches support wetland vegetation within their banks and, in a few places, immediately adjacent to the banks, but perform few other wetland functions during the dry period. I recommend that camping be set back 25 feet from these ditches and associated wetland vegetation during the period from October 1 through May 31, and that a nominal set back of 10 feet be maintained from April 1 through September 30 when the soil is dry. Elsewhere, the standard 100-foot setback from wetlands should be maintained. The foredunes in this area are high and generally steep. This inherent physical separation reduces the impact of adjacent recreational activities on the ecological functions of the foredunes. However, physical or symbolic fencing should be established to prevent access to the dunes except at designated locations and to keep vehicles at least 10 feet from the base of the dunes.

In all cases, where wetland and other ESHA buffers are adjacent to camping areas, they should be separated by physical or symbolic fencing, as appropriate. If symbolic fencing is utilized, there should be a monitoring plan to insure that it is effective. If it should prove ineffective, then standard fencing should be constructed.

I recommend a buffer of 300 feet around California red-legged frog breeding ponds[19]. Similarly, I recommend that 300-foot wide dispersal corridors be maintained between breeding ponds (Figure 5). Where the buffers encompass undeveloped areas there

[19] The width of the protected upland areas around aquatic breeding habitat recommended by the Fish and Wildlife Service has changed over time and is no longer specified. I recommend 300 feet since it is the most protective of the Service's recommendations. Also, Bulgar, et al. (2003) recommend that, "Conservation and resource management planning for activities that alter the local environment should strive to retain a well-distributed array of natural habitat elements that provide protective cover for red-legged frogs to a distance of at least 100 m from occupied aquatic sites."

should be no development; where development already exists within the buffer, the intensity of use should not be increased in such a way as to increase the risk to the frog.

Mitigation Measures

Should mitigation prove necessary, there are no doubt many specific best management practices that could reduce water quality impacts and habitat disruption (e.g., fences, restrictions on lighting, waste water and sewage treatment, restriction of trails to specific areas, etc). However, there are also opportunities for significant habitat restoration that would have benefits throughout the area. The exotic species that were introduced or have colonized the foredunes are spreading to interior dune habitats and threatening natural physical processes and native communities. An extensive and on-going program of invasive species control in the central dune scrub and wetland habitats would have profound benefits. There are also opportunities to enhance or reintroduce rare dune species. The wetlands are now drained by an extensive system of ditches that ultimately discharge to the ocean. These should be filled or blocked so that water is retained in the wetlands. This would increase the extent and duration of inundation and saturation and benefit native species while inhibiting the spread of some invasive species. This is a complicated undertaking that should be based on a plan developed cooperatively by ecologists, hydrologists, and Lawson's Landing to maximize benefits while avoiding unintended consequences to natural habitats and to permitted infrastructure and recreational activities. The removal of the peripheral road around Area 3 and restoration of the habitat would also be of value. In the case of unpermitted development, such as the road through the southern dune slack wetland (Figure 25), the habitat should be restored to its pre-disturbance physical and biological condition.

Figure 1. The Tomales dunes and Lawson's Landing sometime in the 1920s (looking south). Photograph courtesy of Willy Vogler.

Figure 2. Tomales Dunes and Dillon Beach sometime in the 1920s (looking south). Notice the partially vegetated low foredunes that are more-or-less continuous with the backdunes. Photograph courtesy of Willy Vogler.

Figure 3. Tomales Dunes and Lawson's Landing in 1952 (from Cooper 1967).

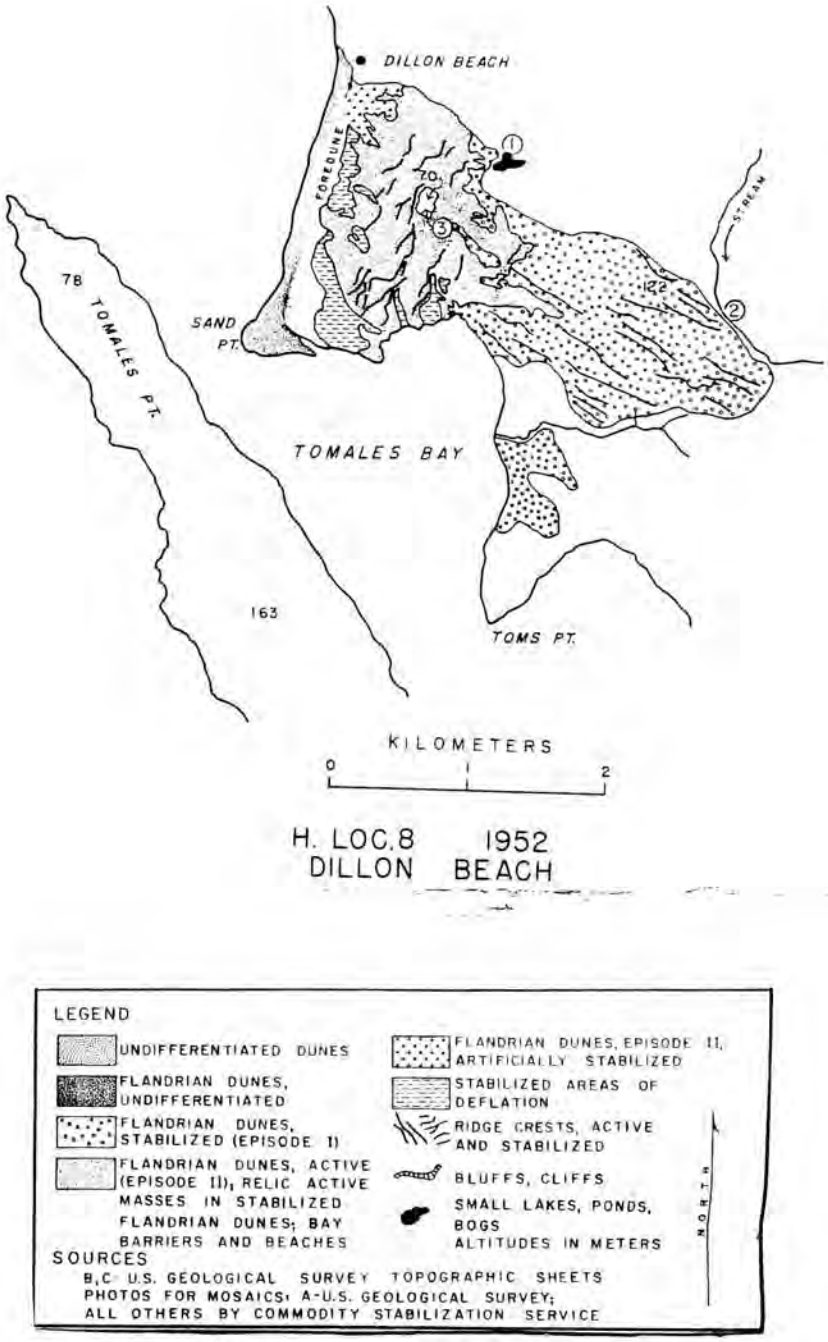


Figure 4. Location of planning areas, habitat types, and rare species observations at Lawson's Landing

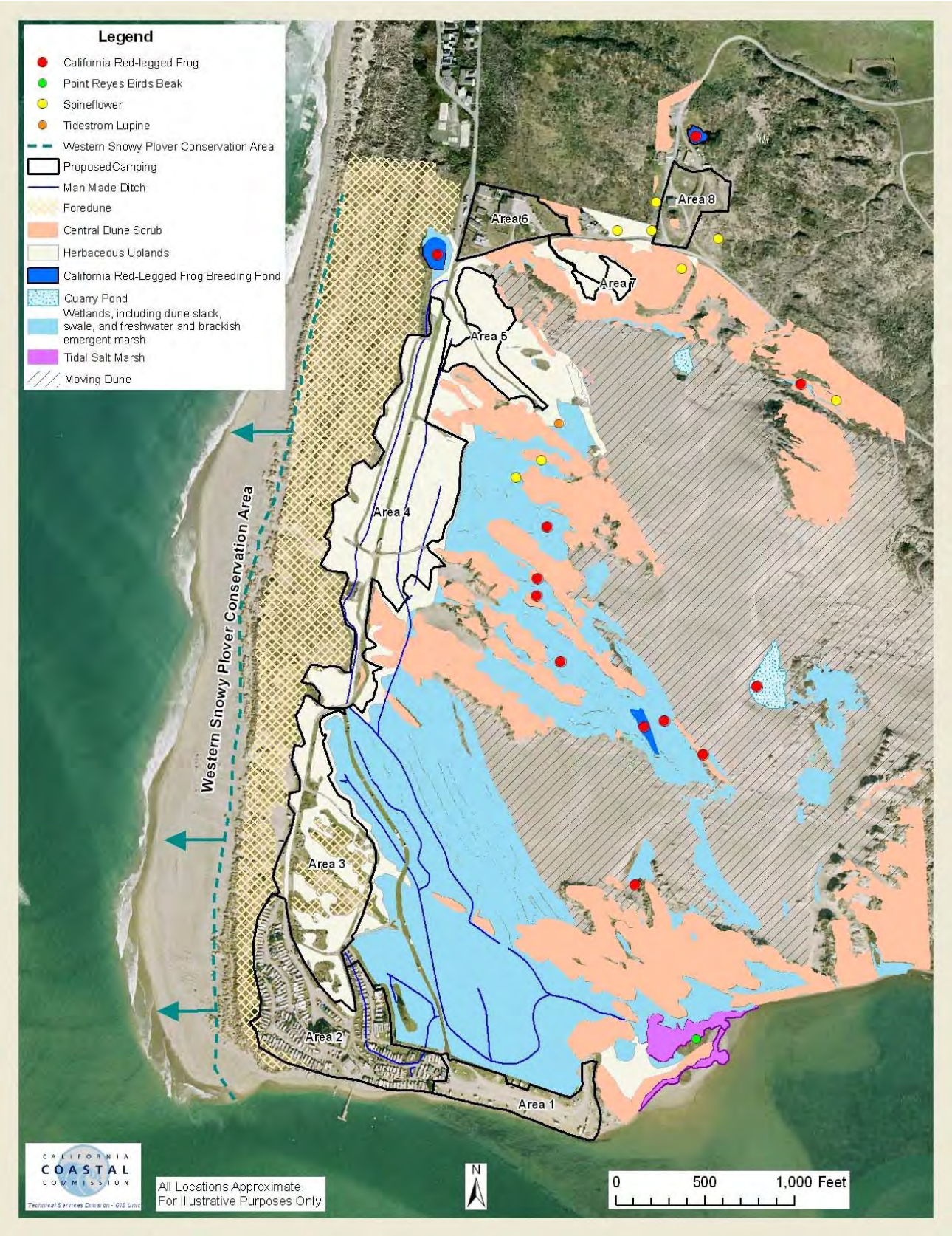


Figure 5. Upland habitat within a 300-ft radius of California red-legged frog breeding ponds and 300-ft dispersal corridors between breeding ponds. Also shown are planning areas, habitat types, and rare species observations as in Figure 4.

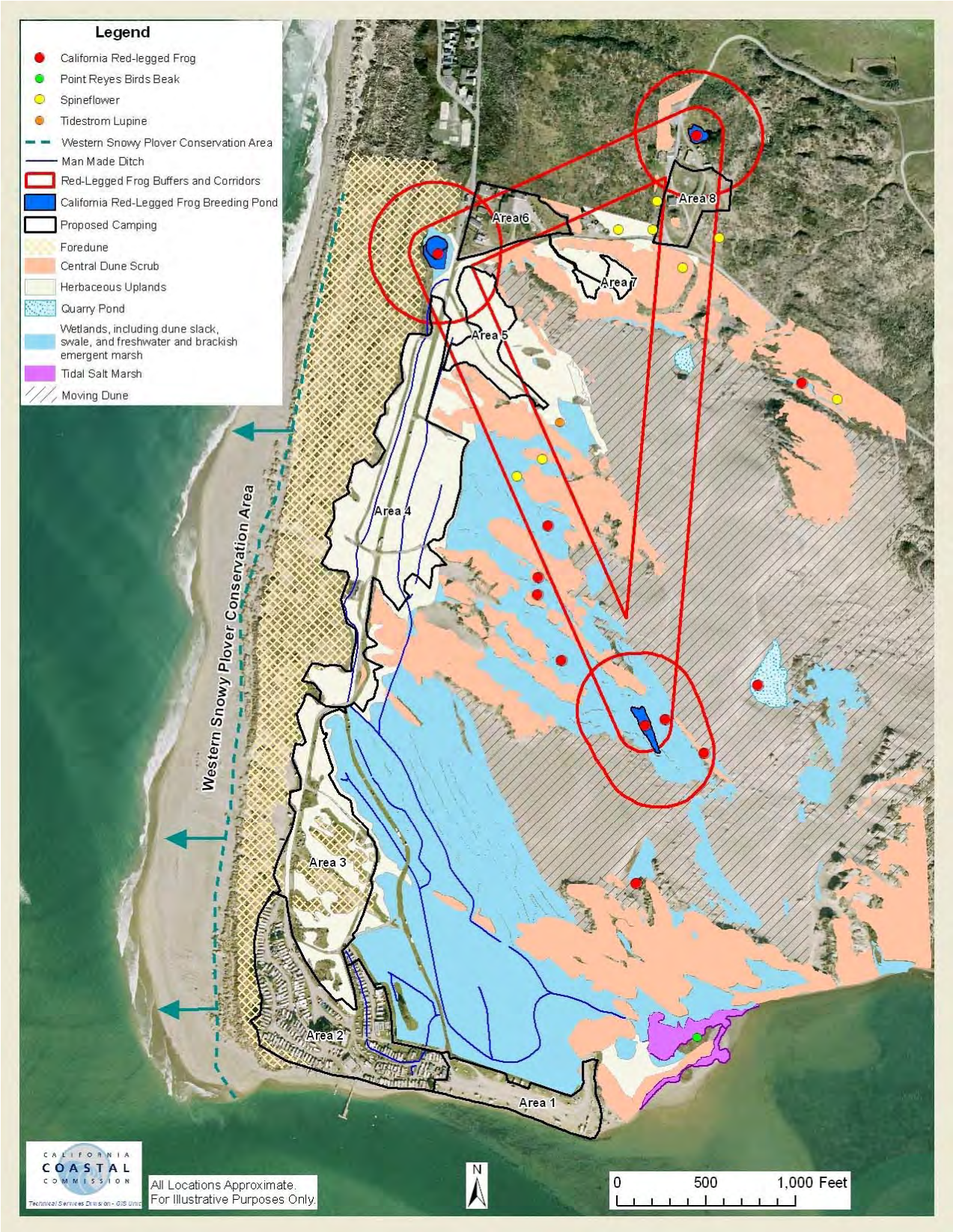


Figure 6. 1992 3-parameter wetland delineation certified by the Army Corps of Engineers (WESCO 1992).

Figure 7. 2002 3-parameter wetland delineation certified by the Army Corps of Engineers (Hicks 2003) based on field investigations by Monk and Associates. Legend: black line=project boundary; solid and dotted green lines=wetlands and waters of the U.S.; pink/orange lines=upland island; dotted lines at the beach are mean high water and the high tide line.

Figure 8. 2006 wetland delineation based on the definitions in the Coastal Act and the Commissions Regulations (Huffman Broadway Group 2007, Monk & Assoc. 2006).

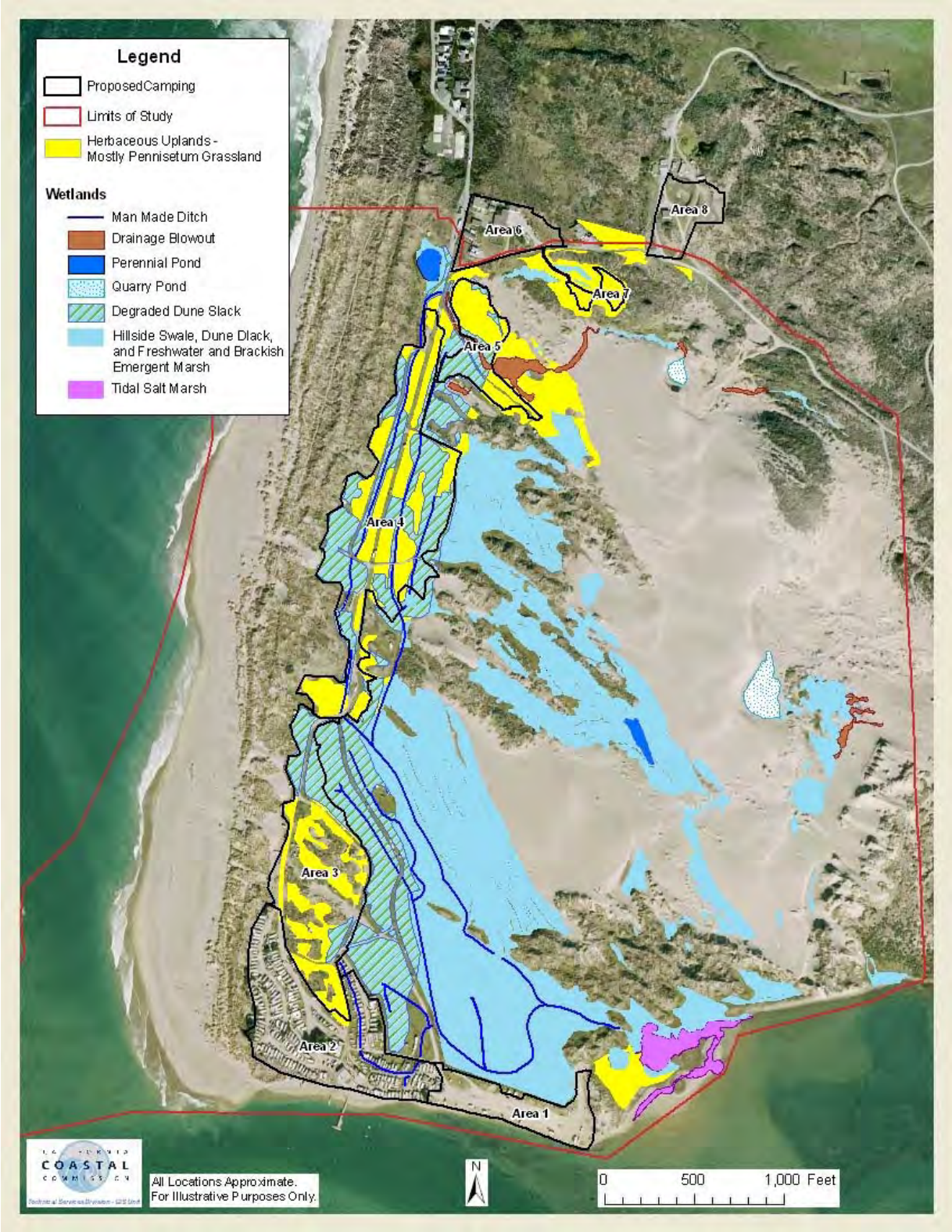


Figure 9. 2009 wetland delineation based on the definitions in the Coastal Act and the Commissions Regulations (Monk & Assoc. 2009a, Lynch & Monk 2009, Lynch 2009a,b).

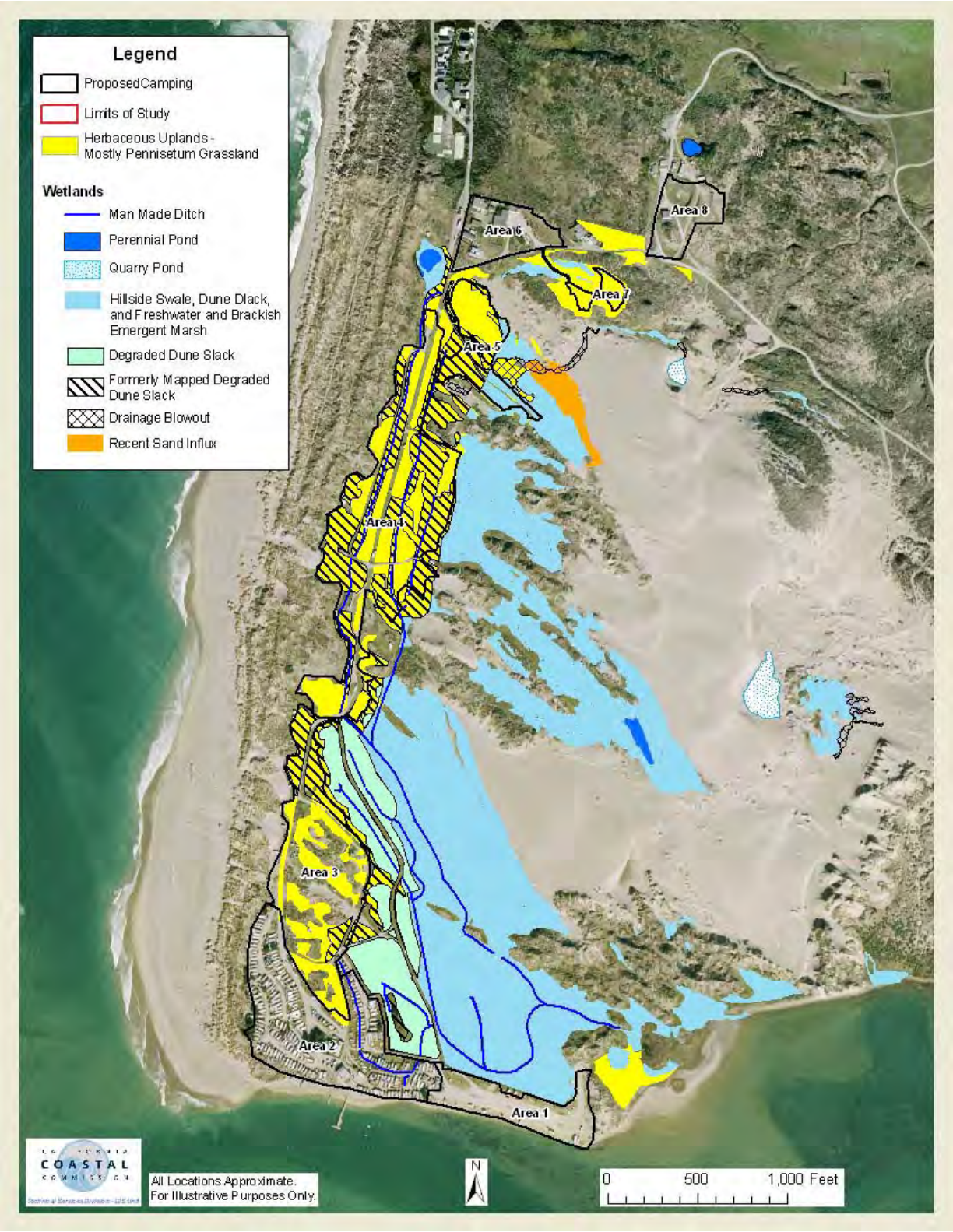


Figure 10. Areas 4 and 5 at Lawson's Landing in 1952 (looking east). The dark "parenthesis" on the left is the entrance pond. Several other dark, probably inundated, areas are apparent above the road. Aerial photo (DRH-3K-54) from the Commission's mapping library.

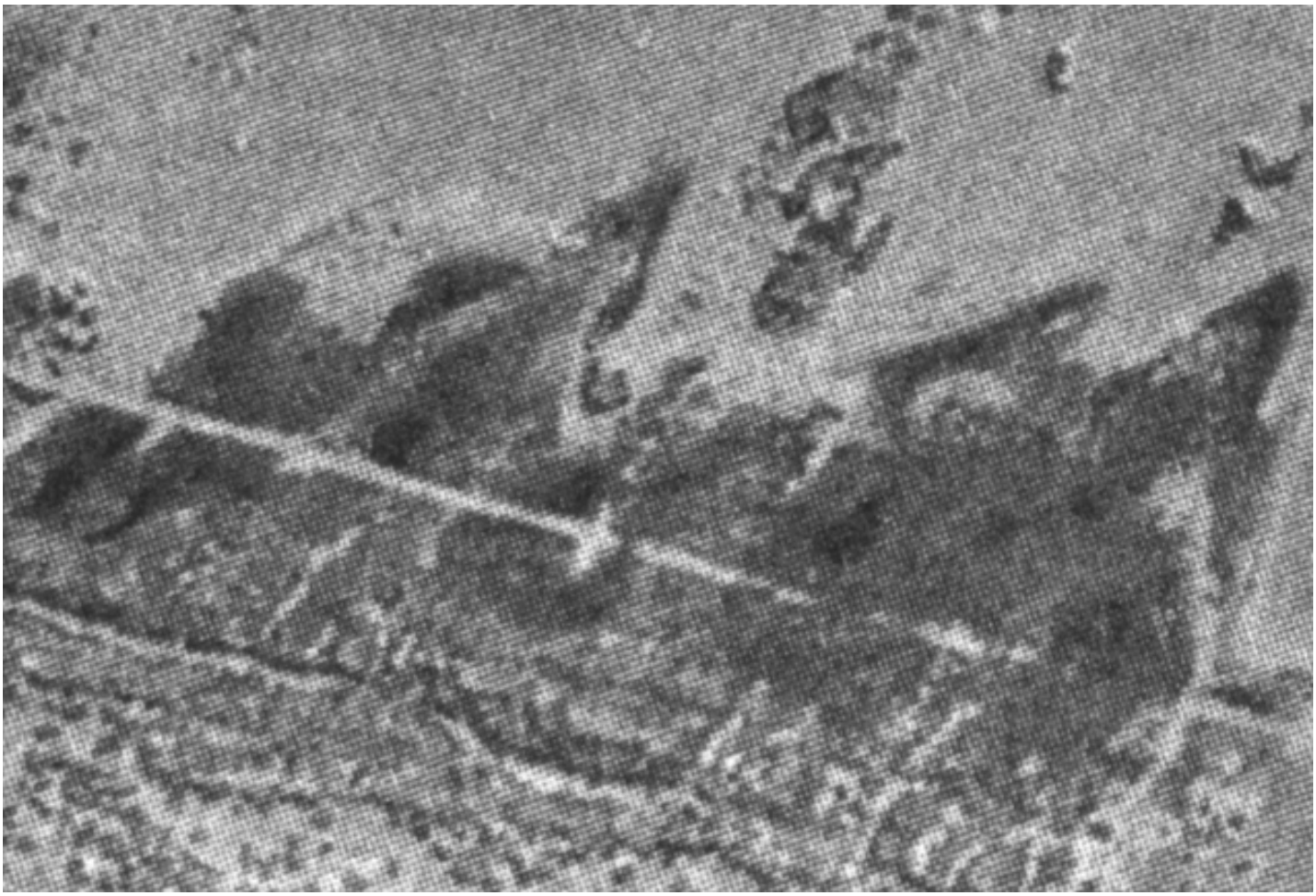


Figure 11. Areas 4 and 5 at Lawson's Landing in 1965 (looking east). The linear dark area below and paralleling the road is the ditch from the entrance pond to the southern dune flack wetlands (to the right and out of the picture). Aerial photo (MNR-53-45) from the Commission's mapping library.

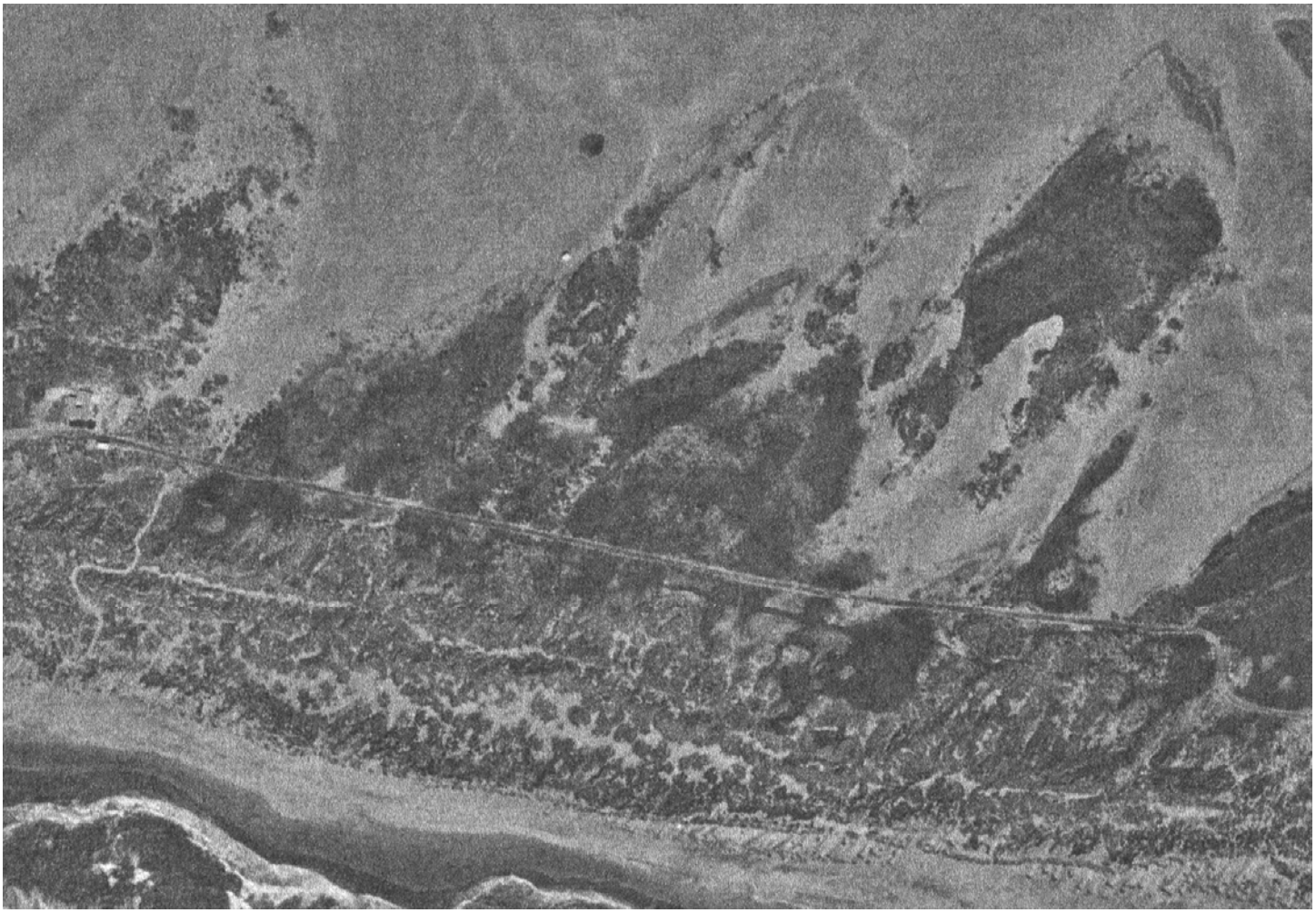


Figure 12. Areas 4 and 5 at Lawson's Landing in 1970 (looking east). The entrance pond, the drainage ditch below the road, and at least 5 inundated areas above the road are apparent. Aerial photo (76-6-161) from the Commission's mapping library.

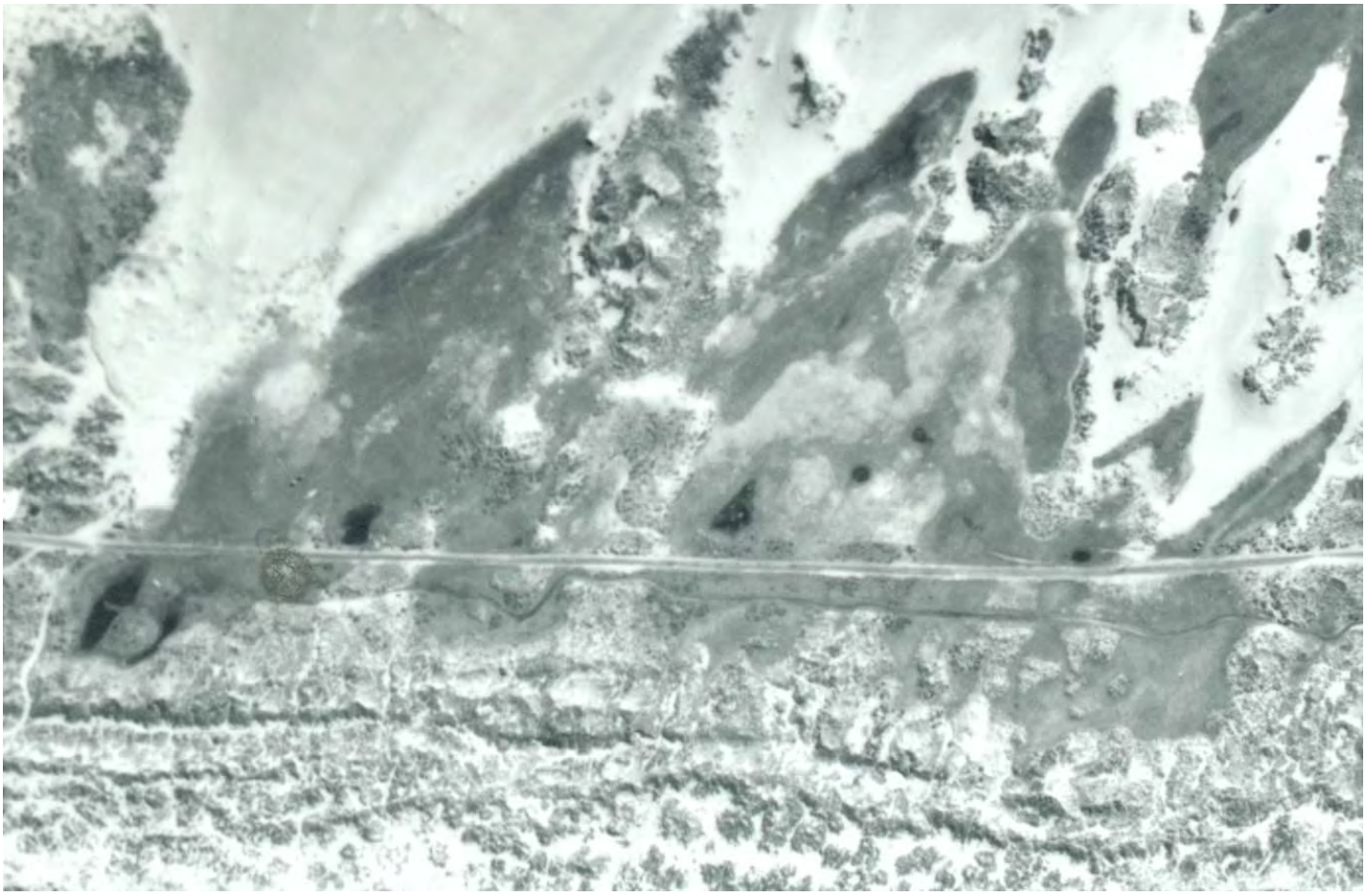


Figure 13. Area 4 at Lawson's Landing in 1972 (looking east). Three blue ponds are visible – two to the left and right of the central light standard and one next to the road to the far right. The brown depression next to the road on the left is in the same location as the triangular pond in Figure 7. Aerial photo (#8715070) courtesy of the California Coastal Records Project.

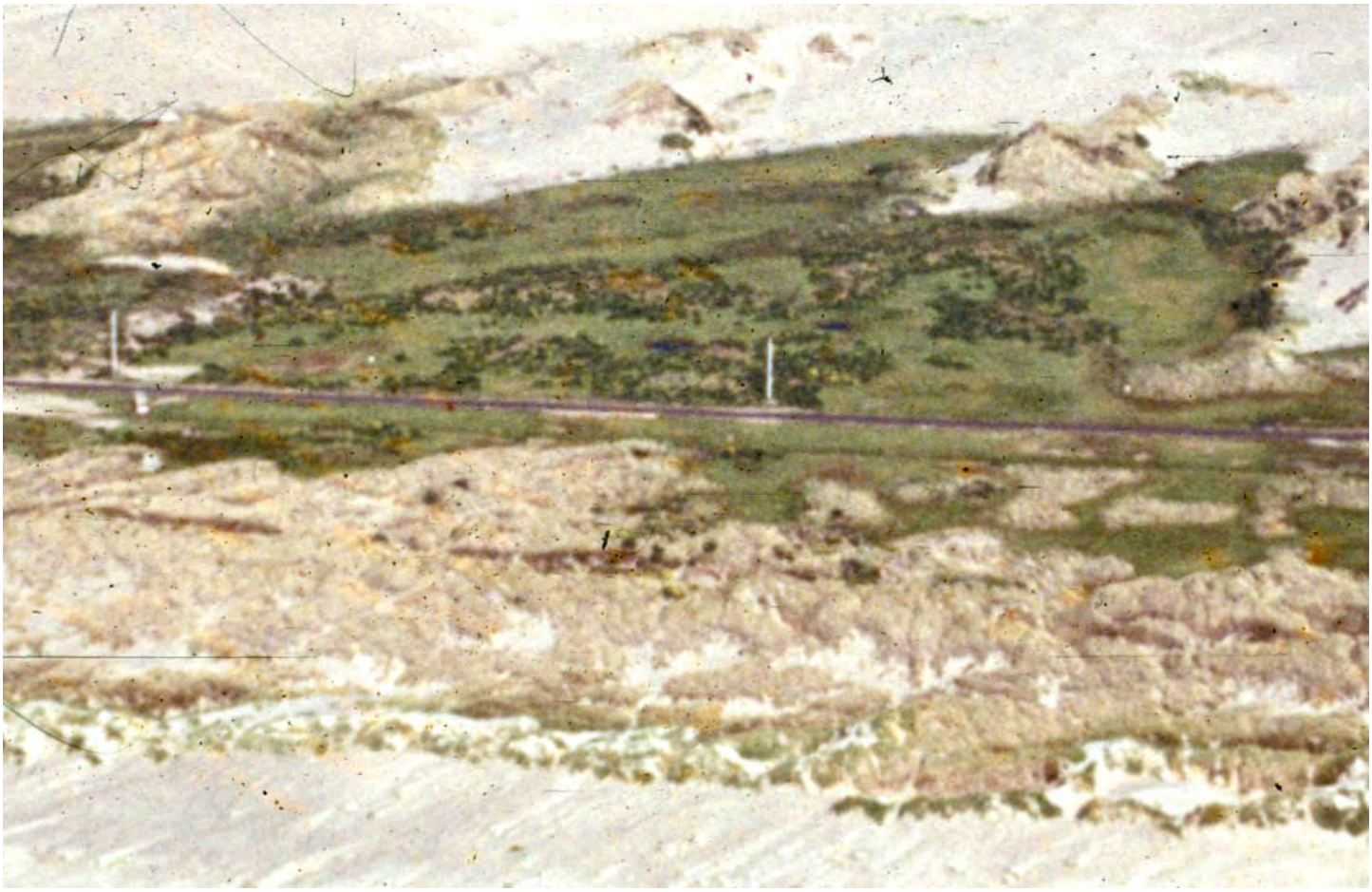


Figure 14. Area 4 at Lawson's Landing in 1979 (looking east). Aerial photo (#7920094) courtesy of the California Coastal Records Project.

Figure 15. Area 4 at Lawson's Landing in 1987 (looking east). Aerial photo (#8715070) courtesy of the California Coastal Records Project.

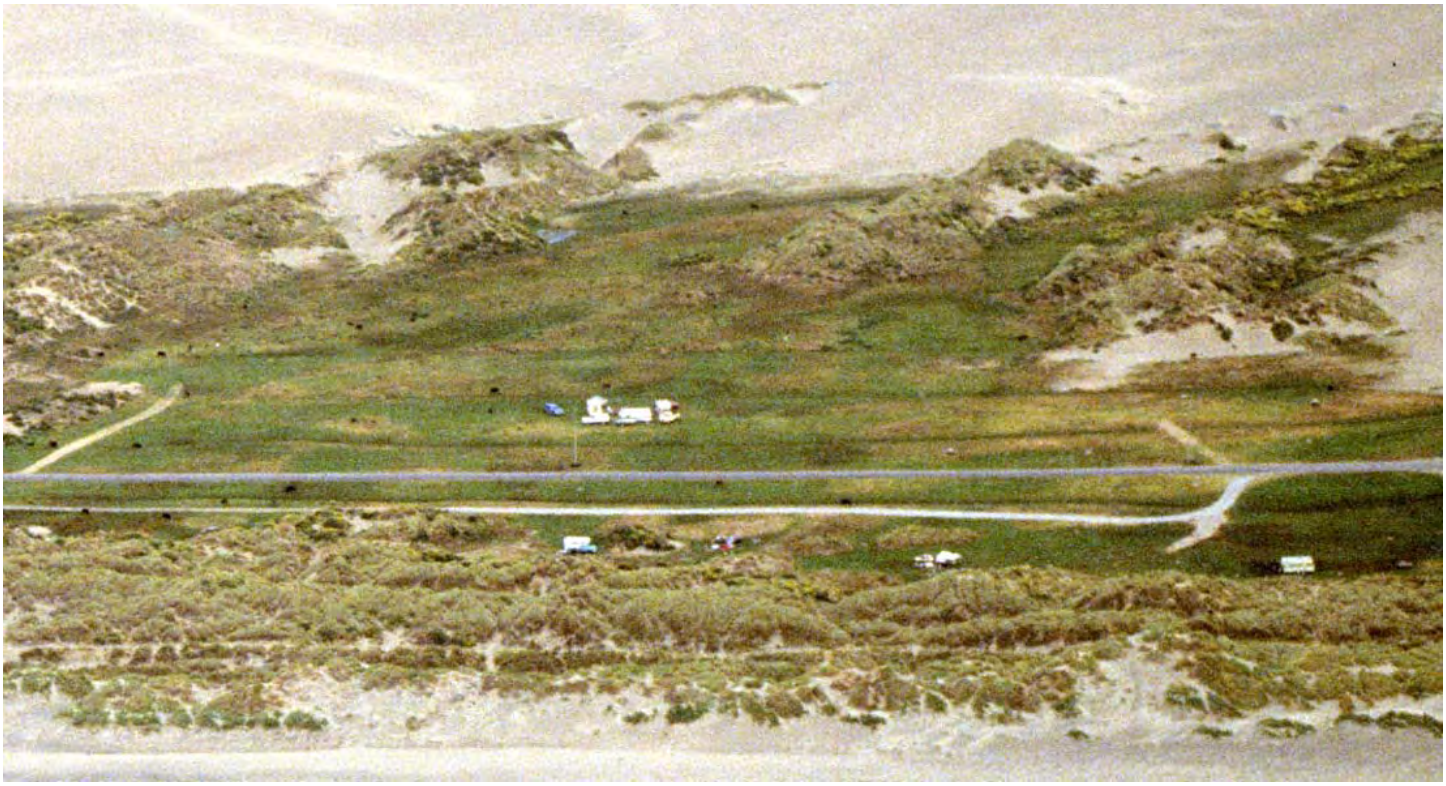


Figure 16. Area 4 at Lawson's Landing in 2002 (looking east). Aerial photo (#12693) courtesy of the California Coastal Records Project.

Figure 17. Area 4 at Lawson's Landing in 2009 with about 16 campers present (looking east). Aerial photo (200905436) courtesy of the California Coastal Records Project.

Figure 18. The southern dune slack wetland at Lawson's Landing in 1986. North is up. Aerial photo (163) from the Commission's mapping library.

Figure 19. The southern dune slack wetland at Lawson's Landing in 1993. North is up. Aerial photo (149-23) from the Commission's mapping library.

Figure 20. The southern dune slack wetland at Lawson's Landing in 2001. North is up. Aerial photo (149-25) from the Commission's mapping library.

Figure 21. The southern dune slack wetland at Lawson's Landing in 1987 (looking south of east). Aerial photo (8715068) courtesy of the California Coastal Records Project.

Figure 22. The southern dune slack wetland at Lawson's Landing in 2005 (looking south of east). Aerial photo (200504912) courtesy of the California Coastal Records Project.

Figure 23. The southern dune slack wetland at Lawson's Landing in 1972 (looking north). Aerial photo (7212056) courtesy of the California Coastal Records Project.

Figure 24. The southern dune slack wetland at Lawson's Landing in 2002 (looking north). Aerial photo (12715) courtesy of the California Coastal Records Project.

Figure 25. Area 2 at Lawson's Landing (cf. Figure 4 & 24). The orange line indicates the approximate area where native riparian plantings could be installed to provide habitat that would be complementary to the wetlands and that would screen the wetlands from activities within the developed area. The blue painted road is an unpermitted road that must be removed and the habitat restored. The red painted road is the section of the Area 3 perimeter road that I recommend be removed and restored to habitat.

Exhibit No. 7
2-06-018 / A-2-MAR-08-028
Lawson's Landing
Camping photo (Labor Day Weekend '04)

Services

Camping
Activities
Boat Services

Camping

Camping is in meadows surrounded by sand dunes with the Pacific Ocean and Tomales Bay a short walking distance of only a couple hundred yards. See the information below for reservation information, rates, facilities, and rules. We hope you enjoy your stay with us!

Reservations

Lawson's Landing camping is **primarily first come, first served**, but reservations are recommended for summer weekends and holidays. It is not necessary to make reservations for the balance of the year.

Reservations are made online only and must be made at least seven days prior to an arrival date. Please have your name, address, telephone number, and vehicle license numbers handy as well as your credit card.

RESERVE ONLINE

Rates

Day-use, per vehicle ..... $8.00 Tent/car (expires @ 8:00 PM) .... $11.00 RV

Camping per vehicle per night .... $26.00 Tent/car (includes entrance) .... $31.00 RV

Camping per week ..... $157.00 Tent/car camping ..... $187.00 RV

Camping per month ..... $480.00 Tent/car (April 1-October 31 only) ..... $570.00 RV

**A $1.00/day Adaptive Management fee has been added to the entry prices. This fee will help pay for enhancing the wetlands and dunes we all appreciate.*

Facilities

- Water is located along the roads throughout most of the campground area.
- Picnic tables and fire rings are scattered throughout the area.
- No designated, individual sites at this campground, rather open grassy meadows for tents and RV's make it a perfect rendezvous for group camping.
- Dogs on leash are allowed and there is no additional charge to bring the family pet to the beach with you. Dog owners must pick up after their dogs; waste bags are located at the front entrance and near the boathouse. Aggressive dogs and their owners will be asked to leave.
- There are permanent rest rooms in some locations and portable toilets available in others.
- Please note that there are no shower facilities or laundry.
- Trash/recycling stations are located throughout the campground; two RV waste stations are available along the main campground road, one on each side, about halfway between the gate and the wharf.
- Groceries can be purchased at the Dillon Beach Resort store, one mile north of the Landing. The Patio Cafe is open for dining on Friday, Saturday and Sundays.

Rules

- Tread lightly: Please avoid vegetated areas and be mindful of the dunes.
- Be respectful of wildlife. The fence along the west side of the camp area is designed to protect the endangered Snowy Plover. If a seal is encountered always stay at least 200 feet away.
- Please camp along the protective sand dunes and grassy meadows in popular group settings. Note that the grassy meadow area that had been used for camping was identified as coastal wetlands and has been fenced off and closed to camping.
- At this time, no individual sites are available.
- The campground will temporarily close during exceedingly wet periods, so please call (707) 878-2443 for current conditions.
- Digging in the sand dunes is forbidden.
- It is illegal to dump grey water and sewage anywhere except in the RV dump stations.
- Vehicles usage: Vehicles are not allowed on sand dunes; motorcycles, ATVs and OHVs (such as Gators or Rhinos) are not allowed; electric scooters and golf carts may be used during daylight hours.
- Possession of fireworks is against the law.

- Thefts can occur. Please safeguard valuables, ice chests, generators etc.
- BE ADVISED: Possession of alcohol by minors is forbidden by management. Those under 21 years of age are subject to vehicle inspection for alcohol prior to entry.
- BE ADVISED: Any person under the age of 21 years must be accompanied by an adult 25 years or older for camping or day use.

Exhibit 10 – Demographic Map Lawson's Landing

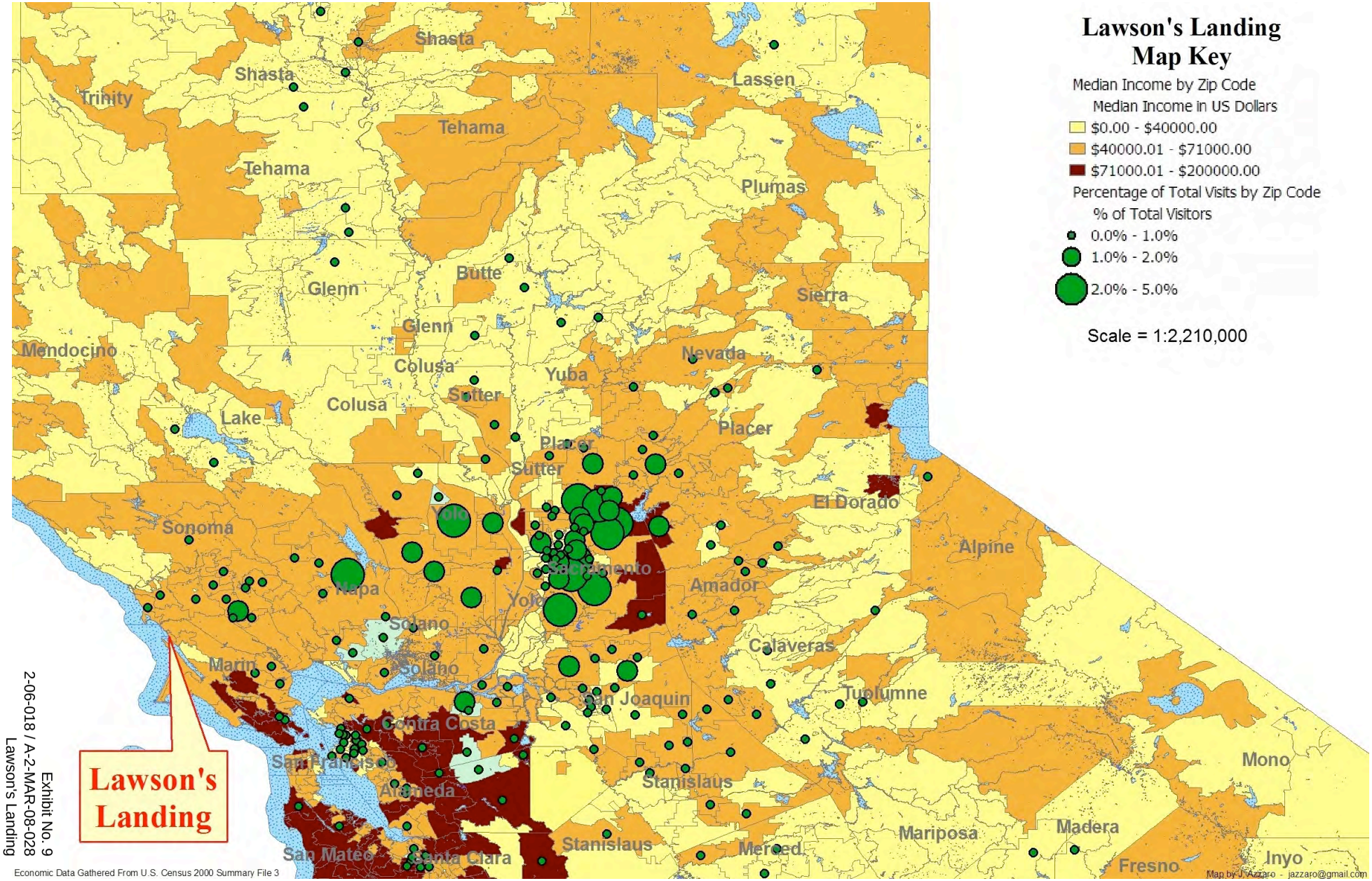


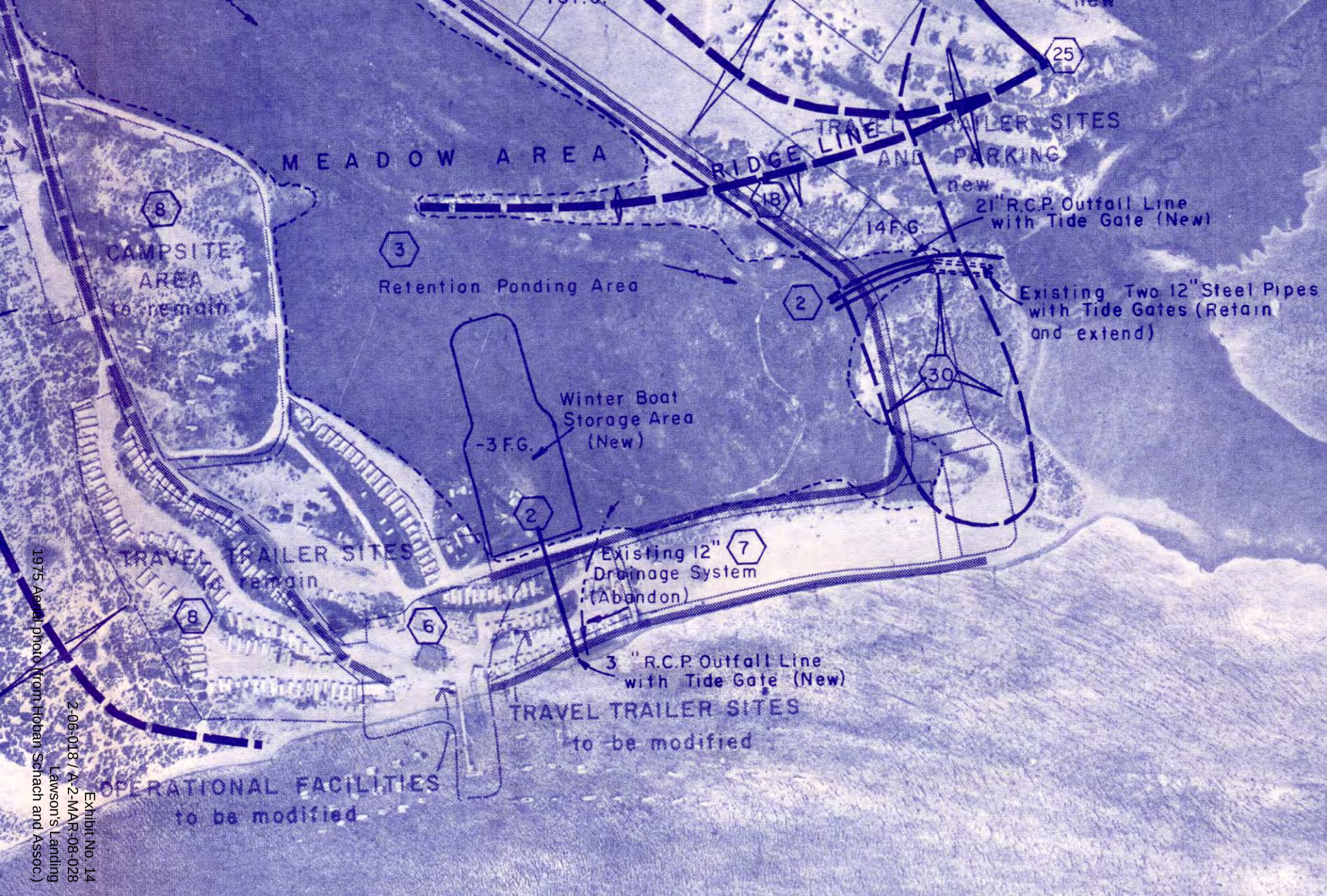
Exhibit No. 9
2-06-018 / A-2-MAR-08-028
Lawson's Landing
Demographics
Page 1 of 1

Exhibit No. 10
2-06-018 / A-2-MAR-08-028 Lawson's Landing
1952 aerial photo (from USGS)

Exhibit No. 11
2-06-018 / A-2-MAR-08-028 Lawson's Landing
1965 Aerial photo (from USGS)

Exhibit No. 12
2-06-018 / A-2-MAR-08-028 Lawson's Landing
1970 Aerial photo (from USGS)

Exhibit No. 13
2-06-018/A-2-MAR-08-028
Lawson's Landing
1972 Oblique (CA Records #7212057)



1975 Aerial photo (from Hoban Schach and Assoc.)

Exhibit No. 14
2-06-018/A-2-MAR-08-028
Lawson's Landing

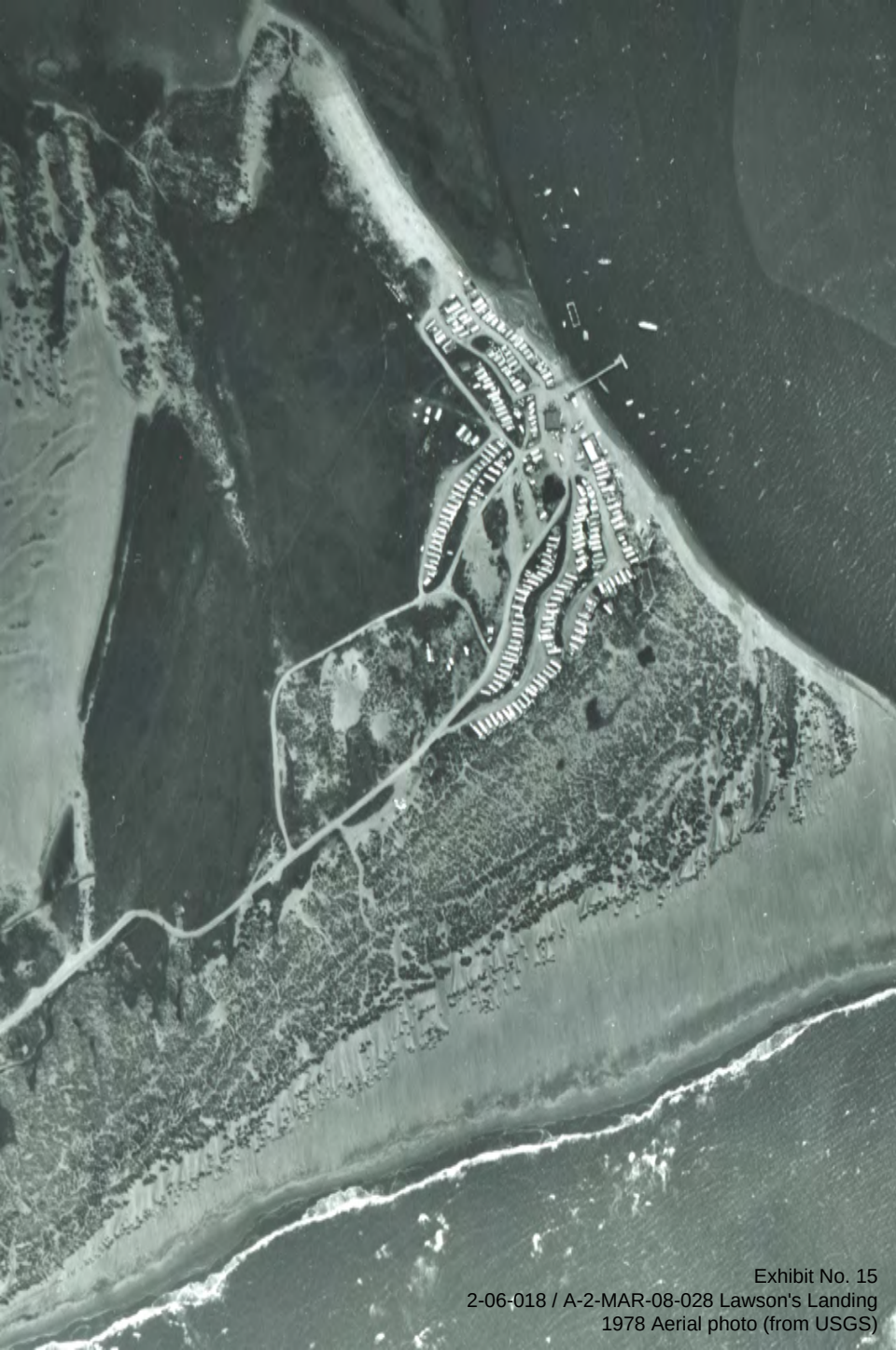


Exhibit No. 15
2-06-018 / A-2-MAR-08-028 Lawson's Landing
1978 Aerial photo (from USGS)

Exhibit No. 16
2-06-018 / A-2-MAR-08-028 Lawson's Landing
1979 Oblique (CA Coastal Records #7920102)

Exhibit No. 17
2-06-018 / 1-MAR-08-028 Lawson's Landing
1986 Aerial photo (from USGS)

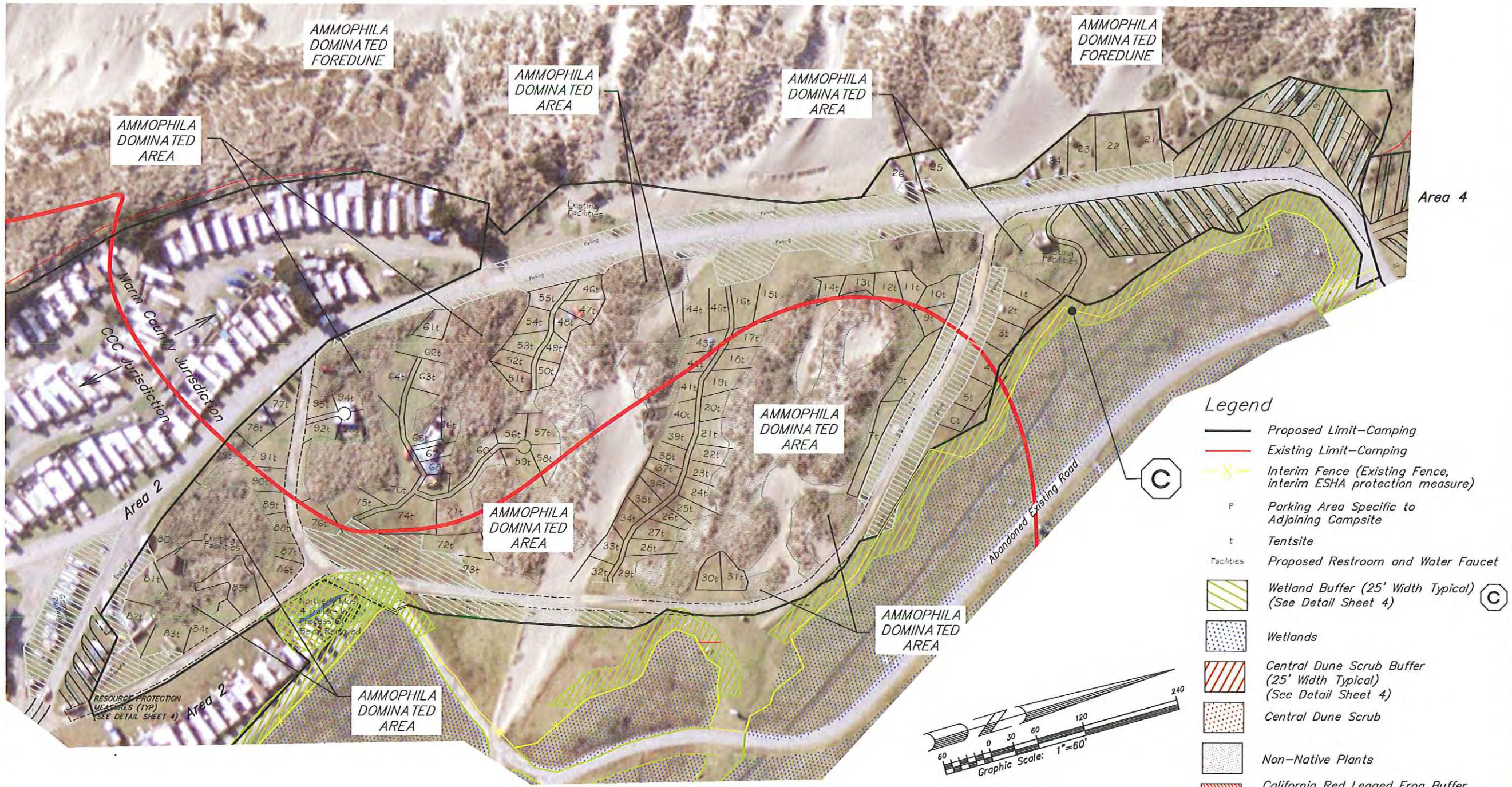
Lawson's Landing
Campsite Area 3

Area 3:		
January 2010 Layout	October 2010 Layout	Change In Layout
Area 9.6± Acres 2 Facilities Areas 20 RV Campsites 120 Walk–In Tent Campsites	8.9± Acres 3 Facilities Areas (Existing) 26 RV Campsites 95 Walk–In Tent Campsites	–0.7± Acres Existing Facility Included +6 RV Campsites –25 Walk–In Tent Campsites
Total 140 Campsites	Total 121 Campsites	–19 Campsites

Note: This exhibit is a tentative layout and is intended to show the viability of the number and type of campsites within the limits of the proposed camping areas. Overall layout of campsites and ratio of RV sites to Tent sites may vary from that shown.

25 foot buffers from wetland and central dune scrub areas to be implemented with exceptions as noted based on site–specific conditions.

Approximately 25 Tentsites were lost from previously proposed upland camping locations near wetland areas at eastern and northern edges of Area 3.



Adobe Associates, Inc.
Civil Engineering, Land Surveying & Land Development Services
1220 N. Dutton Ave
Santa Rosa, CA 95401
707 541 2300
Fax: 707 541 2301

Lawson's Landing Property – Campsite Layout – Area 3

Lawson's Landing
Dillon Beach, CA 94929.
Assessor's Parcel Number 100–100–12 & 48

Scale: 1" = 60'
Date: January 2010
Revised: June 2010
Revised: Oct. 2010
Drawn by: PCAJ
Checked by: lhg/ars

Sheet 19 of 33 sheets
Job No. 05019

Exhibit No. 18
2-06-018 / A-2-MAR-08-028 Lawson's Landing
Area 3 proposed Oct. '10

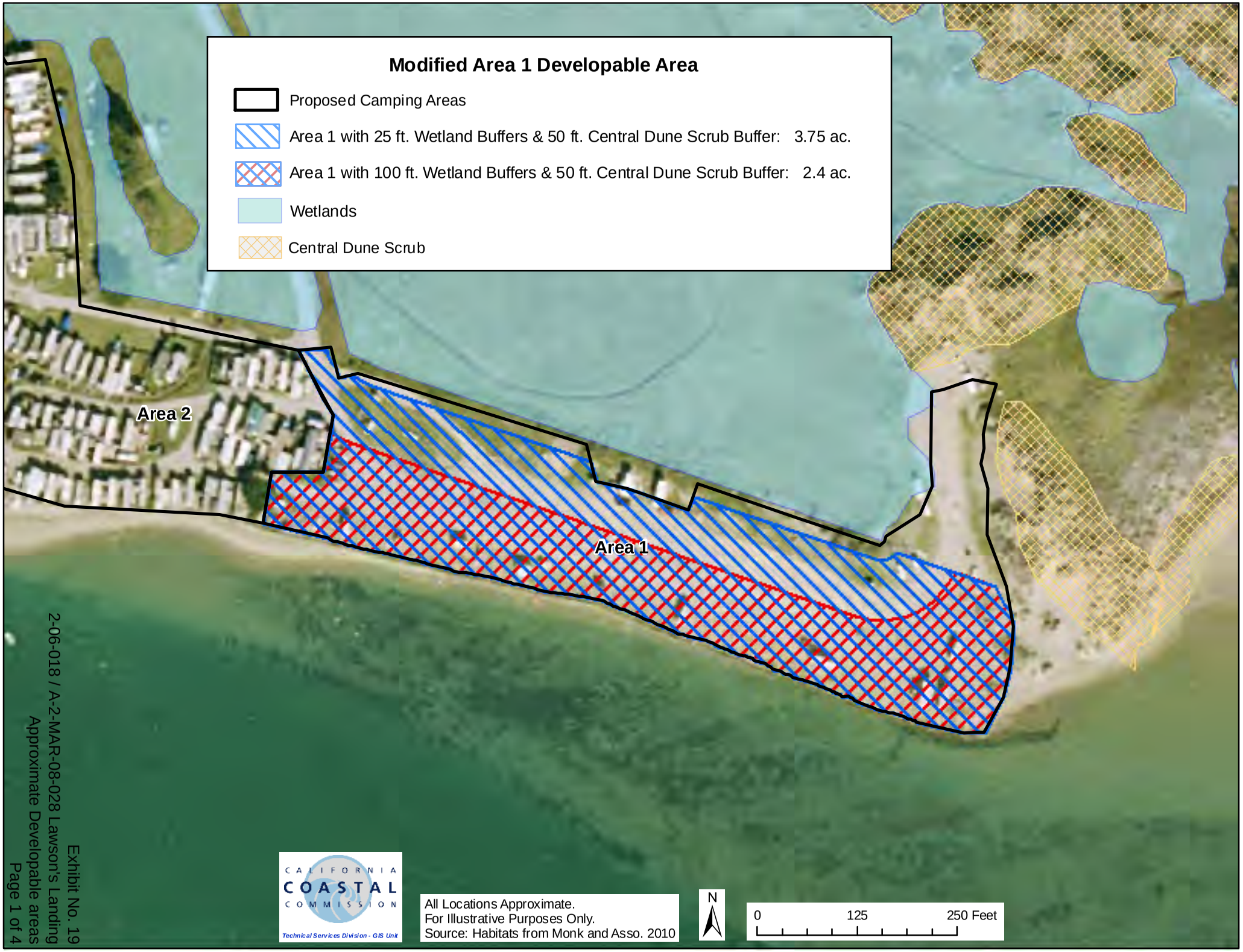


Exhibit No. 19
2-06-018 / A-2-MAR-08-028 Lawson's Landing
Approximate Developable areas
Page 1 of 4

Exhibit No. 19
2-06-018
A-2-MAR-08-028 Lawson's Landing
Approximate Developable areas
Page 2 of 4

Exhibit No. 19
2-06-018
/ A-2-MAR-08-028 Lawson's Landing
Approximate Developable areas
Page 3 of 4

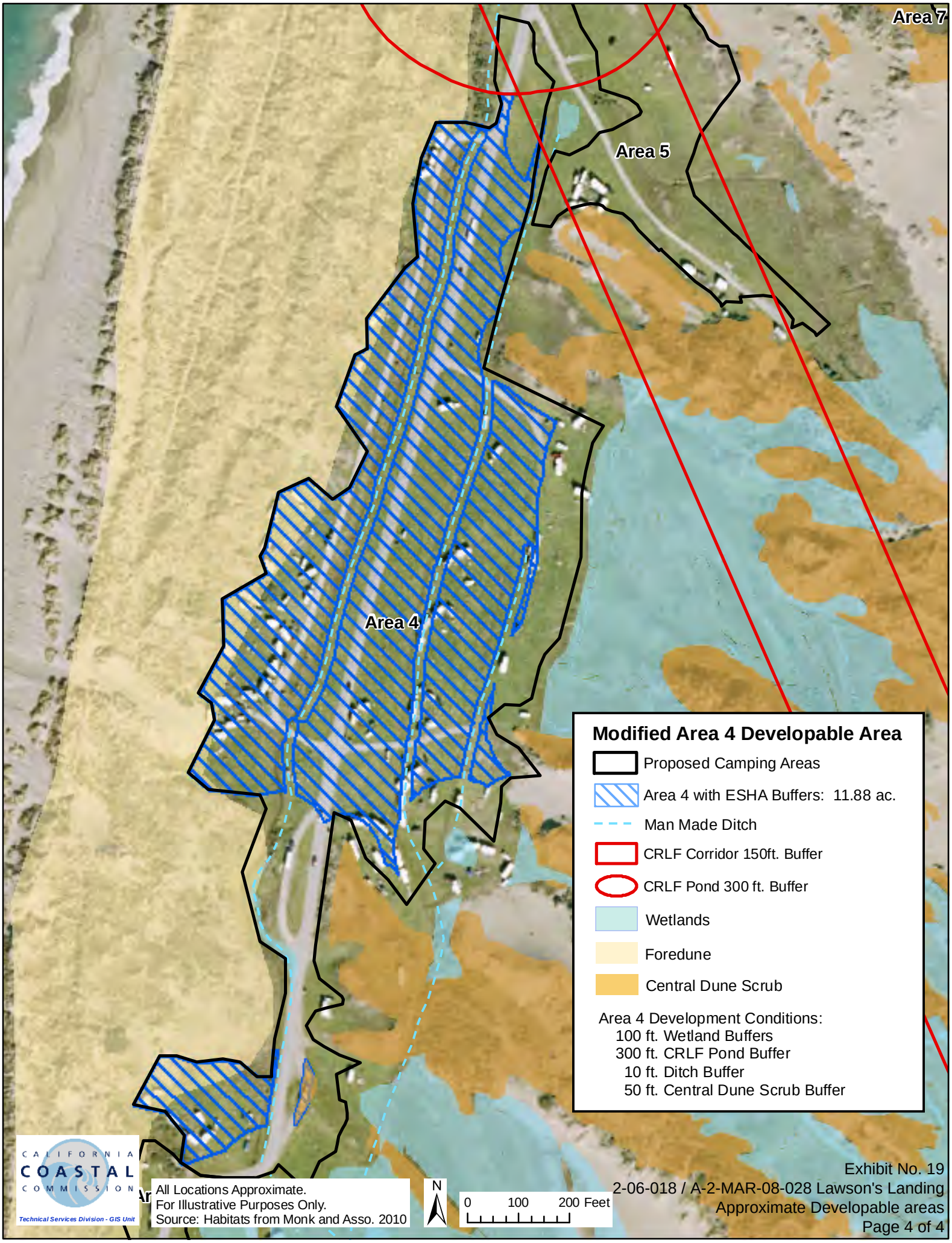


Exhibit No. 19
2-06-018 / A-2-MAR-08-028 Lawson's Landing
Approximate Developable areas
Page 4 of 4

RECEIVED
JAN 0 5 2010
SACRAMENTO FISH & WILDLIFE OFFICE

PARTNERS FOR FISH AND WILDLIFE COOPERATIVE AGREEMENT between the U.S. FISH AND WILDLIFE SERVICE and LAWSON'S LANDING, INC.

FWS Agreement No.: 81420-A-J503
Charge Code: 81420-1121-8DSP
Amount Obligated: $25,000 FY 2009
Cooperator Tax Identification No.: 68-0369462
CFDA No. 15.631
Expiration Date: December 31, 2019

I. TYPE OF AGREEMENT

___ Grant
X Cooperative Agreement

II. TYPE OF ORGANIZATION

___ State, Local or Indian Gov.
___ Non-Profit Organization
___ Higher Education Inst.
___ Private Individual
X Business Organization

III. PARTICIPANTS

Funding Organization:

U.S. Fish and Wildlife Service
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-6205
Sacramento, CA 95825-1888

Cooperator Organization:

Lawson's Landing, Inc.
P.O. Box 67
Dillon Beach, CA 94929-0067

IV. PROJECT OFFICERS

FWS Project Biologist:
Name: Kate Symonds
Title: Fish & Wildlife Biologist
Phone: (707) 578-8515
FAX: (707) 578-3435
kate_symonds@fws.gov

Alt: Kathy Brown, Coordinator
Sacramento Fish & Wildlife Office: (916) 414-6600

Cooperator:
Name: Mike Lawson & Carl W. (Willy) Vogler
Title: Owners
Phone: (707) 878-2443 (Main)
FAX: (707) 878-2942
jlawson799@earthlink.net
wvogler@gmail.com

V. PURPOSE

This agreement will support the implementation of a western snowy plover (*Charadrius alexandrinus nivosus*) protection program at Lawson's Landing, Marin County, California. The program is a habitat protection and species recovery project accomplished primarily through education and management of beach visitors to reduce human-related disturbances to western snowy plovers on Dillon Beach. Specific work to be implemented is described in the proposal entitled "Snowy Plover Program at Lawson's Landing" in "Related Attachments." The overall project will support recovery actions for the federally threatened western snowy plover through educational programs to beachgoers to reduce disturbance to plovers and implementing beach habitat enhancement activities at Lawson's Landing.

VI. AUTHORITY

This Cooperative Agreement (Agreement) between the U.S. Fish and Wildlife Service (Service) and Lawson's Landing, Inc. (Cooperator) is entered into under the authority of Section 1 of the Fish and Wildlife Coordination Act (48 State/401 as amended; 16 U.S.C. 661 et seq.) and 31 U.S.C. 6301-6308, and the Partners for Fish and Wildlife Act (Public Law: 109-294). Habitat enhancement and education activities conducted through this Agreement will benefit the people of the United States by restoring and protecting public trust resources, including the federally threatened bird species and other migratory shorebirds. The Cooperator is chosen because their land supports the western snowy plover and they are willing to work with the Service to support and conduct actions on their land which will contribute toward the recovery of the western snowy plover.

VII. FUNDING INFORMATION

The Service will cost-share up to $25,000 to be reimbursed to the Cooperator for the work described in the proposal included in "Related Attachments." The Cooperator shall provide its cost-share contribution as described in the proposal in "Related Attachments." Funding from the Service will be provided on a reimbursable basis as the work progresses and upon presentation to the Service of itemized bills, receipts, and/or documentation of other expenses, and paid as a direct deposit via electronic funds transfer into the Cooperator's designated bank account.

Nothing herein shall be considered as obligating the Service to expend funds or otherwise obligate the Service for the future payment of money in excess of appropriations authorized by law and administratively allocated for the activities associated with this agreement.

VIII. TERM OF AGREEMENT

This agreement will become effective upon the date of the last signature and will expire December 31, 2019. All monies must be spent by July 1, 2014.

IX. SPECIFIC OBLIGATIONS OF EACH PARTY

A. The Service shall:

1. Work cooperatively with the Cooperator to carry out this agreement to participate in wildlife habitat improvement activities to be conducted on private land that are mutually beneficial to the Service and the Cooperator;

2. Provide $25,000 of Partners for Fish and Wildlife Program funds in the manner put forth in the section above titled "Funding Information;"

3. Provide technical assistance as needed to the Cooperator regarding project design, wildlife biological needs, and establishment and management of snowy plover habitat and other native habitats. Assist in achieving compliance with the Federal Endangered Species Act, Clean Water Act, National Historic Preservation Act, and other Federal regulations as they pertain to the project activities, pursuant to this agreement. The Service will also provide technical assistance to coordinate proposed project activities with state and local permitting agencies to facilitate such approvals;

4. Provide Cooperator with copies of monitoring reports and other information regarding fish and wildlife habitat restoration activities on participating lands during the course of fulfilling this and other related agreements;

5. Receive requests for reimbursement from the Cooperator and process the paperwork for payment. Determination of acceptability will be made by the FWS Project Biologist;

6. Assume no liability for damage or injury other than that caused by its own negligence, on the above project site. The Service does not assume jurisdiction over the premises by this Agreement. Lawson's Landing, as landowner, retains all rights to control trespass and retains all responsibility for taxes, assessments, and damage claims; and

7. Conduct periodic site visits with the Cooperator to determine how the project activities are functioning over time.

B. The Cooperator shall:

1. Use funding with this agreement to implement the work plan detailed in the project proposal and budget included under "Related Attachments." Any deviations from the proposal and budget must be presented and approved by the Service before implementation (See Section XV, Modification Procedures);

2. Obtain all applicable federal, state, and local environmental regulatory permits in support of activities conducted under this Agreement;

3. Work with the Service to support snowy plover protection and educational efforts as described in "Related Attachments" on the site and ensure that any plover habitat

enhancements remain intact for a period of at least 10 years. The Service will not hold the Cooperator responsible for failure of project improvements caused by an act of nature outside the control of all parties. Acts of nature include, but are not limited to: floods, earthquakes, wildfires, and wind storms. However, because the beach environment is subject to extreme tides, wave surges, and winds, all reasonable efforts should be made to anticipate adverse weather conditions and adapt activities as necessary to ensure project elements (e.g., movable symbolic fencing) are not compromised;

4. Identify verbally or in writing the contribution of funds made by the Service to the Cooperator during public presentations, public forums, reports or other information published about the program;

5. Provide the Service with electronic updates or reports related to this restoration project that are required to be prepared by any other funding or permitting entities.

6. Assure that no outstanding property rights, easements, liens, or similar restrictions will interfere with fulfillment of the project and this Agreement;

7. Ensure that the funds provided by and activities conducted pursuant to this Agreement are not to replace, supplement or otherwise contribute to any mitigation or compensation that may be required of Lawson's Landing or other parties as a result of development or other activities that impact habitat on the project site; and

8. Agree to provide to the Service, its agents, or assignees the right to enter the project area at reasonable times to inspect completed work subject to notification of, and accompanied by, the Cooperator.

X. INVOICING/ACCEPTANCE PROCEDURES

All Cooperators not currently receiving funds electronically from the Department of the Interior or Fish and Wildlife Service are responsible for obtaining a DUNs number for free by either calling 1-800-333-0505 or at http://www.dnb.com/eupdate/dunsform and registering at www.ccr.gov.

The Cooperator will coordinate with the FWS Project Biologist (identified on the first page of this Cooperative Agreement), at least 10 days prior to submitting invoices to the Service Cooperative Agreements Assistant, to arrange site visits and clarify any necessary project documentation. The Service Contracting Officer will process invoices only after receiving verification from the FWS Project Biologist that the project documentation is acceptable.

Reimbursement requests must be accompanied by copies of receipts and documentation of actual expenses.
Upon acceptance of the terms and conditions of this agreement, the Cooperator will submit requests for payment using Standard Form 270, Request for Advance or Reimbursement, or comparable invoicing form no more frequently than monthly. Standard Form 270 can be found at www.omb.gov. Payments will be made on the basis of acceptable documentation presented

for work accomplished. Ten percent of the total amount of the agreement may be withheld until all requirements of the agreement are accomplished. A Final Invoice may be submitted for the 10% withheld once all requirements are approved.

Requests for payment shall be submitted to:

Cooperative Agreements Assistant
U.S. Fish and Wildlife Service
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1888

and copies to:

Kate Symonds
Fish & Wildlife Biologist
U.S. Fish and Wildlife Service
777 Sonoma Avenue, Rm 325
Santa Rosa, CA 95404
kate_symonds@fws.gov

This Agreement is intended to support a particular project for a specified period of time. Any portion of funds not expended by the expiration date of this agreement shall be returned to the Service, including any interest earned on that amount (subject to provisions of applicable OMB Circular or 43 CFR Part 12 Subpart, as referenced in "Applicable Regulations" section of this agreement).

XI. APPLICABLE REGULATIONS

A. The Cooperator must submit with this agreement Standard Form 424B, Assurances Non-Construction Programs. In addition to the assurances listed on Standard Form 424B, the Cooperator certifies compliance with the following regulations, as applicable, incorporated by reference with the same force and effect as if they were provided in full text. Failure of a Cooperator to comply with any provision may be the basis for withholding payments for proper charges made by the Cooperator and for termination of support.

1. OMB Circular A-102, Grants and Cooperative Agreements with State and Local Governments as codified at 43 CFR Part 12, Subpart C

2. OMB Circular A-110, Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations as codified at 43 CFR Part 12, Subpart F

3. OMB Circular A-21, Cost Principles for Educational Institutions

4. OMB Circular A-87, Cost Principles for State, Local, and Indian Tribal Governments

5. OMB Circular A-122, Cost Principles for Non-Profit Organizations

6. OMB Circular A-133, Audits of States, Local Governments, and Non-Profit Organizations

7. 43 CFR Part 12, Subpart D B Governmentwide Debarment and Suspension (Nonprocurement) and Governmentwide Requirements for Drug Free Workplace

8. 43 CFR Part 12, Subpart E B Buy American Requirements for Assistance Programs.

9. 43 CFR Part 18 B New Restrictions on Lobbying

10. 48 CFR Part 31.2 - Contracts with Commercial Organizations

11. 48 CFR Part 52.215.2 - Audit and Records - Negotiation

Copies of the above documents are available at the following websites:
http://www.whitehouse.gov/OMB/circulars/index.html or www.doi.gov/pam/pamfaeg.html

B. Small Business Policy
Reference 505 DM 3.5 C(1)(a):

It is a National policy to award a fair share of contracts to small and minority business firms. The Department of the Interior is strongly committed to the objectives of this policy and encourages all Cooperators of its grants and cooperative agreements to take affirmative steps to ensure such fairness.

1. The grantee and sub-grantee shall take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.

2. Affirmative steps shall include:

(i) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(ii) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

(iii) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;

(iv) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;

(v) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce as appropriate, and

(vi) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in (2)(i) through (v) above.

XII. TERMINATION

This agreement may be terminated by either party upon 90 days advance written notice to the other party(ies). However, if the Cooperator(s) terminates the agreement before its expiration, or if the Cooperator should materially default on these commitments, then Cooperator agrees to reimburse the Service prior to final termination for the prorated costs of all project elements conducted on the land through this agreement. For these purposes, the total cost of the elements to the United States are agreed to be $25,000.

XIII. MODIFICATION PROCEDURES

Modifications to this agreement may be proposed by either party and shall become effective upon written concurrence of all parties. Work completed prior to approval of a modification is done at the Cooperator's risk, without expectation of reimbursement.

Should the Cooperator be unable to complete the provisions of this agreement, all monies provided by the Service which prove to be cancelable obligations or unallowable in accordance with applicable administrative and cost principle regulations (as referenced in the "Applicable Regulations" section of this agreement) or the approved budget, shall be refunded to the Service.

XIV. SPECIAL PROVISIONS

Seat Belt Policies and Programs: Cooperators of grants/cooperative agreements and/or sub-awards are encouraged to adopt and enforce on-the-job seat belt use policies and programs for their employees when operating company-owned, rented, or personally-owned vehicles. These measures include, but are not limited to, conducting education, awareness, and other appropriate programs for their employees about the importance of wearing seat belts and the consequences of not wearing them.

Greening Policies and Programs: In accordance with Executive Order 13101 "Greening the Government Through Waste Prevention, Recycling and Federal Acquisition," Cooperators of grants/cooperative agreements and/or sub-awards are encouraged to actively and systematically protect the natural processes that sustain life by whenever possible, incorporating environmentally preferable products in their activities. These measures include, but are not limited to, re-refined oil for all vehicles and heavy equipment, diverting solid waste from disposal in landfills through recycling and use of materials that reduce greenhouse gas emissions.

XV. RELATED ATTACHMENTS

Project description and preliminary budget.

XVI. SIGNATURES

FOR THE U.S. FISH AND WILDLIFE SERVICE:

By: Signature: _____ Date: 12/21/2009
Susan K. Moore
ACTING
Title: Field Supervisor, Sacramento Fish and Wildlife Office

FOR LAWSON'S LANDING:

By: Signature: _____ Date: 1/04/10
Mike Lawson

Title: Owner, Lawson's Landing

By: Signature: _____ Date: 12-31-09
Carl W. Vogler, Jr.

Title: Owner, Lawson's Landing

FWS CONTRACT SUFFICIENCY REVIEW:

By: Signature: _____ Date: 12/14/2009
Jody Auerbach FWS: P-572

Title: Contracting Officer

RELATED ATTACHMENTS
Project Description
Fiscal Year 2009 Partners for Fish & Wildlife Program - Director's Deferred Funding
Project Title: Snowy Plover Program at Lawson's Landing

Project Background

Once numerous on sandy beaches throughout California, only a few thousand federally threatened western snowy plovers of the Pacific Coast population (*Charadrius alexandrinus nivosus*) survive on California's coastline. Habitat degradation and destruction, human disturbance, and predation comprise the primary threats that have sent the number of western snowy plovers plummeting throughout their ranges over the last several decades. One of the major causes of decline is the abandonment of nesting areas as a result of coastal development and prolonged human disturbance from recreational use of beaches. Fortunately, human disturbance to snowy plovers can be greatly reduced or eliminated through education and management of beach visitors.

Dillon Beach is a small oceanside enclave in rural West Marin County. The main economic activity is Lawsonôs Landing, a popular privately owned recreational campground and boat launch which can accommodate up to an estimated 5,000 visitors on busy summer and holiday weekends. Lawsonôs Landing also has one of the largest wintering populations of western snowy plovers between San Francisco and the northern end of its range in Washington State with upwards of 120 plovers between December and January. This beach has seasonally heavy recreation use, which coincides with the ploverôs breeding season. A few observations have been made in the past 14 years of breeding behavior and at least one nest scrape; however no plover nests have been documented. Snowy plover education programs similar to what we have proposed have been implemented successfully elsewhere in the range of the species to reduce disturbance and have resulted in increases in wintering populations and the reestablishment or expansion of plover breeding on beaches with high recreation uses. We believe implementation of a snowy plover program at Lawsonôs Landing would have the potential to at least improve physiological condition of wintering plovers to improve their breeding success elsewhere. The beachside education and protection measures are essential for this to occur and are a proven approach to enhance the survival and recovery of this species.

Project Goals

The Serviceôs Partners for Fish and Wildlife Program (Partners Program) is working with Lawsonôs Landing, a privately owned campground and livestock ranching operation located at the mouth of Tomales Bay in Marin County to develop and implement a Snowy Plover Program. The program would (1) foster voluntary actions of beachgoers to reduce disturbance to the federally threatened western snowy plover; (2) increase public awareness of this coastal resource; to (2) improve habitat conditions to attract more wintering plovers and improve physiological condition of wintering plovers to increase their breeding success at their breeding grounds elsewhere, while allowing for compatible shoreline recreation. The efforts to reduce disturbance to plovers through public education and promoting recovery actions will also benefit a host of other

shorebirds that share their habitat.

When disturbance to plovers is reduced, the potential exists for wintering plovers to remain to nest instead of leaving to nest at quieter beaches. While the establishment of a new breeding population might be desirable for species recovery, it is not specifically a goal of this project as it may not result in highly successful hatching and fledging rates given the limited resources anticipated for this project to counter plover egg and chick predators. The rationale is more fully described later in this document.

Proposed Approach

The proposed program for Lawsonôs Landing is based on snowy plover programs that have been developed and successfully implemented elsewhere in California. In some areas, education of beachgoers and the use of symbolic fencing around core habitat areas has led to a 90% drop in disturbance rates to the plovers while still allowing compatible beach recreation, such as at Coal Oil Point Reserve near U.C. Santa Barbara. Such programs have led to increases in wintering flock sizes and in some cases increases in numbers of nesting pairs and improved fledging rates.

We propose to build upon the experience at Coal Oil Point Reserve to tailor a program to best fit the local conditions and resources at Lawsonôs Landing in rural west Marin County. While the two sites are different, some similarities exist including having public access generally concentrated in two points, and plovers roosting in a relatively small area, which makes protecting a small area of habitat more feasible. However, one of the challenges at Dillon Beach compared to plover programs located in more urban areas is that there are far fewer residents from which to recruit volunteer plover docents in this rural part of Marin County. Therefore, our outreach and habitat protection efforts are envisioned to be implemented primarily by a part time Plover Coordinator who would be largely responsible for conducting the beachside outreach and protection efforts. This will be more cost efficient because of the tremendous amount of time needed to recruit, train, and retain volunteers from what appears to be a very small pool of local residents. That said, if the Plover Coordinator, with assistance from the Service staff and other project partners, is able to enlist volunteer plover docents for Lawsonôs Landing without exhaustive efforts, such an opportunity would be welcomed to help augment the beachside education efforts.

The Partners Program will work with Lawsonôs Landing to provide technical assistance and cost-share funding to develop and implement a snowy plover program at Lawsonôs Landing. The Plover Coordinator (as a working job title) will be hired or contracted by Lawsonôs Landing and be trained by the Service Partners biologist, and/or others with plover outreach experience (e.g., PRBO, Half Moon Bay State Parks) to implement the outreach and plover protective measures. The program proposes to achieve its goal using beachside outreach (approx. 90% of outreach) and outreach within surrounding communities to interested groups (10% of the outreach efforts); and implementing protective measures on the beach such as symbolic fencing around the main roost area, signage, and encouraging compliance from dog owners with the existing leash ordinance.

We will use current information on snowy plover and human use of the beach at Lawsonôs

Landing to design a plover program that best utilizes the funding resources. Efforts would be placed on identifying the perimeter of and installing symbolic fencing in the main wintering roosting area, redirecting beach access around the fenced (or otherwise designated) plover area (wetted beach always stays open), installing inexpensive signs (easy to replace if vandalized) at the main beach access points and by the plover area to inform visitors of the protections, and to concentrate the Coordinatorôs on-site time to coincide with the day and the time of day when visitor numbers are highest.

To introduce and gradually accustom beach visitors to the plover protection measures, these measures may be implemented in stages over several months with the order and methods determined in consultation with the Cooperator. The first stage, for example, may be having educational signs at the gate and store and the Plover Coordinator on the beach on key weekends as a naturalist with a spotting scope, informing beachgoers of the plight of the plover and offering the public opportunities to view plovers through the scope. Simple signs informing beachgoers of any detours around the roost area and closure of any egress trails would be installed before setting up symbolic fencing, for example.

Outreach efforts will generally occur year round with an emphasis during winter weekends and early and late summer weekends, particularly the months leading up to the beginning of the breeding season to monitor for any breeding attempts and to continue the outreach and protective measures should a nest appear. The Plover Coordinator will develop outreach materials and signage, although there are a lot of examples from State Parks and at westernsnowyplover.org, including downloadable docent manuals, signs, and more. The Plover Coordinator will be provided a spotting scope and/or binoculars to help beachgoers identify the snowy plover and teach them about their biology and natural history. The Plover Coordinator will be trained to explain the dynamics of the beach habitats and explain the importance of the protective measures such as the plover fencing, signs, or complying with the existing leash ordinance. The Plover Coordinator with coordinate with the landowners and the Service on all aspects of the program. Outreach presentations will be given to at least 10 community/school groups during the course of the grant period and will also serve as a means for recruiting volunteer docents. The Service will provide technical assistance to Lawsonôs Landing on all aspects of this program.

Habitat management activities will include removing trash, leaving driftwood and wrack in place for sheltering plovers from the wind and foraging, respectively, dissembling driftwood structures to reduce predator perches, and selected removal of patches of nonnative European beachgrass (*Ammophila arenaria*) that is encroaching into plover roosting habitat. The latter is intended to address not the tall foredunes, but the patches of beachgrass that are invading seaward of the foredunes in the vicinity of the roost area.

People served by this program are those who vacation at Dillon Beach and Lawsonôs Landing and primarily include families, including lower income families and others, from all age groups who enjoy outdoor vacations. Many campers are from the Central Valley, while the day visitors are most likely from Sonoma and other North Bay Area counties. The potential exists to reach up to 20,000 people in a two year period.

We will investigate whether permits are need from the County of Marin or the Coastal

Commission to seasonally erect plover fencing on the beach. However, it is our understanding that seasonal fencing does not require a permit, but this will be verified. No other permits are anticipated to be needed for this program. The Service will ensure its actions are in compliance with the Federal Endangered Species Act of 1973, as amended, and the Migratory Bird Treaty Act, but we do not anticipate internal formal consultation for the outreach and protection program at this time.

The Service and Lawsonôs Landing are working on developing a program entitled ñConservation Strategy for the Pacific Coast population of the western snowy plover at Dillon Beach, California (ñConservation Strategyò).ò The Partners Program project, which is the subject of this Cooperative Agreement is intended to work in parallel with the Conservation Strategy but is not a requirement of the Conservation Strategy, which is still under development.

We will also continue to investigate and seek additional funding to help sustain outreach and protection efforts begun during this project. We would anticipate that Lawsonôs Landing and the Plover Coordinator would also seek additional funding and cost-share opportunities from other potential project partners to further the program. Fundraising would ideally comprise a minor component of the Project Coordinatorós time (<5%).

When Service or other outside funding is no longer available, we anticipate continuing to work with Lawsonôs Landing to ensure continuation of their own efforts from this program to reduce impacts to plovers from their ongoing camping operations. Examples include reducing trash on the beach, discouraging the removal of driftwood and wrack, discouraging use of trails from the campground to the roost area, etc.

As discussed earlier in this document, the program carries the possibility that plovers may nest at Lawsonôs Landing, but that this is not a specific goal of this program. As seen repeatedly throughout the range of the snowy plover, the presence of plover eggs and chicks attracts a wide range of avian and mammal predators (e.g., ravens, crows, gulls, raccoons, skunks) that forage day and/or night. Once a plover can fly off on its own (after a few months) it is rarely vulnerable to predation. However, it has been absolutely critical during the breeding season with eggs and chicks present to implement timely predator control. Usually this involves removing the offending animal(s) early in the breeding season and to remove trash and anything predators can hide behind or perch upon. PRBO plover biologists Gary Page and Lynne Stenzel believe that plovers that winter at Lawsonôs are more likely to breed successfully at other beaches where there is already a predator control program in place, such as the State Park beaches in Monterey County, where many of Lawsonôs plovers are known to breed, as indicated by banded birds. Already there is a presence of crows and ravens at Lawsonôs Landing and nesting by plovers is unlikely to be successful unless predator control can be implemented. The need for predator control will be evaluated during the course of the project and may be implemented on a case-by-case basis. For the purposes of this project the emphasis will be on outreach to beach visitors and reducing disturbance to wintering plovers.

Proposed Two-Year Project Timeline

January 2010 ï June 2010:

- The Partners Program biologist and Lawsonôs Landing will work together to refine the work plan. The Plover Coordinator will be hired and trained and will begin collecting and developing outreach materials, procuring outreach equipment, and identifying the area to be fenced and signed. The Coordinator will begin weekly data collection on human use of the beach, document instances of disturbance to plovers, and conduct voluntary surveys of beachgoers for their knowledge of the snowy plover. Begin providing signs and outreach presence on the beach.

July 2010 ï Jan. 2012:

- Resume/continue beachside outreach program to coincide with plovers returning from outside breeding locations. Deliver up to four presentations to interested community groups. Train any volunteers to be docents.

Activities beyond the two-year time are expected to be similar each year until the Agreement expires. However, the Cooperator is encouraged to incorporate as much of the plover protection measures into their ongoing operations after the term of this Agreement.

Evaluation of Project Success

We will evaluate project success through the number of beachgoers contacted through the program, the increase in awareness by Dillon Beach visitors of the plight of the snowy plover, and in the actual reduction in disturbance events to plovers. A desirable goal would be the increase in the number of plovers that roost or winter at Lawsonôs Landing, but this can be affected by regional events (weather/climate) beyond our influence. We will develop a survey for beachgoers at the start of the program and at the end of the grant period to evaluate any change in public awareness and support for the program. The Plover Coordinator will also document numbers of plovers and incidences of disturbance during the two years each day the Plover Coordinator or docents are present to evaluate the effectiveness of the protection measures through time.

Proposed Two Year Budget for Snowy Plover Program at Lawson's Landing

Total Project Budget						
Snowy Plover Program at Lawson's Landing (2 Year Budget)						
				USFWS	**Amount of Cost Share**	**Total Project Cost**
PERSONAL SERVICES (estimated)						
Level of Staff	**Number of Hours**	**Hourly Rate**				
Plover Coordinator activities[1]	1565	$20		$18,000	$13,300	$31,300
Outreach Docents/Volunteers	Approx. 136	$15 in-kind		-	$2,000 est.	$2,000
TOTAL PERSONAL SERVICES				**$18,000**	**$15,300**	**$33,300**
OPERATING EXPENSES (estimated)						
Description	**Number of Units**	**Units**	**Unit Price**			
Materials and Supplies						
Docent/Coordinator Equipment [2]	See below	See below	$1,970	$1,970	-	$1,970
Educational/Outreach Supplies [3]	See below	See below	$1,620	$1,620	-	$1,620
Fencing materials [4]	See below	See below	$2,860	$2,860	-	$2,860
Mileage - current rate [5]	TBD	TBD	55 cents/mi.	$550	$500	$1,050
Landowner Operational In-kind Assistance 7	TBD	TBD	$6,700	-	$6,700	$6,700
TOTAL OPERATING EXPENSES				**$7,000**	**$7,200**	**$14,200**
ADMINISTRATIVE OVERHEAD for FWS funds			10%	-	$2,500 in-kind	$2,500
GRAND TOTAL				**$25,000**	**$25,000**	**$50,000**
SOURCE AND AMOUNT OF COST SHARE :		USFWS Partners for Fish and Wildlife Program			$25,000	
		Landowners (suggested cash minimum) 8				$13,800
		Landowner assistance - in-kind match 7 (See next page.)				$6,700
		Admin overhead as part of landowner cost-share				$2,500
		Other volunteers (docents)				$2,000
		Sum total of all sources of non-FWS cost share				**$25,000**

1 Plover Coordinator Wage: (estimated 75 hrs a month average X 24 months x $20/hour) = $ (two years). (Alternatively, 50 hours a month for 30 months) = Position w/o benefits.

2 Coordinator/Docent Equipment = 1 spotting scope ($400), 1 tripod for scope ($100), 2 pair binoculars (2 x $200 = $400), t-shirt ñuniformsò/nametags ($240), field knapsack ($60), rope for dog leashes ($50), pens, clipboards, etc. ($50), backpack sprayer and herbicide for small patches of European beachgrass ($670) = $1,970

3 Educational/Outreach Supplies = digital projector ($700), brochures/flyers ($400), simple signs for beach entrances ($300), copying/printer expenses for a docent training manual ($220) = $1,620

4 Fencing Materials: Approx. $1040 (4,000 feet cable rope $0.26/ft) + $1750 (350 metal rods @ approx. $5 ea.) + $70 (350 bolts @ $0.20 ea) = $2,860. This includes extra materials to account for some loss or damage.

5 Mileage: Over the 24 month grant period. Any mileage volunteers donate would serve as another potential source of cost-share.

6 Administrative Overhead = 10% to administer USFWS grant as part of Cooperatorôs cost-share.

7 Pending Cost Share by Landowner: Landowner may (1) waive the entrance fee for plover staff into Lawsonôs Landing ($7/day x 100 days)=$700; (2) Help install, maintain, and take down fencing 2 x/year with vehicle assistance (in-kind est. 80 hrs X $25/hr) = $2,000; (3) Collect trash on the beach and in campground to not attract plover predators (in-kind ext. 160 hrs x $25/hr) = $4,000; and (4) provide $10,000 toward the plover program. This totals $6,700 in-kind and (pending) $10,000 cash.

8 Suggested minimum landownerôs match to USFWS Partners for Fish and Wildlife Program Cost Share

Note: Although this project is intended to be a multi-year effort, current funding is spread over initial two years of operation; funding for additional years will be sought (from agencies, granting organizations, interested community groups, Lawsonôs Landing, etc.) with staff support from FWS as a component of the first two years of program coordination.

APPENDIX A
PLANTING AREAS (Referenced in Exhibit C)

1. VEGETATION ENHANCEMENT AREAS

1.1 Plant Palette B (Upland Community In Area 4)

Coyote Brush
(*Baccharis pilularis*)
Blue Blossom (also known as wild lilac)
(*Ceanothus thyrsiflorus*)
Hollyleaved Barberry
(*Berberis pinnata* ssp. *pinnata*)
Wax myrtle (also known as Pacific Bayberry)
(*Morella californica*; formerly known as *Myrica californica*)

1.2 Plant Palette C (Wetland Community In Area 4)

Mule fat
(*Baccharis salicifolia*)
Arroyo willow
(*Salix lasiolepis*)
Red alder
(*Alnus rubra*)
California wildrose
(*Rosa californica*)

1.3 Plant Palette D (Constructed Earthen Berm Along Area 2; Upland)

Coyote Brush
(*Baccharis pilularis*)
Blue Blossom (also known as wild lilac)
(*Ceanothus thyrsiflorus*)
Hollyleaved Barberry
(*Berberis pinnata* ssp. *pinnata*)

1.4 Plant Palette F (Existing Upland Between Area 1 And Non-Degraded Dune Slack)

Coyote Brush
(*Baccharis pilularis*)
Blue Blossom (also known as wild lilac)
(*Ceanothus thyrsiflorus*)
Hollyleaved Barberry
(*Berberis pinnata* ssp. *pinnata*)
Wax myrtle (also known as Pacific Bayberry)
(*Morella californica*; formerly known as *Myrica californica*)

2. RESTORATION AREAS

2.1 Restoration Area "A"

2.1.1 PLANT PALETTE G (ROAD RESTORATION AREA EAST OF AREA 1;DUNE SCRUB COMMUNITY)

Black Sage
(*Salvia mellifera*)
Blue Blossom (also known as wild lilac)
(*Ceanothus thyrsiflorus*)
Coyote Brush
(*Baccharis pilularis*)
Hollyleaved Barberry
(*Berberis pinnata* ssp. *pinnata*)
Reed grass
(*Calamagrostis nutkaensis*)
Western goldenrod
(*Euthamia occidentalis*)

2.2 RESTORATION AREA "B"

2.2.1 PLANT PALETTE E (CREATED CRLF CORRIDOR EAST OF AREA 2; WETLAND)

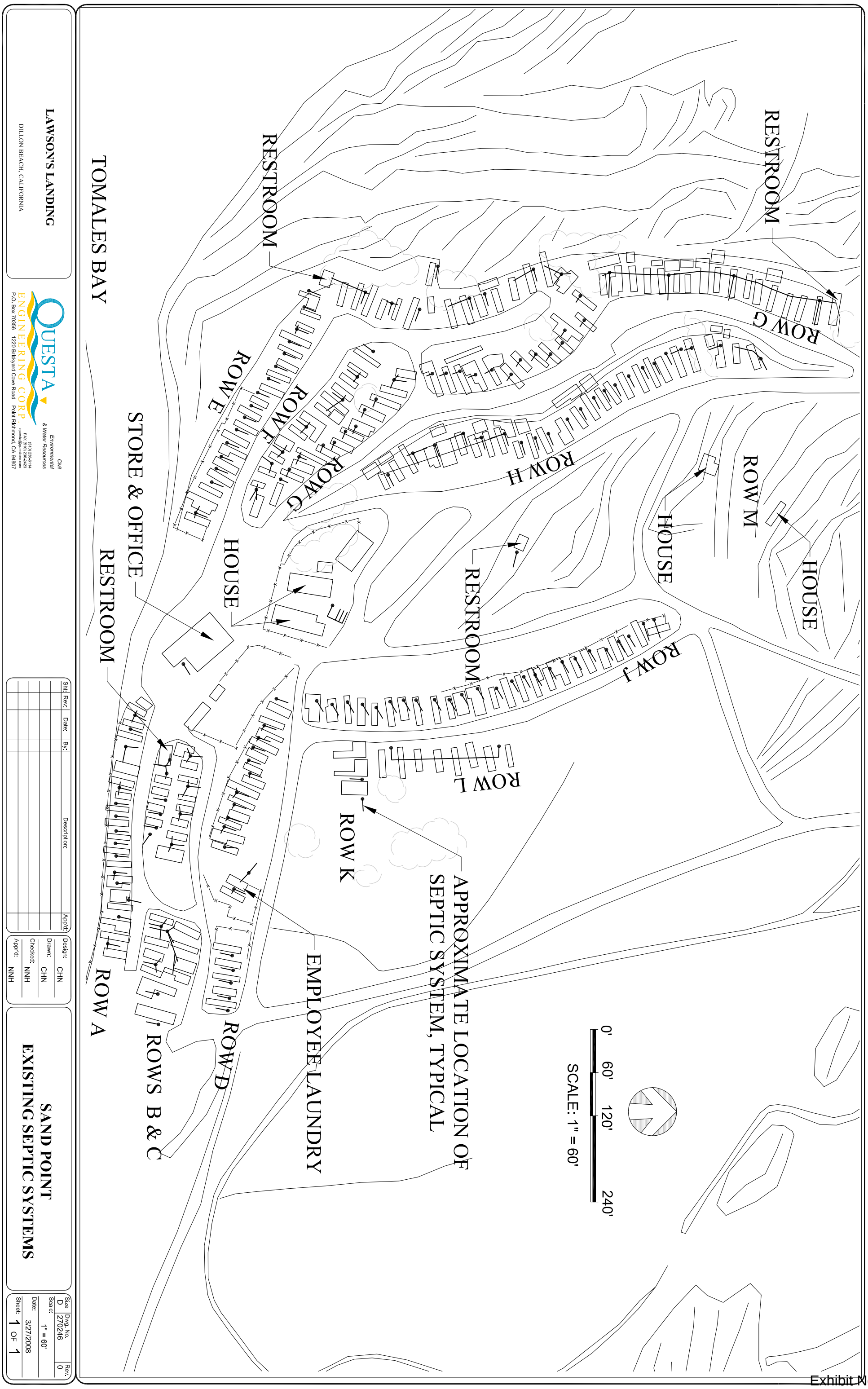
Mule fat
(*Baccharis salicifolia*)
Arroyo willow
(*Salix lasiolepis*)
Red alder
(*Alnus rubra*)
California wildrose
(*Rosa californica*)

2.3 Restoration Area "C"

2.3.1 PLANT PALETTE A (CRLF BUFFER; WETLAND COMMUNITY TRANSITIONING INTO UPLAND)

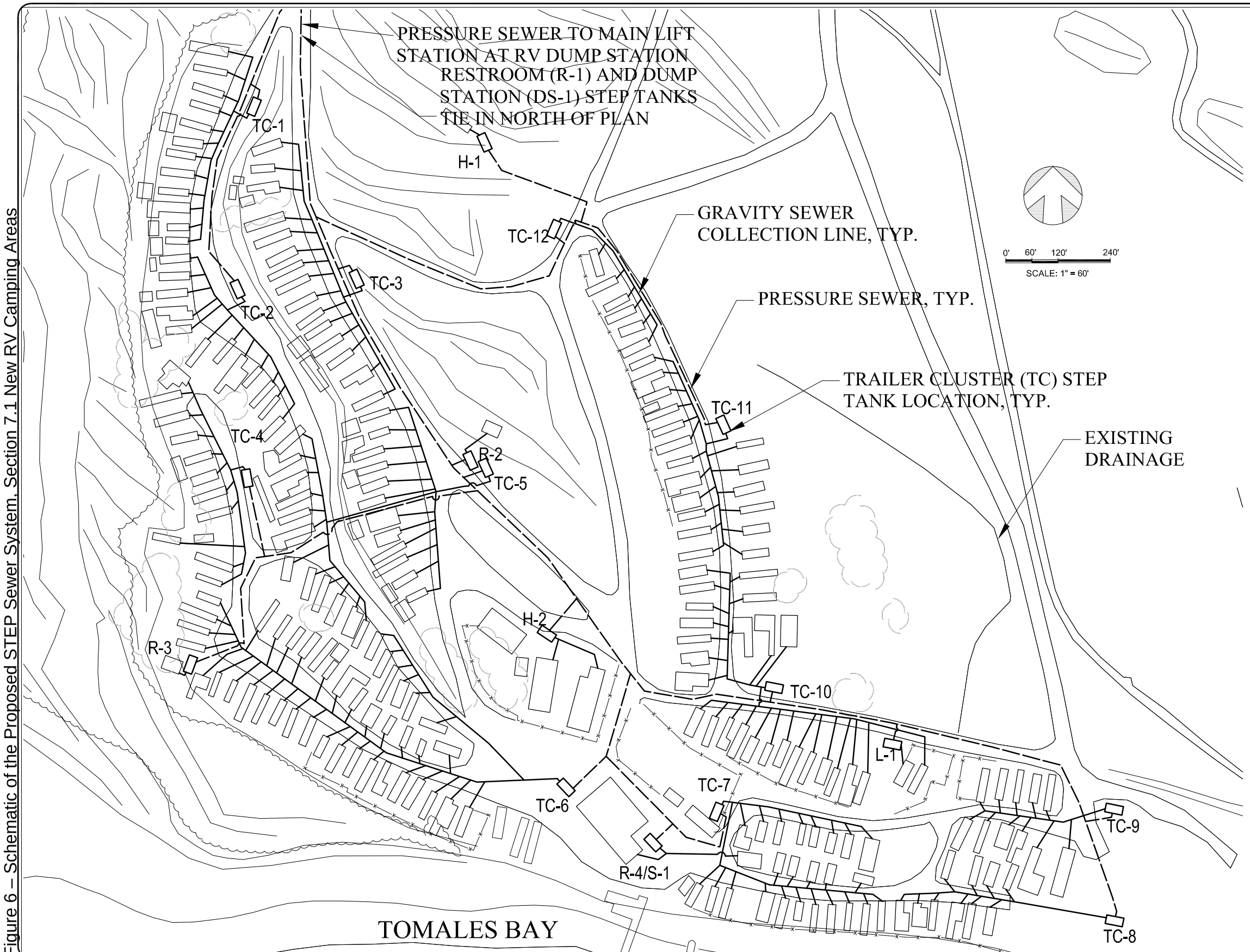
Wax myrtle (also known as Pacific Bayberry)
(*Morella californica*; formerly known as *Myrica californica*)
Coyote Brush
(*Baccharis pilularis*)
Blue Blossom (also known as wild lilac)
(*Ceanothus thyrsiflorus*)
Hollyleaved Barberry
(*Berberis pinnata* ssp. *pinnata*)
California wildrose
(*Rosa californica*)

Exhibit 6 – Figure 1 – Sand Point Existing Septic Systems, Section 6.1 Existing Sewage Disposal System



DRAFT

Exhibit No. 22
2-06-018 / A-2-MAR-08-028 Lawson's Landing
Sand Point existing septic systems



LAWSON'S LANDING

WASTEWATER COLLECTION SYSTEM NOTES

1. PROPOSED COLLECTION SYSTEM IS A CLUSTER STEP SYSTEM, INCLUDIING SEPARATE STEP (PUMPING) UNITS FOR THE FOLLOWING CONNECTIONS:
   - (12) TRAILER CLUSTERS, SERVING FROM 6 TO 40 CONNECTIONS PER CLUSTER (TC–1 THROUGH TC–12)
   - RESTROOMS (R–1 THROUGH R–4)
   - STORE (S–1)
   - LAUNDRY (L–1)
   - HOUSES (H–1, H–2)
   - RV DUMP STATION (DS–1)
2. CLUSTER STEP UNITS FOR TRAILERS CONSIST OF:
   - 4–INCH LATERAL SEWER TO EACH TRAILER
   - GRAVITY COLLECTION SEWERS (4 TO 8–INCH DIA.)
   - STEP UNITS CONSISTING OF SEPTIC TANK(S) FOR PRIMARY TREATMENT AND PUMP SYSTEM
   - STEP UNITS LOCATED FOR MINIMUM CONFLICT WITH ACTIVITIES AND USES, TO MEET MIN 50–FT SETBACK FROM WATER FEATURES, AND PROTECTED WITH BOLLARDS OR EQUAL.
   - SEPTIC TANKS CAPACITY = 2 X DAILY DESIGN FLOW
   - DUPLEX STEP PUMP UNIT W/RESERVE EMERGENCY CAPACITY AND TRANSFER SWITCH FOR PORTABLE POWER OPERATION
3. SEPARATE STEP UNITS ARE PROVIDED FOR STORE, LAUNDRY, HOUSES, AND RESTROOMS LOCATED ADJACENT TO EACH BUILDING.
4. STEP UNITS FOR RESTROOMS TO INCLUDE SURPLUS STORAGE CAPACITY FOR FLOW EQUALIZATION DURING PEAK FLOW PERIODS.
5. EFFLUENT FROM ALL STEP UNITS TO BE COLLECTED IN A COMMON PRESSURE SEWER LINE, LEADING TO A MAIN LIFT STATION AT VICINITY OF RV DUMP STATION. MAIN LIFT STATION TO INCLUDE FLOW EQUALIZATION, EFFLUENT FILTERS, AND HIGH HEAD PUMPS. FORCE MAIN FROM MAIN LIFT STATION WILL FOLLOW ENTRANCE ROAD AND TERMINATE AT OR NEAR THE TREATMENT PLANT SITE IN THE VICINITY OF THE SCALE HOUSE.

LAWSON'S LANDING

DILLON BEACH, CALIFORNIA

QUESTA ENGINEERING CORP.
Civil
Environmental
& Water Resources
(510) 236-6114
FAX (510) 236-2423
questa@questaec.com
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

Sht:	Rev:	Date:	By:	Description:	App'd:

Design: CHN
Drawn: CHN
Checked: NNH
Appr'd: NNH

SAND POINT
PROPOSED STEP SEWER
SCHEMATIC PLAN

Size D | Dwg. No. 270246 | Rev. 0
Scale: 1" = 60'
Date: 4/4/2008
Sheet: 1 OF 1

DRAFT

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Exhibit 6 – Figure 6 – Schematic of the Proposed STEP Sewer System, Section 7.1 New RV Camping Areas

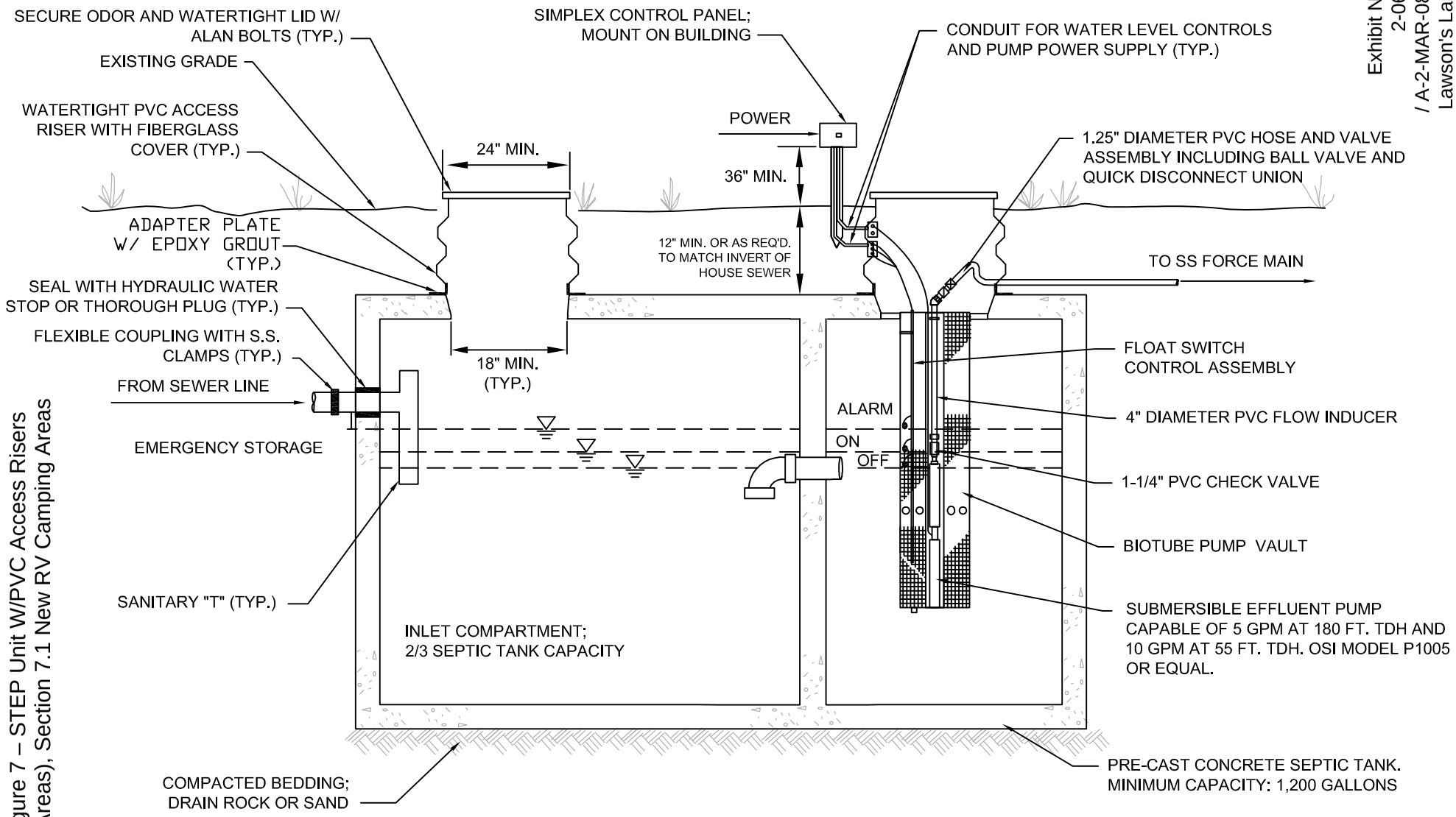

Exhibit 6 – Figure 7 – STEP Unit W/PVC Access Risers (Non-Traffic Areas), Section 7.1 New RV Camping Areas

SEPTIC TANK EFFLUENT PUMP (STEP) UNIT W/ PVC ACCESS RISERS (NON-TRAFFIC AREAS)

LAWSON'S LANDING

MARIN COUNTY, CALIFORNIA

QUESTA ENGINEERING CORP.
Civil Environmental & Water Resources
(510) 236-6114
FAX (510) 236-2423
questa@questaec.com
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

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Checked:	NH
Appr'd:	NH

TYPICAL STEP UNIT NON-TRAFFIC AREA

LAWSON'S LANDING

FIGURE 1

P:\2007\270246_LAWSON_EXISTING_SEPTIC\CAD\8.5X11 DETAILS – 011209.DWG LAST SAVED: 1/13/2009 PLOT DATE: 1/13/2009 PLOT STYLE: QUESTA-GRAYSCALE-25.CTB

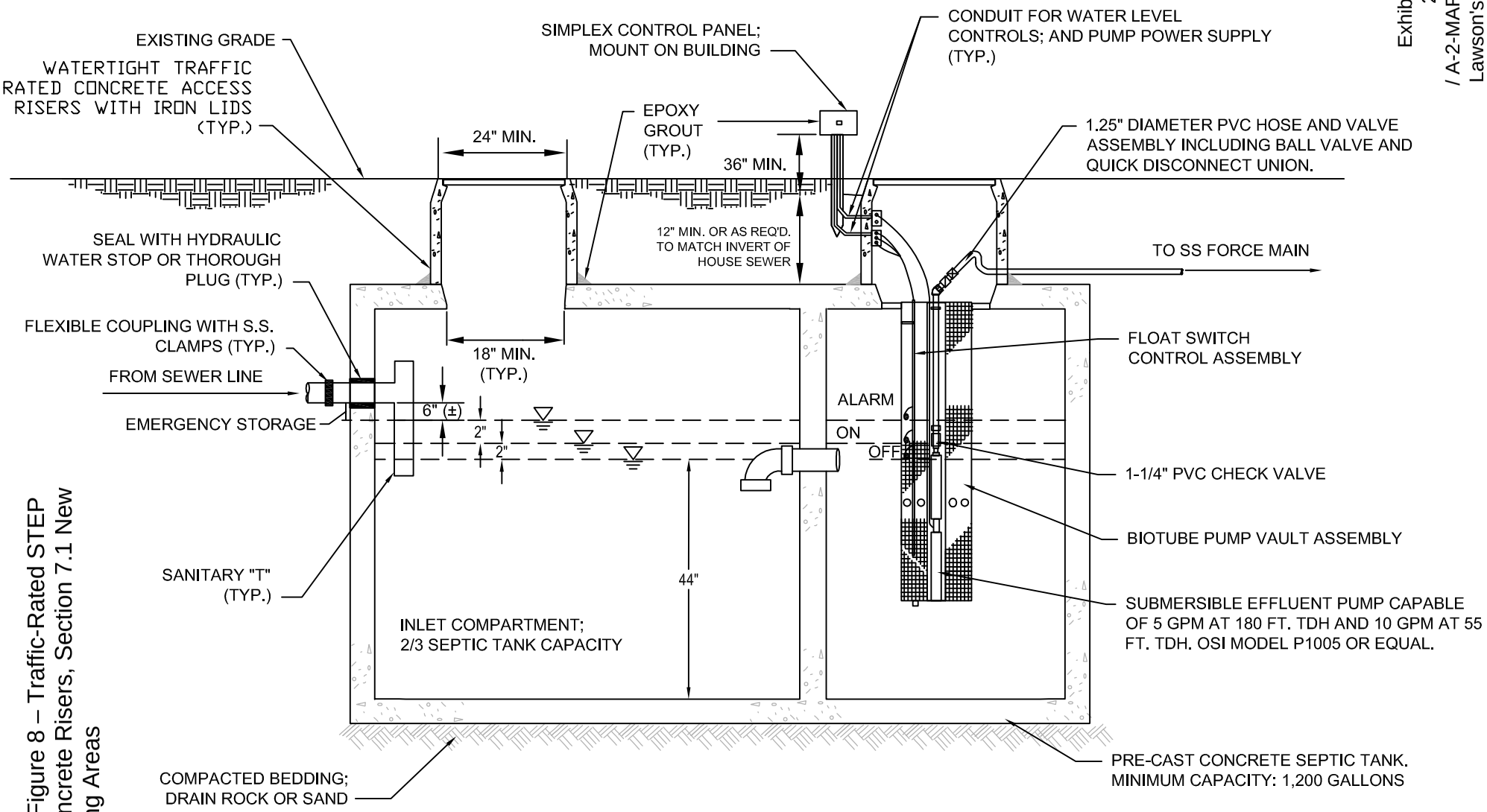

Exhibit 6 - Figure 8 – Traffic-Rated STEP Unit W/ Concrete Risers, Section 7.1 New RV Camping Areas

TRAFFIC-RATED SEPTIC TANK EFFLUENT PUMP (STEP) UNIT W/ CONCRETE RISERS

LAWSON'S LANDING

MARIN COUNTY, CALIFORNIA

QUESTA ENGINEERING CORP.
Civil Environmental & Water Resources
(510) 236-6114
FAX (510) 236-2423
questa@questaec.com
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

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Checked:	NH
Appr'd:	NH

TYPICAL STEP UNIT TRAFFIC AREA

LAWSON'S LANDING

FIGURE 2

P:\2007\270246_LAWSON_EXISTING_SEPTIC\CAD\8.5X11 DETAILS – 011209.DWG
LAST SAVED: 1/13/2009 PLOT DATE: 1/13/2009
PLOT STYLE: QUESTA-GRAYSCALE.CTB

minimized or eliminated by limiting the irrigation amount to the estimated water requirements and directing any additional wastewater flow to the adjacent leachfield/dripfield area to the west for percoaltion and plant uptake. For example, for the peak usage month of July, to accommodate an average daily wastewater flow of 30,000 gpd, our current updated estimates indicate that approximately 24,500 gpd could be directed to the 6-acre sprayfield, with the remaining 5,500 gpd dispersed to the 1.5-acre leachfeild/dripfield area.

Table 2. Irrigation Water Demand Summary

Month	Reference ETo		Average Daily Irrigation Demand for 6-acre Sprayfield* (gpd)
	inches per month	gallons per day per ft^2	
April	3.30	0.069	18,033
May	4.03	0.081	21,170
June	4.50	0.094	24,568
July	4.65	0.094	24,568
August	4.03	0.081	21,170
September	3.30	0.069	18,033
October	2.48	0.050	13,068

*1 acre = 43,560 ft^2

Wastewater Flow Estimates. The reference in our January Status Report to 15,000 gpd for the winter leachfield/dripfield capacity and 30,000 gpd for the summer dry season was based on previous estimates of wastewater flow for historical activities at Lawson's Landing, as detailed in our Wastewater Facilities Plan Addendum, dated June 11, 2004. Our analysis was based on records of historical levels of camping/RV/trailer use. This includes records from the 1990s, supplemented with additional information from 2000 to 2003 when peak camping ranged between 700 to 1,000 vehicles during summer months. We also evaluated water use data to provide a conservative (safe) estimate of the total potential wastewater generation.

Based upon U.S. EPA estimates and Marin County regulations, the per unit volume of wastewater in gallons per day (gpd) for various uses at Lawsons Landing were estimated as follows:

Residences and Mobile Homes	210 gpd/residence
Trailers	50 gpd/trailer
Camping	25 gpd/person
Day Use	10 gpd/person
Emolovees	15 gpd/person

Due to the wide fluctuation in occupancy and wastewater flows at Lawson's Landing, flow equalization would be incorporated in the system design to moderate flows during peak periods, by temporarily holding some of the water in storage or "surge" tanks.

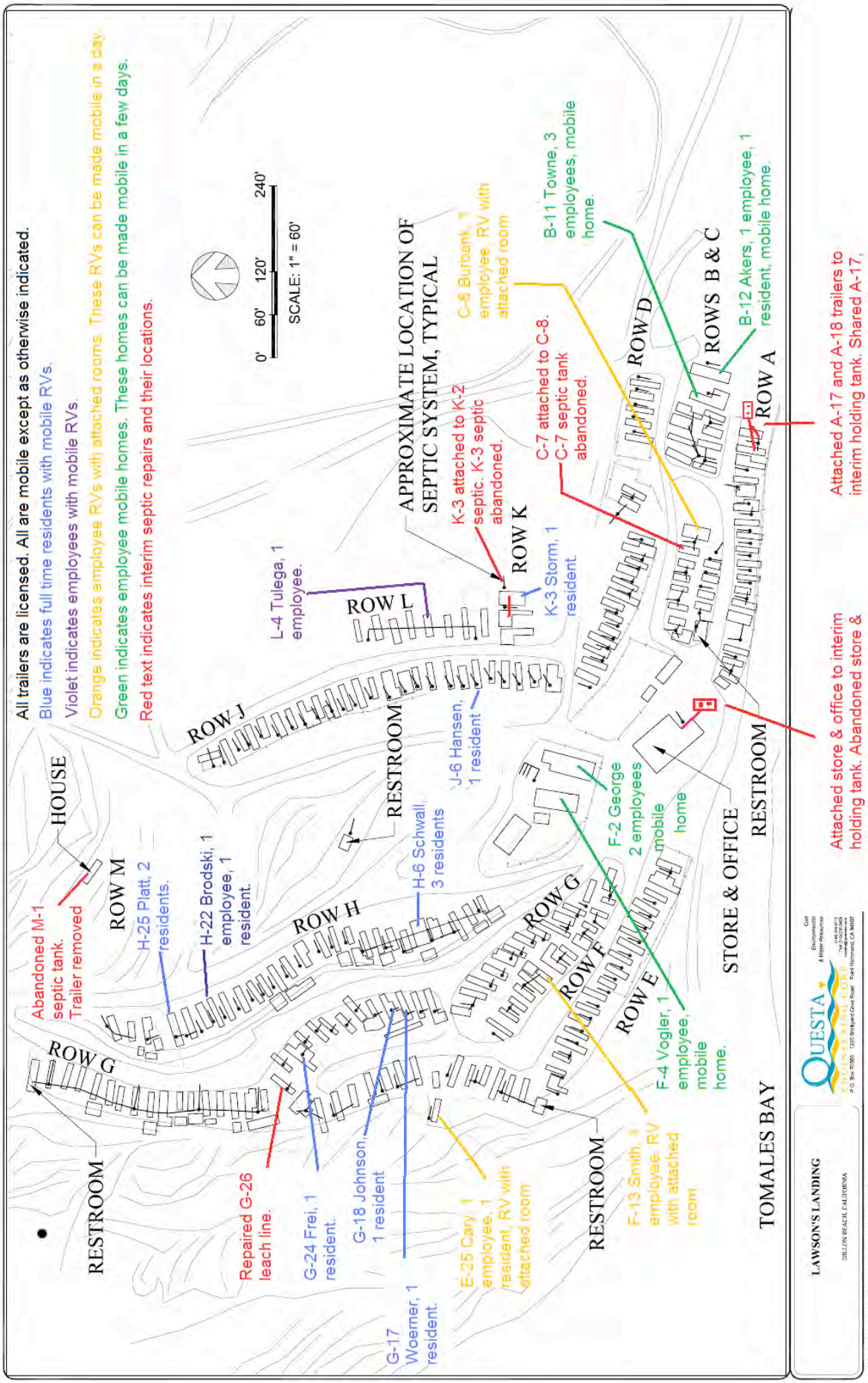
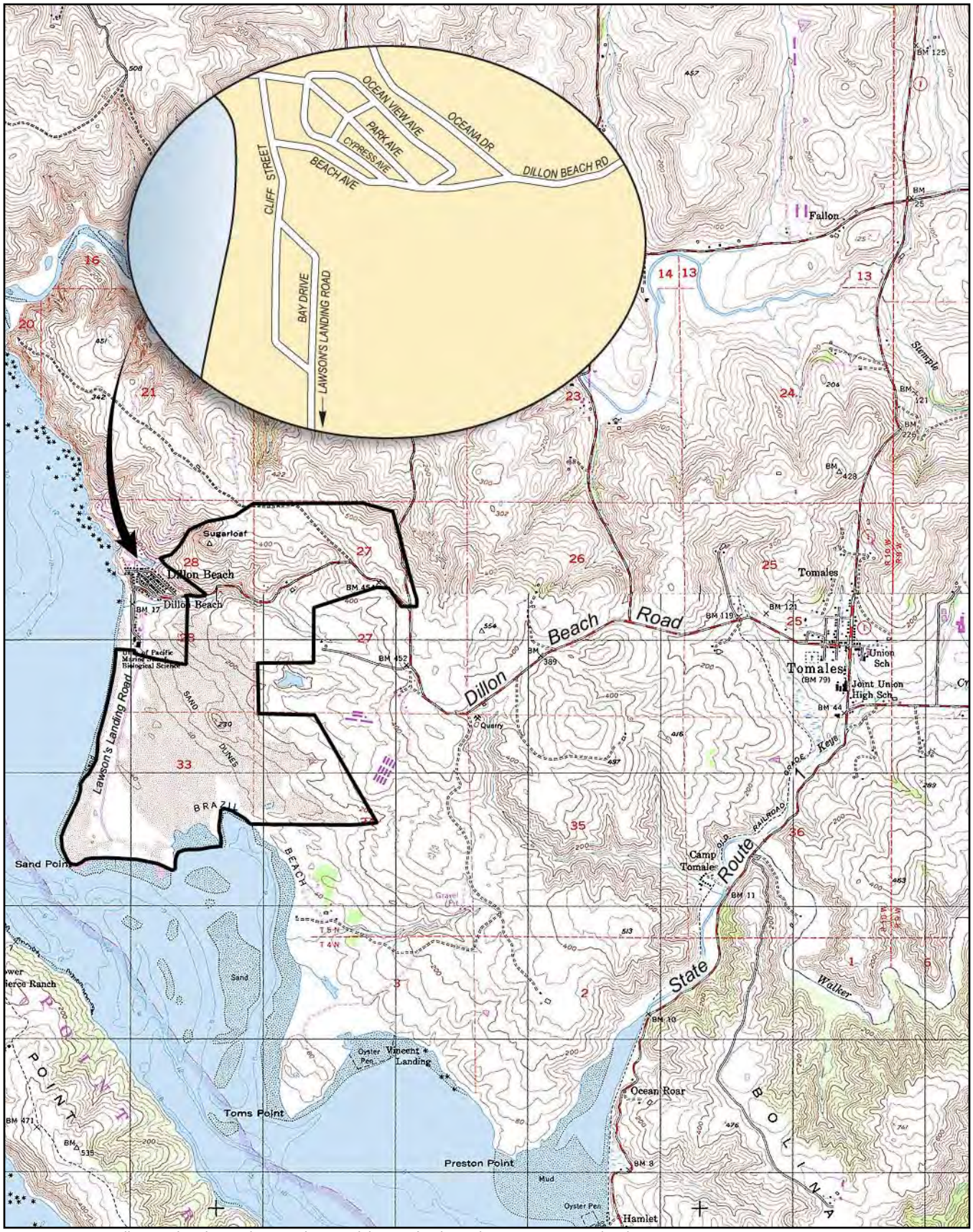


Exhibit No. 25
2-06-018 / A-2-MAR-08-028 Lawson's Landing
Residential trailers



Source: USGS Valley Ford and Tomales Quads 1954 (photorevised 1971) – Contour Interval 20/40 Feet

Project Area Roadway Network

EXHIBIT 4.8-1

Lawson's Landing Master Plan Draft EIR
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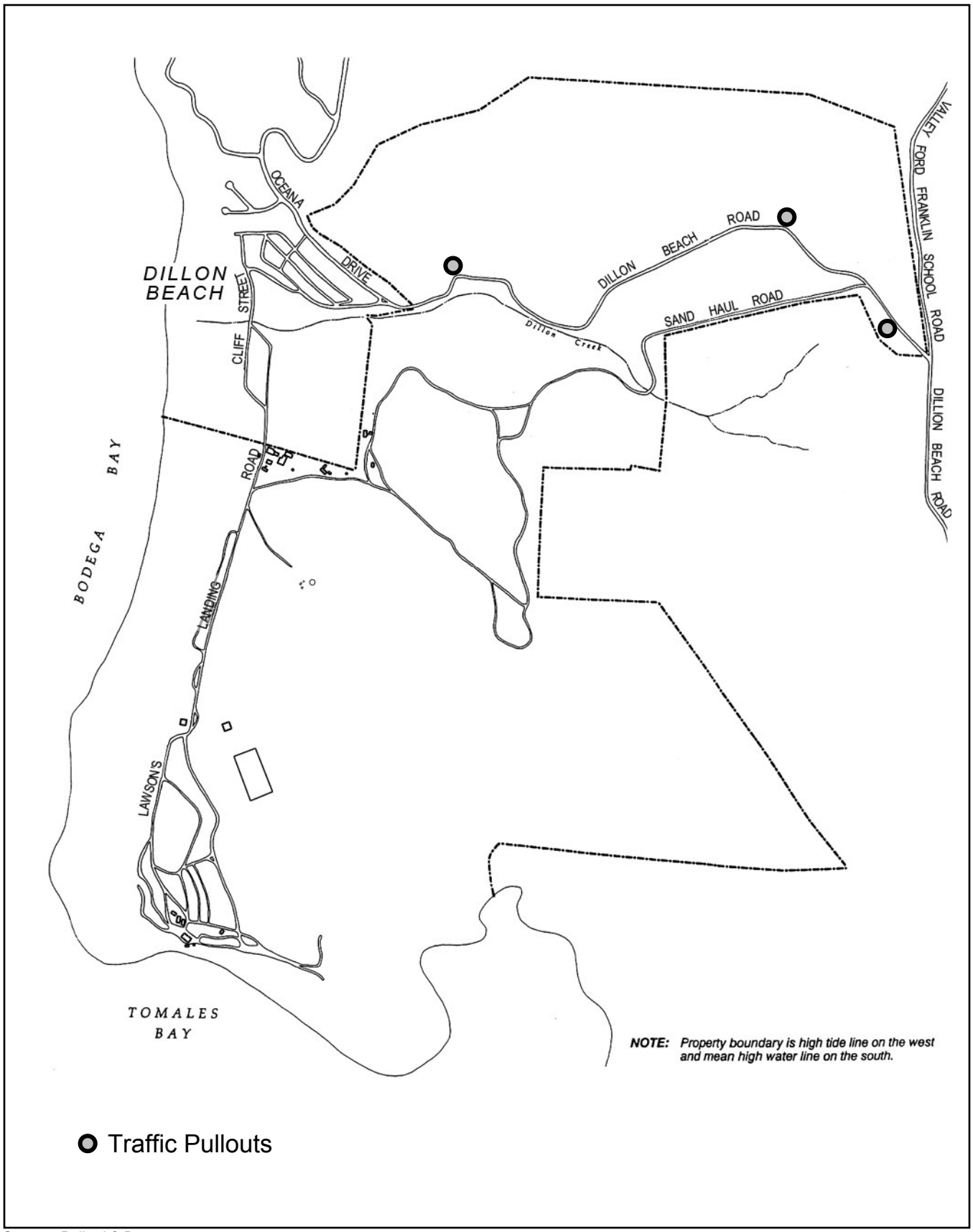
NORTH

EDAW

Exhibit No. 26
2-06-018 / A-2-MAR-08-028 Lawson's Landing Road network



Source: Bollard & Brennan

Proposed Dillon Beach Road Pullout Locations

EXHIBIT 4.8-2

Lawson's Landing Master Plan Draft EIR
P 02110069.01 05/05

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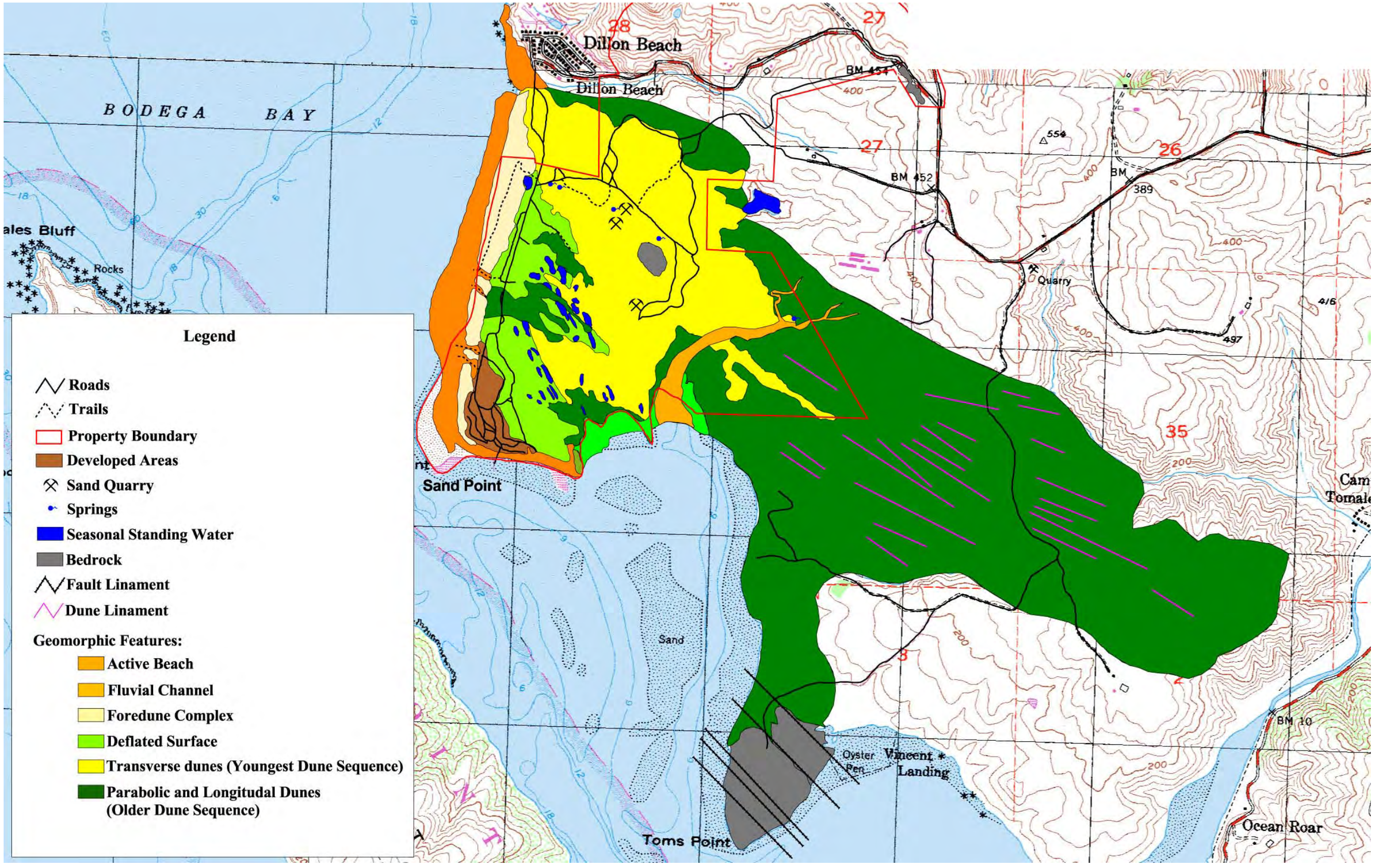
NORTH

EDAW

Exhibit No. 27
2-06-018 / A-2-MAR-08-028 Lawson's Landing
Sand Haul Road



Source: Pacific Watershed & Associates 01/06/04

Geomorphic Features

EXHIBIT 4.6-3

Lawson's Landing Master Plan Draft EIR
P 02110069.01 11/04

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NORTH

EDAW

Exhibit No. 28
2-06-018 / A-2-MAR-08-028 Lawson's Landing
Geomorphic features

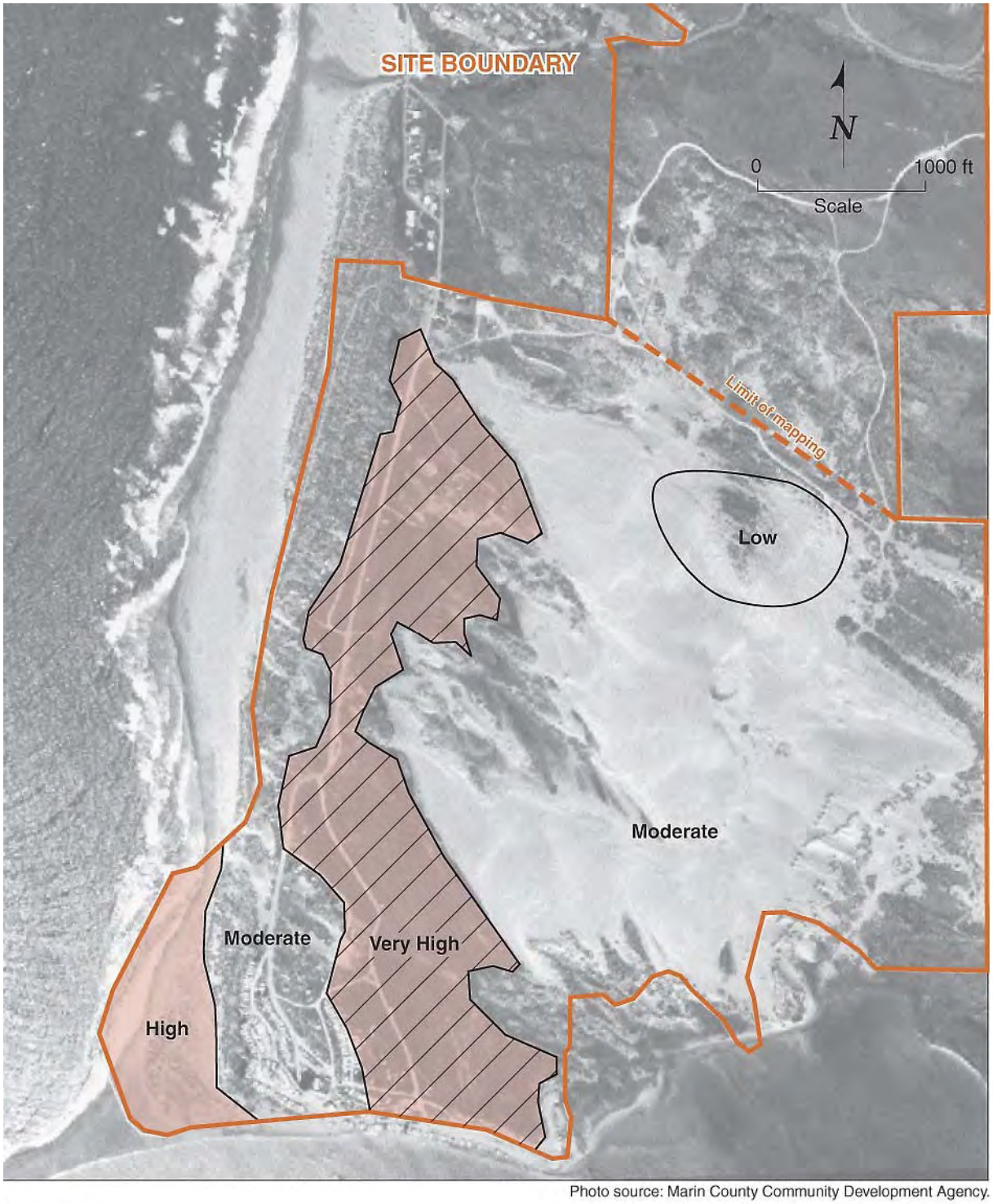


Photo source: Marin County Community Development Agency.

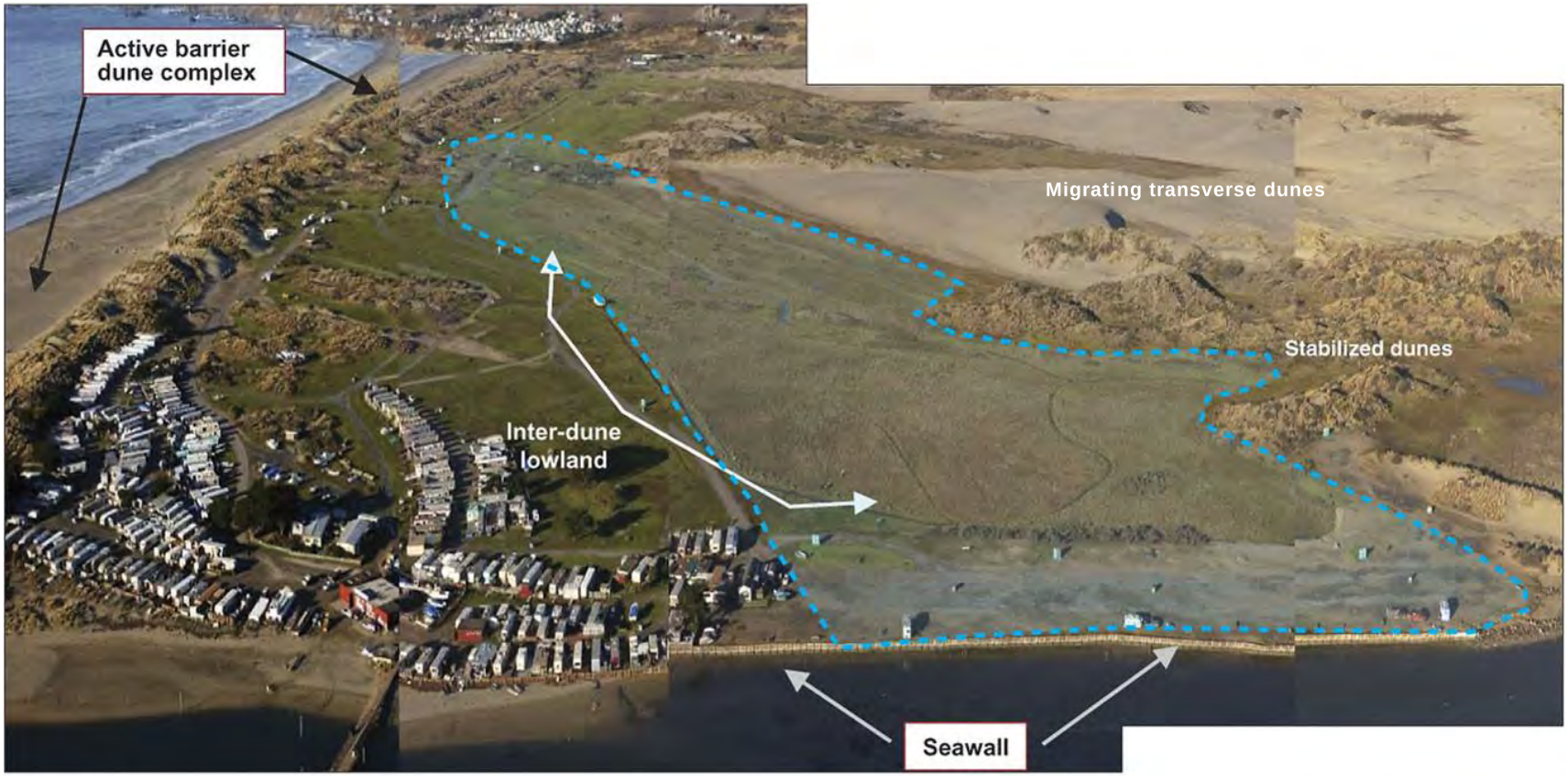
Maximum Tsunami Inundation Area

Very High
High
Moderate
Low
} Liquefaction Susceptibility

Source: William Lettis & Associates

Liquefaction Susceptibility Zones and Tsunami Hazard Areas

EXHIBIT 4.6-8



Lawson (1908)

USGS (1954)

Note: Photo shows lowland area between the barrier dune complex on the west, active and stabilized dunes on the east, and the seawall along the southeast coast. Inset shows the change in Sand Point coastline between the 1908 and 1954 USGS topographic maps

Source: William Lettis & Associates

Lowland Area and Other Project Site Landforms

EXHIBIT 4.6-2

Lawson's Landing Master Plan Draft EIR
P 02110069.01 11/04

EDAW

Exhibit No. 30
2-06-018 / A-2-MAR-08-028 Lawson's Landing
Lowland area

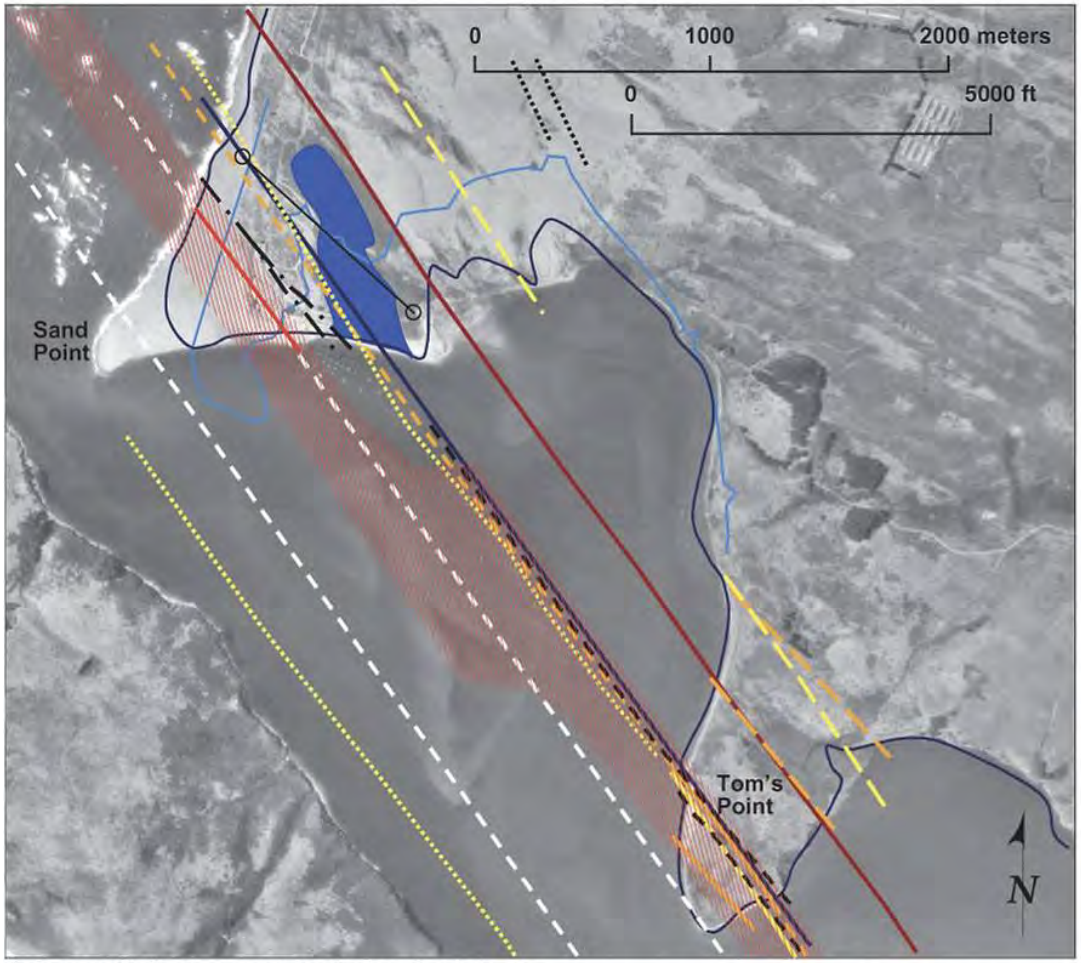


Photo source http://bard.wr.usgs.gov/bard/coq/napa/tomales/nw.coq

Note: The coastlines of Sand Point as depicted in Lawson (1908) and 1977 USGS 7.5 Map, and the present-day inter-dune lowland area are shown for reference.

Previous San Andreas Fault Zone Mappings

- 1908 Lawson (USGS) — 1:62,500 1906 Ground Rupture from R.S. Holloway field observation
- 1949 Weaver — 1:48,000 Original Mapping
- 1972 Browne & Wolfe (USGS) — 1:24,000 Original Mapping
- 1974 Slosson (CDMG) — 1:24,000, 1906 Ground Rupture
- Boundary of Alquist-Priolo special studies zone ref.: Lawson (1908) and Weaver (1949)
- 1977 Galloway (CDMG) — 1:48,000 Original Mapping
- 1979 Kleinfelder — 1:TM Survey
- 1982 Bortugno (CDMG) - 1:250,000 ref: Brown & Wolfe; Blake et al (1974; original mapping)
- 1982 R. Anima (USGS Marine Survey) Original Mapping
- 1997 Clark and Brabb (USGS) - 1:100,000 Blake et al (1974)
- 1997 Cuesta Engineering Buried Scarp from Boring Data
- 1908 Coastline (Lawson Report)
- 1977 Coastline (USGS)
- Present Lowland

Source: William Lettis & Associates

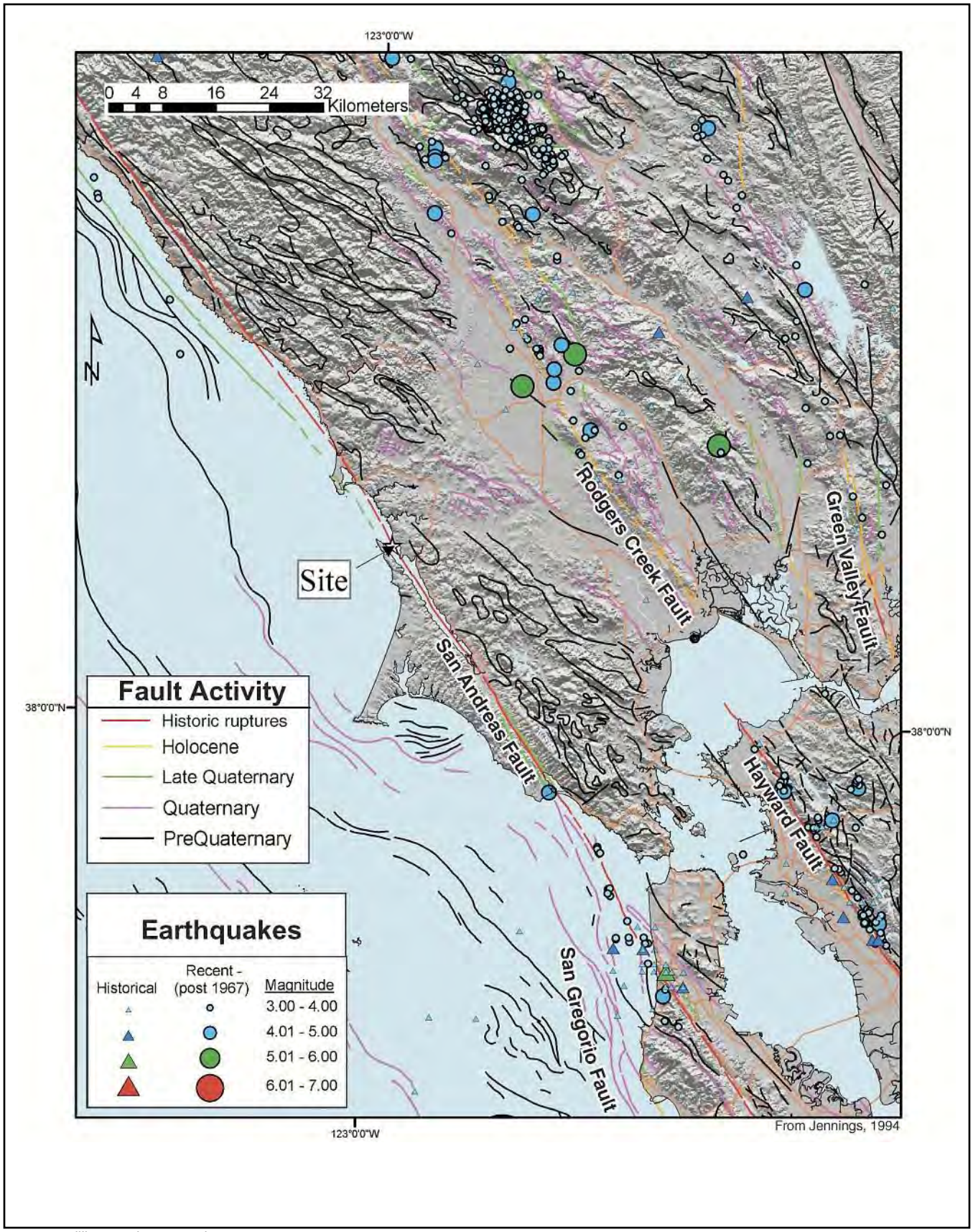
Previously Mapped Traces of the San Andreas Fault at Sand Point

EXHIBIT 4.6-5

Lawson's Landing Master Plan Draft EIR
P 02110069.01 05/05

EDAW

Exhibit No. 31
2-06-018 / A-2-MAR-08-028 Lawson's Landing
San Andreas Fault



Source: William Lettis & Associates

Faults and Earthquake Epicenters in Project Area

EXHIBIT 4.6-1

NORTH

EDAW

Exhibit No. 32
2-06-018 / A-2-MAR-08-028 Lawson's Landing
San Andreas Fault

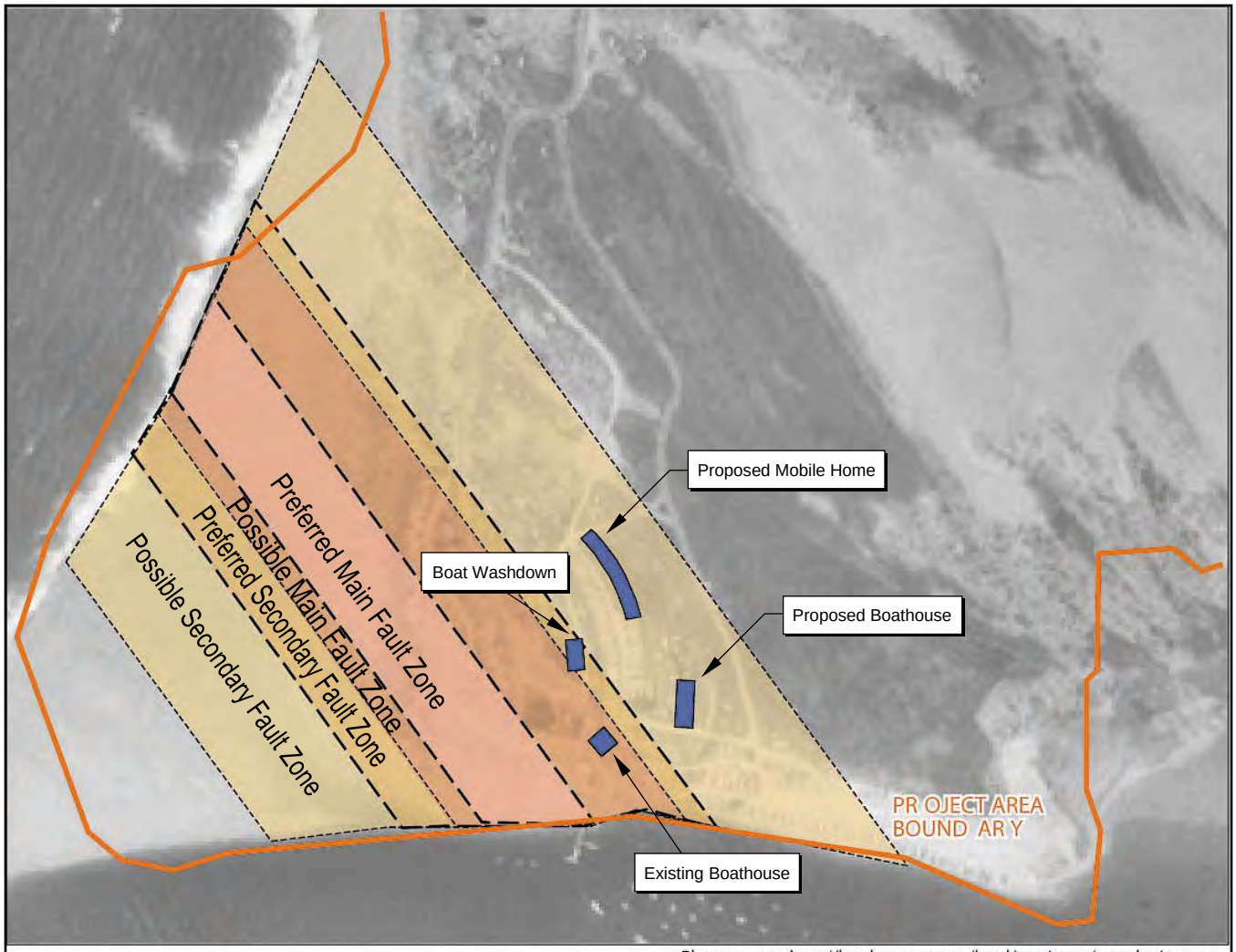


Photo source: http://bard.wr.usgs.gov/bard/coq/napa/tomales/nw.coq

Proposed Structure

Source: William Lettis & Associates

Preferred and Possible Locations of the Main and Secondary Fault Zones

EXHIBIT 4.6-7

Lawson's Landing Master Plan Draft EIR
P 02110069.01 05/05

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NORTH

EDAW

Exhibit No. 33
2-06-018 / A-2-MAR-08-028 Lawson's Landing
Main and secondary fault zones

Marin County
Dillon Beach
Tsunami Evacuation Planning Map

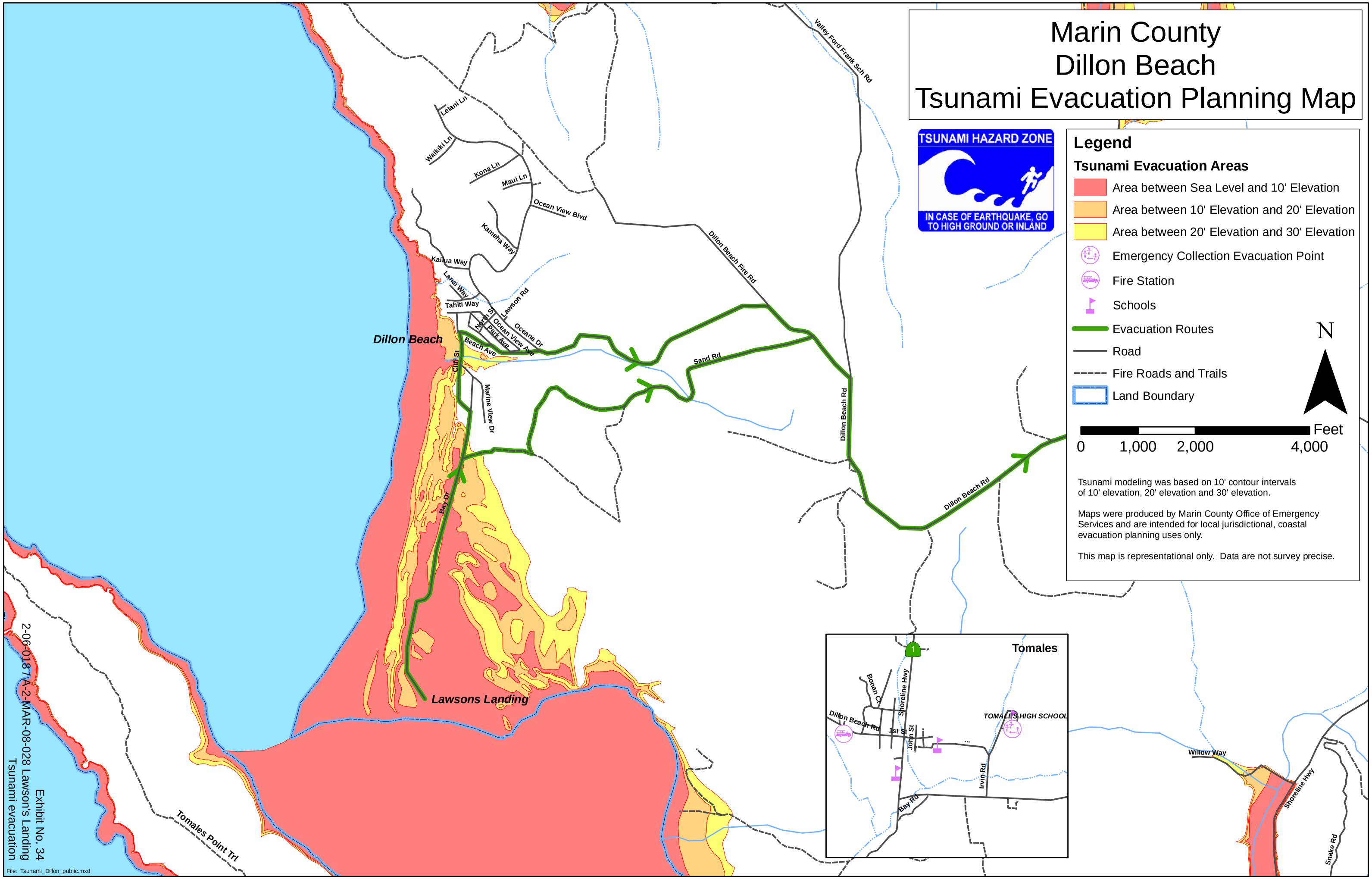

Exhibit No. 34
2-06-018 A-2-MAR-08-028 Lawson's Landing
Tsunami evacuation

File: Tsunami_Dillon_public.mxd

COUNTY OF MARIN
ENVIRONMENTAL HEALTH SERVICES
3501 CIVIC CENTER DRIVE, RM 236
SAN RAFAEL, CA 94903
415.499.6907/ (Fax) 415.507.4120
www.co.marin.ca.us/ehs

January 25, 2010

Carl Vogler
Lawson's Landing
P.O Box 67
Dillon Beach, CA 94929-0067

Dear Mr. Vogler:

I am writing to notify you that all Environmental Health Services requirements for interim upgrades listed in the letter dated August 4, 2009 have been completed with the exception of the monitoring which is an ongoing requirement. These upgrade requirements were based on individual septic system inspections conducted by Questa Engineering Corporation during 2008 and 2009. All permits applied for were approved by our office, inspections completed and applicable final certification letters are pending.

Specifically, EHS staff was able to observe the following to a reasonable extend as required by permit conditions. I was also able to verify the process with the many photographs that were provided by your staff and with the cooperation of staff from Questa:

- Installation of two septic tanks to be used as holding tanks (provide documentation of regular pumping) and all required septic tank abandonments.
- Repair of the septic system at site G26 with replacement of perforated pipe.
- Abandonment of A17, C7 and K2 septic leachfields and connections to holding tanks or adjacent septic systems in good working order.
- A vast majority of the sites with noncompliant greywater sinks were inspected and all inspected were found to be disconnected or plumbed to septic systems in good working order. The 3 remaining non-compliant sinks are currently being disconnected by Lawson's staff.

Please note that ongoing monitoring of C7 and K2 leachfield will be required biannually as well as verification of regular septic tank pumping.

I would also like to mention that the site work has begun for the proposed new wastewater system as I have conducted a preliminary site review with your consultant, Questa and look forward to working with you on this project in the near future. It is the expectation that this new community septic system will be permitted and installed within 3-4 years.

Finally, I appreciate you and your staff's overall cooperation and availability in assisting with these upgrade requirements. If you have any questions or concerns, feel free to call me at (415) 499-6918.

Sincerely,

Steve Rosso, R.E.H.S.

cc: Matt Wohl, Questa Engineering Corporation
Blair Allen, SF Regional Water Quality Control Board
Armando Alegria, EHS Land Use Supervisor
Rebecca Ng, EHS Deputy Director
Ben Berto, CDA Principal Planner

LAWSON'S LANDING PROJECT MITIGATION MONITORING AND REPORTING PROGRAM					
Impact	**Mitigation**	**Implemented by**	**When implemented**	**Monitored by**	**Verified by and date**
4.4 Wastewater Treatment and Disposal					
4.4-3 The proposed sand dune stabilization methods may not prevent the sand dunes from shifting, thus causing the leachfield to fail, potentially resulting in significant health hazard impacts.	4.6-1 and 4.13-1 Relocate and install the sewage disposal system and access road away from the sand dunes.	Applicant	PDP	EHS	
4.5 Hydrology and Water Quality					
4.5-2 Onsite recreational activities associated with the use of the facilities could result in the potential exposure of people or structures to hazards associated with flood events.	4.5-2 All construction within the delineated floodplain shall adhere to Marin County's Flood Plain Management Ordinance which requires that the lowest floor of new and substantial improvements be at or above the Base Flood Elevation (BFE) for non V designated areas.	Applicant	PDP	DPW	
4.5-4 Temporary construction-related ground disturbances could result in the discharge of stormwater and non-stormwater discharges containing pollutants to drainage systems and ultimately to Tomales Bay, causing water quality impacts.	4.5-4 The applicants shall implement erosion and sedimentation Best Management Practices in conformance with Chapter 23.08 of the Marin County Code in order to control stormwater and protect surface water quality including Dillon Creek and Tomales Bay.	Applicant	BP	DPW	

LAWSON'S LANDING PROJECT MITIGATION MONITORING AND REPORTING PROGRAM					
Impact	**Mitigation**	**Implemented by**	**When implemented**	**Monitored by**	**Verified by and date**
4.5-5 If runoff from isolated areas of the site is uncontrolled and not treated, the discharge could adversely affect the water quality of these waterways.	4.5-5 The project's drainage system shall incorporate devices that treat stormwater runoff to preproject conditions. Such devices may include, but not be limited to, biofilter strips, vegetated channels, or wet ponds.	Applicant	BP	DPW	
4.5-12 Soils would be exposed to wind and water erosion that could result in sediment or other contaminants being carried to Dillon Creek, Tomales Bay, and the Pacific Ocean.	4.5-12 The applicants shall implement erosion and sedimentation Best Management Practices in conformance with Chapter 23.08 of the Marin County Code in order to control stormwater and protect surface water quality including Dillon Creek and Tomales Bay.	Applicant	BP	DPW	
4.6 Geology and Soils					
4.6-1 The proposed leachfield site and the access road to the recirculating sand filter system lie within areas of actively moving sand dunes of high instability. Stabilizing the dunes could lead to unnatural fragmentation of the active dune areas, which could in turn influence the short- and long-term development of the dune system at the project site.	4.6-1 The applicants shall relocate the proposed leachfield and access road to the recirculating sand filter system to a non-sand dune location, such as in the northern portion of the project site.	Applicant	PDP	EHS	

LAWSON'S LANDING PROJECT MITIGATION MONITORING AND REPORTING PROGRAM					
Impact	**Mitigation**	**Implemented by**	**When implemented**	**Monitored by**	**Verified by and date**
4.6-2 The formal pedestrian pathways could result in the development of dune blowouts.	4.6-2 The applicants shall plan and design the trails in the foredune system to reduce the potential for the development of dune blowouts onsite to reduce the impact to a less-than-significant level.	Applicant	PDP	CDA	
4.6-3 The proposed boathouse is located in an area of secondary deformation where additional displacement could occur due to the site's location in the Alquist-Priolo Earthquake Hazards Zone.	4.6-3 The applicants shall secure a California-certified engineering geologist and civil engineer to provide the project structural engineer with seismic design criteria and recommendations based on state and county regulations for development in areas exposed to moderate to severe earthquakes.	Applicant	BP	CDA	
4.8 Transportation and Circulation					
4.8-1 Construction traffic could result in adverse traffic effects on a daily basis during peak construction periods.	4.8-1 The applicants shall prepare and implement a construction traffic control plan for all construction activities associated with the project.	Applicant	BP	DPW	
4.8-3 The project's minor contribution of daily trips would result in a significant traffic hazard impact because of the existing substandard design of Cliff Street.	4.8-3 Cliff Street shall be widened to the extent of the existing right-of-way at the three sharp curves to soften the curves and improve sight distances.	Applicant	BP	DPW	

LAWSON'S LANDING PROJECT MITIGATION MONITORING AND REPORTING PROGRAM					
Impact	**Mitigation**	**Implemented by**	**When implemented**	**Monitored by**	**Verified by and date**
4.8-4 The project would continue to provide inadequate emergency access routes to the project site because a secondary public emergency access point for public evacuation is not provided.	4.8-4 Emergency access improvements shall be made to Sand Haul Road that would designate and improve the road (i.e., grade/paved) within its existing alignment as an alternative public emergency access route.	Applicant	BP	DPW	
4.8-7 Under cumulative plus project conditions, the project would contribute vehicle trips to an existing adverse traffic condition along Cliff Street.	4.8-7 Widening of Cliff Street would reduce existing traffic congestion that occurs along Cliff Street and would further improve the operation of this roadway. Further, Mitigation Measure 4.8-4 would improve Sand Haul Road for emergency access by the public and emergency vehicles, thereby improving emergency access to and from the project site.	Applicant	BP	DPW	
4.9 Air Quality					
4.9-1 The project would result in short-term generation of fugitive dust, equipment exhaust, temporary employee trip emissions, and other construction-related emissions. These short-term emissions could	4.9-1 The project shall comply with BAAQMD-recommended Basic, Enhanced, and Optional Control Measures, as well as with all applicable BAAQMD rules and regulations, specifically Rule 8-3 regarding architectural coatings, Rule 8-15 regarding	Applicant	BP	CDA	

LAWSON'S LANDING PROJECT MITIGATION MONITORING AND REPORTING PROGRAM					
Impact	**Mitigation**	**Implemented by**	**When implemented**	**Monitored by**	**Verified by and date**
result in or contribute to a violation of applicable air quality standards.	asphalt paving, Rule 11-2 regarding demolition, and Regulation 6 regarding particulate matter and visible emissions.				
4.10 Noise					
4.10-1 The location of construction activities and the equipment used may result in increases in average daily noise levels that potentially exceed the County's land use compatibility noise thresholds at nearby noise-sensitive receptors and result in an increase of average daily noise levels of 3 dBA or greater.	4.10-1 The applicants shall implement the following measures during construction: (1) Construction activities shall adhere to the Dillon Beach Community Plan requirements with respect to hours of operation: Heavy or otherwise "noisy" construction equipment (e.g. bulldozers, backhoes, scrapers/graders, heavy trucks, compactors, pavers, and pneumatic tools) should be operated during the hours of 8 a.m.-5 p.m. only, Monday through Saturday. Construction activities shall be prohibited on Sundays and holidays; (2) equipment engine doors on motorized equipment shall be closed during equipment operation; (3) all construction equipment shall be equipped with mufflers; (4) when not in use, motorized construction equipment shall not be left idling; and (5) stationary noise-generating construction equipment (e.g., generators and compressors) shall be located the greatest distance possible from nearby noise-sensitive land uses.	Applicant	BP	CDA	

LAWSON'S LANDING PROJECT MITIGATION MONITORING AND REPORTING PROGRAM					
Impact	**Mitigation**	**Implemented by**	**When implemented**	**Monitored by**	**Verified by and date**
4.12 Cultural Resources					
4.12-1 Disturbance to potential resources at the site of the proposed mobile home and leachfield could result in a significant impact to cultural resources.	4.12-1 Elimination of the mobile home and relocation of the sewage disposal system would eliminate the potential impact.	Applicant	PDP	CDA	
4.12-2 Subsurface disturbances could potentially destroy or damage previously undiscovered important prehistoric and historic cultural resources.	4.12-2 The applicants shall prepare and implement a Monitoring Plan and halt ground-disturbing activities in the event of accidental discovery of a cultural resource. Implementation of this mitigation would be undertaken by a qualified archaeologist approved by Marin County. If cultural resources are discovered during construction, construction activities shall halt and the property owner will be notified regarding the discovery. The archaeologist shall evaluate the resource in accordance with state and federal guidelines and shall determine whether the resource is significant. All archaeologic excavation and monitoring activities shall be conducted in accordance with prevailing professional standards as outlined in Section 21083-2 of CEQA. Mitigation in accordance with a plan approved by the Marin County Community	Applicant	BP	CDA	

LAWSON'S LANDING PROJECT MITIGATION MONITORING AND REPORTING PROGRAM					
Impact	**Mitigation**	**Implemented by**	**When implemented**	**Monitored by**	**Verified by and date**
	Development Agency shall be implemented prior to commencement of work within the area of the resource find.				
4.12-3 Subsurface disturbances could uncover previously undiscovered prehistoric burials.	4.12-3 The applicants shall stop work if human remains are uncovered during construction, to assess the significance of the find and to pursue appropriate management consistent with state law.	Applicant	BP	CDA	
4.12-4 Subsurface disturbances could potentially uncover previously unknown prehistoric resources on the cumulative project sites.	4.12-4 Implementation of mitigation measures 4.12-2 and 4.12-3 will reduce the impact to a less-than-significant level.	Applicant	BP	CDA	
4.13 Biological Resources					
4.13-1 Implementation of the project could result in the removal, disturbance, or degradation of sensitive habitats on the project site.	4.13-1 The applicants shall relocate the wastewater treatment facility to the northern portion of the project site outside of the on-site sand dunes.	Applicant	PDP	CDA	
4.13-2 The project could result in the disturbance or removal of special-status plant species and their	4.13-2 The applicants shall retain a qualified botanist to conduct preconstruction focused surveys to confirm the location of suitable	Applicant	BP	CDA	

LAWSON'S LANDING PROJECT MITIGATION MONITORING AND REPORTING PROGRAM					
Impact	**Mitigation**	**Implemented by**	**When implemented**	**Monitored by**	**Verified by and date**
associated habitat, and could substantially reduce the number or restrict the range of endangered, rare, or threatened species.	habitats and to develop and implement a plan that would avoid all plant populations that are found subject to review by the Department of Fish and Game and the U.S. Fish and Wildlife Service.				
4.13-3 Site grading or other activities during the construction of the proposed improvements could result in disturbance or fill to waters of the United States, including wetlands and coastal wetlands.	4.13-3 The Precise Development Plan shall be designed to avoid impacts on coastal and Section 404 wetlands and other waters of the United States. This includes implementing measures that would avoid disturbance or fill of protected coastal wetlands and obtaining approval from the State Department of Fish and Game, Regional Water Quality Control Board, the Army Corps of Engineers, and other permitting agencies for any work that falls within the appropriate agency's jurisdiction.	Applicant	PDP	CDA	
4.13-4 Implementation of the project could result in disturbance or removal of coastal dunes, coastal scrub, and wet meadow habitats that could provide habitat for a number of special status wildlife species.	4.13-4 The applicants shall conduct pre-construction habitat surveys and implement measures that would avoid disturbance of the identified habitat and mitigate for any disturbance of the habitat, consistent with the requirements of the Department of Fish and Game and the United States Fish and Wildlife Service.	Applicant	BP	CDA	

LAWSON'S LANDING PROJECT MITIGATION MONITORING AND REPORTING PROGRAM					
Impact	**Mitigation**	**Implemented by**	**When implemented**	**Monitored by**	**Verified by and date**
4.13-5 The project could contribute to cumulatively significant impacts on sensitive habitats and wetlands in the coastal zone.	4.13-5 The applicants shall implement mitigation measure 4.13-3.	Applicant	PDP	CDA	
4.13-6 The project could contribute to cumulatively significant impacts on special-status plant and wildlife species.	4.13-6 The applicants shall implement mitigation measures 4.13-2 and 4.13-4.	Applicant	BP	CDA	

Exhibit No. 37
2-06-018 / A-2-MAR-08-028 Lawson's Landing
CalEMA Inundation Line

FILED

JUN 7 1977

PETER MOYER
MARIN COUNTY CLERK
BY DEPUTY

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF MARIN

CALIFORNIA NORTH CENTRAL COAST REGIONAL COASTAL ZONE CONSERVATION COMMISSION, Plaintiff, v. MERLE E. LAWSON, et al., Defendants.	NO. 71902 JUDGMENT

The California Coastal Commission, as successor to the plaintiff, California North Central Coast Regional Coastal Zone Conservation Commission, has entered into the attached agreement dated May 27, 1977 with defendants Merle E. Lawson, Walter Lawson, and Nita Lawson.

Pursuant to this agreement, judgment in the above-entitled case is hereby entered as follows:

1. Defendants are ordered to pay to the California Coastal Commission the sum of $594.30, which includes a $500 penalty and $94.30 in court costs incurred by the Regional

186-326

COURT PAPER
STATE OF CALIFORNIA
STD. 113 (REV. 8-72)
OSP

Commission, to be made payable to the Department of Justice;

2. Defendants are hereby enjoined from any constructing, dredging, filling or grading of Assessor's Parcel #100-100-48 or from causing any such construction, dredging, filling or grading to be carried out on Assessor's Parcel #100-100-48 without first obtaining a coastal permit from the North Central Coast Regional Commission (Regional Commission) with the following two exceptions:

(a) where the work consists of maintenance and repair of existing facilities, defendants will notify the Regional Commission and secure from it either (1) a statement that it has no interest in the repair or maintenance or (2) its permission to proceed with the repair or maintenance;

(b) where there is an emergency situation that goes beyond repairs and maintenance, the Regional Commission will verify the nature of the emergency and grant the necessary permit, if consistent with applicable law.

3. If the above injunction is violated by defendants, they are ordered to pay to the Regional Commission a $500 fine, in addition to whatever costs, penalties and other relief the Regional Commission might obtain through the bringing of a further lawsuit against defendants.

4. Attorney's costs will be borne by each party.

Dated: Dec 7, 1977

Judge of the Superior Court

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STD. 113 (REV. 8-72)
OAP

GENERAL RELEASE

This agreement is made this 27th day of May 1977, between the California Coastal Commission, which is the successor to the California North Central Coast Regional Coastal Zone Conservation Commission, (Regional Commission) pursuant to Public Resources Code section 30331, and Merle E. Lawson, Walter Lawson, and Nita R. Lawson.

A difference has arisen between the above-named parties in relation to their respective rights and obligations arising out of the following circumstances:

Merle E. Lawson and Walter Lawson (hereafter defendants) are the owners of a certain parcel of real property at Lawson's Landing, Sand Point, Dillon Beach in Marin County, known as Assessor's Parcel #100-100-48, which was situated within the jurisdiction of the Regional Commission. Nita R. Lawson is the mother of Merle E. and Walter Lawson.

In November or December of 1973 defendants placed or caused to be placed approximately three feet of fill on the parcel; graded or caused to be graded approximately 500 cubic yards of material on the parcel, and placed or caused to be placed riprap and fill along the shoreline of the parcel, all without obtaining a coastal permit from the Regional Commission, as was required by the Coastal Act of 1972 (Public Resources Code section 27400). Although defendants applied for an emergency administrative permit from the Regional Commission for the above construction, said permit could not be granted because no permit for the construction had been obtained from Marin County.

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STD. 113 (REV. 8-72)
ORP

The Regional Commission filed an action against defendant Merle E. Lawson in the Superior Court for the County of Marin on July 22, 1974, entitled California North Central Coast Regional Coastal Zone Conservation Commission v. Merle E. Lawson, No. 71902, seeking injunctive relief and civil penalties in the amount of $10,000 plus $500 for each day that the violation of the Coastal Act persisted. On September 30, 1975, an amended complaint was filed which added defendants Walter Lawson and Nita Lawson as parties and which sought removal of the fill and riprap.

Now, in consideration of defendants' agreement to the following terms, and in consideration of a $594.30 money order made payable by defendants to the Department of Justice (which includes a $500 penalty and $94.30 in court costs incurred by the Regional Commission), the receipt of which is hereby acknowledged, the California Coastal Commission does hereby fully release defendants from any claim, whether past, present or future, for civil penalties arising out of the violation of the Coastal Act of 1972 or for removal of the fill and riprap placed on Assessor's Parcel $100-100-48:

(1) Defendants stipulate that the court can issue an injunction prohibiting any future construction, dredging, filling and grading by defendants on Assessor's Parcel #100-100-48 without a coastal permit from the North Central Coast Regional Commission with the following two exceptions:

(a) where the work consists of maintenance and repair of existing facilities, defendants will notify the

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STATE OF CALIFORNIA
STD. 113 (REV. 8-72)
028

North Central Coast Regional Commission and secure from it, either a statement that it has no interest in the repair or maintenance or its permission to proceed with the repair or maintenance;

(b) where there is an emergency situation that goes beyond repairs and maintenance, the North Central Coast Regional Commission will verify the nature of the emergency and grant the necessary permit if consistent with applicable law;

(

(2) Defendants agree that if the court's injunction is violated by them, they will pay to the North Central Coast Regional Commission a $500 fine, in addition to whatever costs, penalties and other relief the North Central Coast Regional Commission might obtain through the bringing of a lawsuit against defendants.

(3) Attorney's costs will be borne by each party.

This compromise and release is binding on and for the benefit of the parties hereto and their respective heirs, executors, administrators, and successors, whenever the context requires or admits.

This compromise and release of the disputed claim of the Regional Commission does not constitute an admission of liability on the part of defendants for the penalties and relief sought by the Regional Commission.

//

//

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STATE OF CALIFORNIA
STD. 113 (REV. 8-72)
DEP

The compromise and release will be reflected in the attached judgment to be entered in action No. 71902.

Date: May 27, 1977
Place: Petaluma Calif.

LEROY J. LOUNIBOS, SR.,
Attorney for Defendants
Merle E. Lawson, Walter Lawson
and Nita Lawson

Date: May 27, 1977
Place: San Francisco, California

EVELLE J. YOUNGER
Attorney General
R. H. CONNETT
Assistant Attorney General
RODERICK WALSTON
Deputy Attorney General

KATHLEEN W. M. DOGGETT
Deputy Attorney General

Attorneys for the California
Coastal Commission

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STD. 113 (REV. 8-72)
ORP

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
100 McALLISTER STREET
SAN FRANCISCO, CALIFORNIA 94102

SPNCO-R

8 December 1975

PUBLIC NOTICE NO. 9474-63

TO WHOM IT MAY CONCERN:

1. Mr. Merle E. Lawson, P. O. Box 67, Lawson's Landing, Dillon Beach 3, California 94929 (telephone 707-878-2443) has applied to this office for a Department of the Army permit to retain an existing wooden bulkhead, riprap rubble seawall and fill behind the wall at Sand Point near Dillon Beach, Tomales Bay, Marin County, California. The applicant states that the site of this work is on Parcel #100-100-48 in Marin County, California. The site, which is known locally as Lawson's Landing, is located near Sand Point on the north bank of the entrance to Tomales Bay.

2. As shown on the attached drawing, the existing wooden bulkhead is approximately 1400 feet long and was constructed in 1962 and completed in 1966. The applicant states that the bulkhead was built to protect trailer spaces and to keep storm waves from inundating agricultural land. Wire netting and brush were placed at the eastern end of the wall on the shoreline. The netting and brush were subsequently washed out and replaced by a rubble wall. The rubble wall, approximately 200 feet long and 6 feet high, was installed in February 1974. In 1973 the area behind the bulkhead and rubble wall (composed of stabilized sand dunes) was graded and approximately 1,000 cubic yards of imported fill was placed thereon.

3. The applicant has either requested or received the following additional authorizations:

a. Applied for a permit from the Marin County Department of Public Works.

b. Applied for a permit from the North Central Coastal Commission.

c. Contacted the California Regional Water Quality Control Board to determine possible requirements.

4. In accordance with the requirements of the National Environmental Policy Act of 1969 (Public Law 91-190), the Corps of Engineers has evaluated the environmental aspects of the proposed activity. These aspects include shoreline protection to protect inland agricultural land and trailer spaces

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Received
DEC 11 1975
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" " Plans, Tech. Services

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from periodic flooding during the high tides and/or rough weather and the secondary impact of preventing wave erosion of the shoreline. Adverse impacts are the alteration of the natural topography behind the bulkhead, the replacement of 200 feet of natural shoreline with man-placed structures in a scenic area, destruction of approximately one acre of sand dunes habitat, and a secondary impact following from the possibility of a rupture or undermining of the bulkhead which might cause fill material to enter the bay. From an analysis of these impacts it has been determined that the activity would have no significant adverse effect on the quality of the human environment. Therefore, at this time it does not appear that the preparation of an Environmental Impact Statement (EIS) by the Corps will be necessary. The proposed activity does not invlove property listed in the National Register of Historic Places.

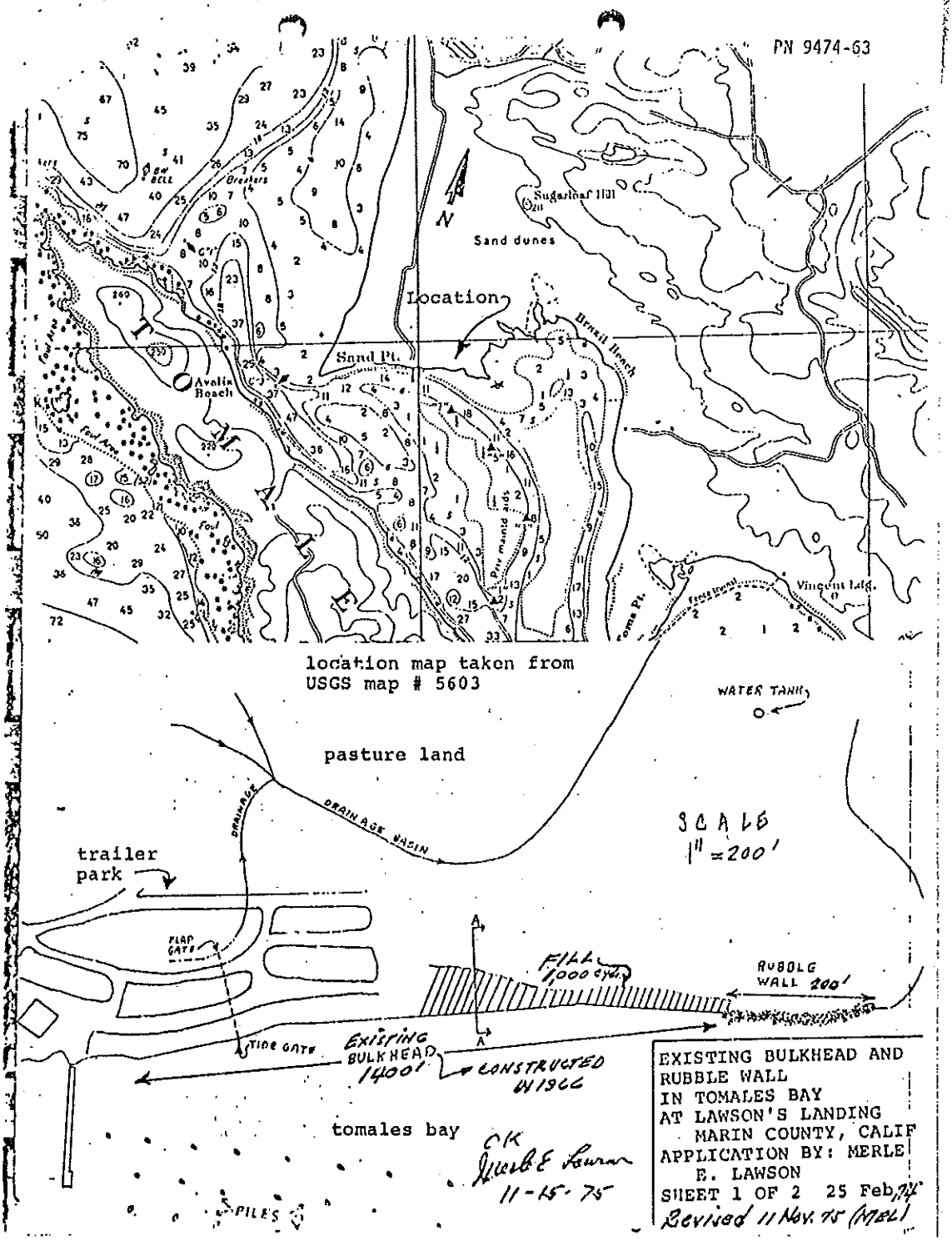
5. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State assent to the work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

6. Evaluation of this activity's impact on the public interest will also include application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b), of the Federal Water Pollution Control Act of 1972, 33 U.S.C. Section 1344(b), and (if applicable) Section 102(a) of the Marine Protection, Research, and Sanctuaries Act of 1972, 33 U.S.C. Section 1412(a). Any person who has an interest which may be adversely affected by the issuance of a Corps of Engineers' permit may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of the date of this notice and must clearly set forth the interest which may be adversely affected and the manner in which the interest may be

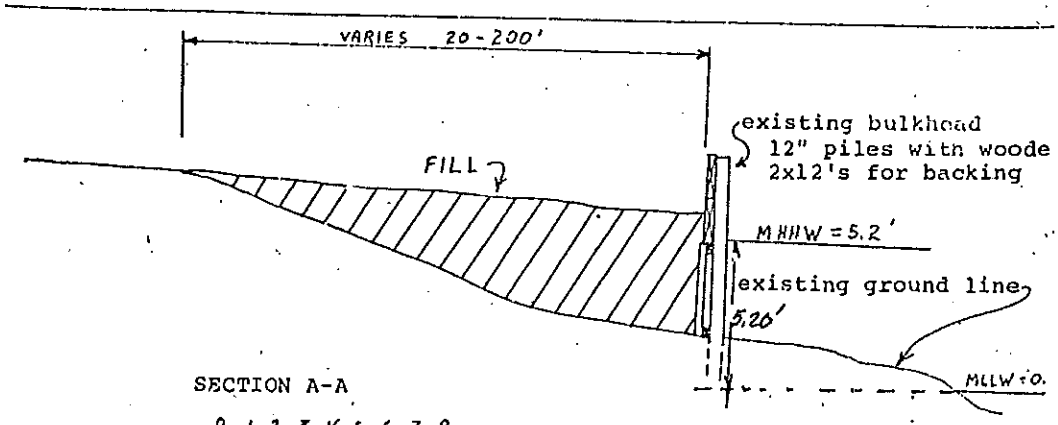
adversely affected by the activity. This paragmaph concerning guidelines and public hearings applies only to activities involving the discharge of dredged or fill materials in the navigable waters or the transportation of dredged materials for the purpose of dumping it in ocean waters.

7. Interested parties may submit in writing any comments that they may have on the proposed work. Comments should include the number and date of this notice and should be forwarded so as to reach this office within thirty (30) calendar days. It is the Corps' policy to forward any such comments which include objections to the applicant for resolution or rebuttal. If the objecting party so requests, his name will be deleted from the forwarded letter or the objections will be paraphrased in summary form. In such cases, however, it should be noted that the applicant cannot be requested to resolve such objections directly but can only rebut them by responding to the District Engineer. Details of any changes of a minor nature which are made in the final permit action will be provided on request.

H. A. FLERTZHEIM, JR.
Colonel, CE
District Engineer


PN 9474-63
Sugarloaf Hill
Sand dunes
Location
Sand Pt.
Avalin Beach
Brazil Beach
Vincent Ldg.
location map taken from
USGS map # 5603
WATER TANK
pasture land
DRAINAGE
DRAINAGE BASIN
SCALE
1" = 200'
trailer
park
FLAP GATE
FILL
1,000 cyd.
RUBBLE WALL 200'
TIDE GATE
EXISTING BULKHEAD 1400'
CONSTRUCTED IN 1966
tomales bay
PILES
CK
Merle E Lawson
11-15-75
EXISTING BULKHEAD AND
RUBBLE WALL
IN TOMALES BAY
AT LAWSON'S LANDING
MARIN COUNTY, CALIF
APPLICATION BY: MERLE
E. LAWSON
SHEET 1 OF 2 25 Feb 74
Revised 11 Nov. 75 (MEL)

PN 9474-63



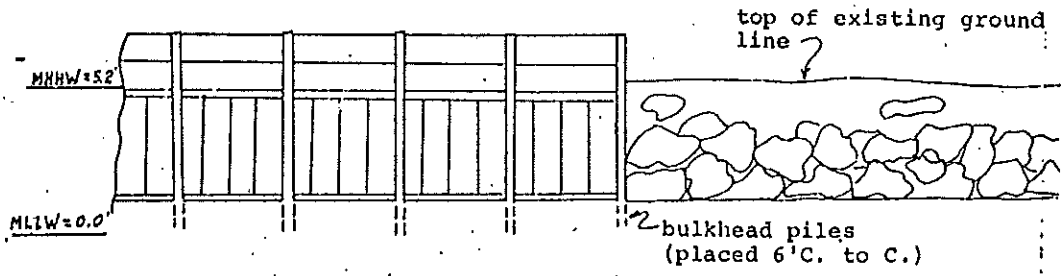
SECTION A-A

0 1 2 3 4 5 6 7 8

vertical scale in feet

10 5 0 10 20 30 40 50 60 70 80 90

horizontal scale in feet
(except bulkhead horizontal dimensions)



SECTION B-B

0 1 2 3 4 5 6 7 8 9 10

scale in feet

MLLW Datum

OK
Merle E Lawson
11-15-75

EXISTING BULKHEAD AND
RUBBLE WALL
IN TOMALES BAY
AT LAWSON'S LANDING
MARIN COUNTY, CALIF
APPLICATION BY: MERLE
E. LAWSON

SHEET 2 OF 2 25 FEB '74

Revised 11 Nov. 75 (MEL)

Lawson's Landing
Campsite Area 1

Note: This exhibit is a tentative layout and is intended to show the viability of the number and type of campsites within the limits of the proposed camping areas. Overall layout of campsites and ratio of RV sites to Tent sites may vary from that shown.

25 foot buffers from wetlands and central dune scrub are implemented with exceptions as noted, based on site-specific conditions.

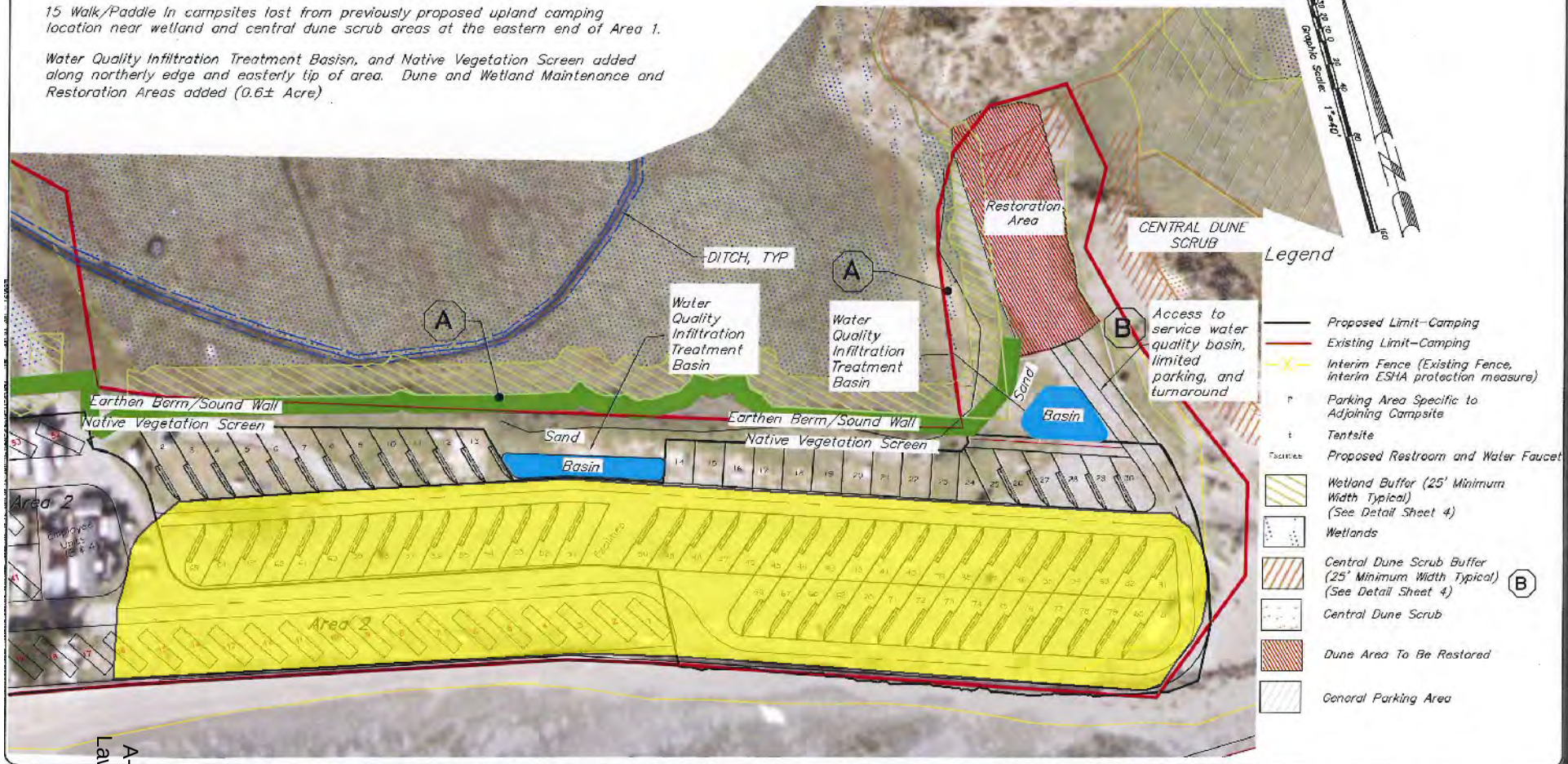
On the northern and western edges of Area 1, buffer width varies according to the shape of the existing sloped bank. Water quality bio-retention area to be installed along the northern edge of camping, adjacent to the widest section of the sloped bank, and along the western edge of the parking area. Runoff will be collected and treated in this bio-retention area and released to a sloped bank vegetative filter in such a manner as to minimize disturbance and maximize effective filtration.

15 Walk/Paddle In campsites lost from previously proposed upland camping location near wetland and central dune scrub areas at the eastern end of Area 1.

Water Quality Infiltration Treatment Basisn, and Native Vegetation Screen added along northerly edge and easterly tip of area. Dune and Wetland Maintenance and Restoration Areas added (0.6± Acre)

Area 1:		
January 2010 Layout	June 2011 Layout	Change In Layout
Area 4.5± Acres 2 Facilities Areas 105 RV Campsites 15 Walk/Paddle Tent Sites	Area 2.9± Acres 1 Facilities Areas 81 RV Campsites 0 Walk/Paddle Tent Sites	−1.6± Acres −1 Facilities −24 RV Campsites −15 Walk/Paddle Tent Sites
Total 120 Campsites	Total 81 Campsites	−39 Change Overall Campsites

(A) Note: For Resource Protection Measure Vertical Buffer see detail sheet 4



Lawson's Landing Property – Campsite Layout – Area 1

Lawson's Landing
Dillon Beach, CA 94929
Assessor's Parcel Number 100-100-12 & 48

Scale: 1" = 40'
Date: January 2010
Revised: June/Oct. 2010
Revised: June 2011
Drawn by: PCA2
Checked by: Hyl/Jea

Sheet 17 of 33 sheets
Job No. 05019

Approximate Area of Grading and Filling Authorized by Court Judgement on June 7, 1977

CALIFORNIA COASTAL COMMISSION
Technical Services Division - GIS Unit

Exhibit No.40
2-06-018 /
A-2-MAR-08-028
Lawson's Landing
Approx
judgement
authorization

DRAFT
Lawson's Landing South Ranch

Grazing Plan

Prepared for:
Lawson's Landing Inc.,
Lawson's Ranch, and
Lawson's Livestock

Prepared by:
Lisa Bush, California Certified Rangeland Manager #18

June 27, 2011

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1.0 Introduction

This plan describes a grazing program designed to manage aggressive non-native weeds that potentially threaten wetland and other natural resource values, and to enhance native species within wetland and upland vegetation communities on the Lawson's Landing South Ranch (LLSR). A majority of the LLSR acreage will be subject to a USDA Natural Resources Conservation Service (NRCS) Wetland Reserve Program (WRP) conservation easement, which will allow continued livestock grazing only for the purpose of enhancing wetlands and other natural resources. Grazing will continue under a Compatible Use Authorization, renewable at five-year intervals. NRCS biologists and range management specialists have reviewed the proposed grazing program and determined it to be consistent with WRP purposes.

Due to the variability and complexity of the LLSR site, and the fact that grazing will continue solely for ecological purposes, standard range management guidelines for determining stocking rates and residual biomass targets do not apply to this site. Estimated stocking rates, target vegetation heights determined by project biologists, and approximate grazing periods are provided as guidelines, but in order to insure optimal vegetation management, all of these parameters must be flexible enough to allow adjustments to the grazing program based on vegetation response and monitoring results

For 82 years the Lawson family has raised livestock on the approximately 600-acre LLSR, and on adjacent parcels that total an additional 360 acres. The livestock operation has been and is still an integral part of the Lawson family's heritage. For 86 years the family has also had camping and other recreational uses on the site. These uses appear to be compatible, as evidenced by their long-standing mutual occupation of the same area.

Similarly, livestock grazing has coexisted for many years with sensitive natural resources including dune slack wetlands, the federally listed threatened California red-legged frog (*Rana draytonii*) (CRLF), and several special status plant species, all of which existed with native grazers for millennia before the introduction of domestic livestock.

The grazing ecology of California's grasslands extends back millions of years into the Tertiary Period. Present day relationships between grassland plants and grazing animals are strongly linked to these prehistoric associations (Edwards 1996). There is solid evidence that many of California's present-day plant genera evolved over millions of years with the extensive megafauna, large animals that once populated California. Although massive megafauna extinctions occurred near the time of the last ice age, during the prior two million years in the late Pleistocene Epoch, elephant-like mastodon, mammoth, camel, llama, bison, elk, pronghorn, horses, and numerous other large herbivores roamed over what is now California (Edwards 1992). These animals, which browsed on brush and trees and grazed on herbaceous

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vegetation, impacted the landscape through their feeding habits as well as through trampling that resulted from herding behavior including avoidance of predatory carnivores. Over the10,000 years since the last ice age, the only large grazers present in California were tule elk, which have now been extirpated from much of the state.

Virtually all of California's grasslands have been highly altered by the establishment of numerous non-native plant taxa over the past 240 ± years. Introduction of these non-natives has been both intentional and accidental, with the initial introductions occurring even before the first missions were built, and before Spanish missionaries brought livestock to California (Mensing and Byrne 1998). While historic heavy livestock grazing in the late 19th and early 20th centuries was likely a factor in the loss of some of California's native plant species, modern day livestock grazing has proven to be an important tool for conserving and restoring native species.

Livestock grazing is effective for managing the many invasive non-native herbaceous plants that grow in wetlands and dunes at LLSR. Aggressive non-native grasses that are well established on the site and pose a threat to sensitive habitats and species, such as Kikuyu grass (*Pennisetum clandestinum*), Italian ryegrass (*Lolium multiflorum*), and velvet grass (*Holcus lanatus*) must be managed to avoid development of thick stands that can extirpate native species.

Due to the extent of these non-native plant invasions and that fact that weedy species grow in areas that also support sensitive native plants and animals, grazing appears to be the most effective and practical method for their management.[1] Extensive herbicide treatment is not an option, and hand removal, mowing or other mechanical methods are neither practical at this scale, nor apt to be effective at controlling many of these perennial weeds.

Attempting to decrease velvetgrass through inundation would likely be ineffective. This plant grows in upland and wetland areas along the coast. There is no evidence that attempts to modify the water level would have a negative effect on this species in the porous, sandy soil at Lawson's Landing. The extent of long-term inundation is principally affected by the water table level at Lawson's Landing, and the old drainages primarily transport surface water during short-term high rainfall surge events.

Near record rainfall in winter/spring 2010/2011 has increased and prolonged inundation in dune slack wetlands without any apparent effects on velvetgrass. The drainage channels that were constructed in the 1950s originally drained the dune slack wetlands via a culvert that discharges into Tomales Bay. This culvert is now plugged and will be removed as part of the proposed Coastal Development Permit application in order to provide any additional possible retention of water.

[1] Grazing will not eliminate the non-native weedy species but will limit their height and density

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2.0 Site Description and Inventory

2.1 Physical Description

The approximately 679-acre LLSR consists a complex of active, mobile, largely unvegetated dunes and more stable areas vegetated with herbaceous and woody plant communities. Portions of LLSR that support palatable herbaceous vegetation have been an important part of the Lawson family's livestock operation since 1929.

Intentional introduction in the mid-1900s of two aggressive non-native grasses, European beach grass (*Ammophila arenaria*) and Kikuyu grass drastically altered the native dune communities and dune movement. European beach grass, which is not palatable to livestock, was widely planted on the California coast by resource agencies that believed that stabilizing dunes was a positive action. Kikuyu grass was first planted in test plots on the Lawson Ranch in the mid-1950s by agricultural advisors and has since spread throughout the property. Both of these plants, as well as numerous other non-native species that were accidentally or intentionally introduced to the site, have significantly and permanently altered the structure and function of native vegetation communities.

LLSR provides habitat for special-status plants and animals including Point Reyes bird's beak, Tidestrom's lupine (*Lupinus tidestromii*), wooly-headed spineflower (*Chorizanthe cuspidate villosa*), and CRLF, all of which have co-existed with the livestock operation without apparent negative effects from this use.

2.2 Vegetation and Soils

Vegetation communities, forage quantity and quality, and soils are described below.

2.2.1 **Vegetation Communities**. LLSR vegetation is described in Monk & Associates, Inc.'s *Vegetation Communities and Update on Special-status Species Issues* report (2006). South Pasture vegetation communities include *Lolium* grassland upland, *Pennisetum* grassland, central dune scrub, hillside swale wetlands, drainage blowouts, dune slacks, emergent marsh, northern coastal salt marsh, brackish marsh, northern foredunes and man-made ditches. Cattle grazing is most apt to affect vegetation communities that include herbaceous species, as cattle are drawn to areas that provide their preferred forages, which are palatable herbaceous plants. The vegetation communities at LLSR are described below.

Lolium Grassland Upland. *Lolium* grassland upland is found in herbaceous uplands on site and is shown in Figure 1. This grassland is dominated by Italian ryegrass, a highly palatable and high quality forage plant.

Pennisetum Grassland. *Pennisetum* grassland, which is found in herbaceous uplands as shown in Figure 1, has also colonized some of the drier dune slacks.

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Pennisetum grassland consists of areas where Kikuyu grass is either dominant (that is, greater than 50 % cover) or is colonizing at lower percentages of total cover than 50 %. Kikuyu grass forms dense mats, which inhibits regeneration of native plants by smothering seedlings. This plant can also climb over and smother shrubs and young trees.

Central Dune Scrub. Central dune scrub is a shrub community but includes an herbaceous component of non-native weedy species such as bur clover (*Medicago polymorpha*), English plantain (*Plantago lanceolata*), sheep sorrel (*Rumex acetosella*), rip-gut brome (*Bromus diandrus*), velvet grass, and red-stem filaree (*Erodium cicutarium*) that compete with the native vegetation in this community. European beach grass has invaded central dune scrub in some areas. Native species include coyote brush (*Baccharis pilularis*), yellow bush lupine (*Lupinus arboreus*), yarrow (*Achillea millefolium*), salt rush (*Juncus lesueurii*), and dune evening primrose (*Camissonia cheiranthifolia*).

Drainage Blowouts. Recent drainage blowouts are typically unvegetated, but blowouts created during the winter of 2004/2005 in some locations supported a sparse (approximately 10%) vegetative cover of water cress (*Rorippa nasturtium-aquaticum*) and common three-square (*Schoenoplectus pungens*). These scalloped areas are expected to continue to receive stormwater flows, which promote saturated soil conditions for one to several months each winter. Accordingly, most of these features will eventually support a prevalence of hydrophytic (wetland) species.

Hillside Swale Wetlands. Hillside swale wetlands are areas where a shallow to deep depression has formed in between opposing dune slopes on a hillside. Hillside swale wetlands are dominated by salt rush, Italian rye grass, velvet grass, cow clover (*Trifolium wormskioldii*), and fiddle dock (*Rumex pulcher*).

Dune Slacks. Within LLSR, the dune slacks are separated into two types: degraded and non-degraded. Degraded dune slacks have been disturbed over the years by construction of drainage ditches, which has altered the plant species composition and as a result, non-native grassland and weedy species have become established in portions of the dune slacks.

Vegetation in the degraded dune slacks can include a high percentage (but less than 50 % total cover) of species such as Kikuyu grass and Italian rye grass. In general, degraded dune slacks do support a prevalence of hydrophytic plant species including cow clover, annual blue grass (*Poa annua*), salt rush, and velvet grass. Cow clover and salt rush are the only native, dominant species found in the degraded dune slacks. All other species are non-native. Other weedy, non-native grassland species interspersed in this community are spring vetch (*Vicia sativa*), cut-leaf geranium (*Geranium dissectum*), small quaking grass (*Briza minor*), and silver European hair grass (*Aira caryophyllea*).

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Non-degraded dune slacks within LLSR support salt grass (*Distichlis spicata*), salt rush, iris leaved rush (*Juncus xiphiodes*), beach strawberry (*Fragaria chiloensis*), silverweed (*Potentilla anserina pacifica*), and cow clover, all native species. Non-native velvet grass is also a dominant species in the summer months. Subordinate species include native species such as seep monkey flower (*Mimulus guttatus*) and water cress.

Emergent Marsh. Emergent marsh habitats at LLSR differ from the dune slacks in that the emergent marsh habitats are found in areas where formerly unvegetated dune hollows now support a dense hydrophytic plant community. In some cases open water pools occur in the lowest elevations in these marshes, which in turn are surrounded by a dense, hydrophytic plant community. Deep blowouts that remain near (or that expose) the water table for long duration result in extended hydroperiods that promote development of emergent marsh habitats that eventually develop into willow scrub communities. This tendency toward a willow scrub community is evident in the deepest and most developed emergent marshes where sapling willows are colonizing.

Dominant plants found in the emergent marsh habitats within LLSR are common three-square, providing greater than 50 % cover in most cases, iris leaved rush, silverweed, seep monkey flower, spike rush (*Eleocharis macrostachya*), and cow clover. As most emergent marshes occur within dune slacks, the outside edges of emergent marsh habitats are typically demarcated by a dense growth of velvet grass, which appears to thrive in wetland habitats that are seasonally saturated but not in marsh habitats that experience periods of long-term inundation.

Northern Coastal Salt Marsh. Northern coastal salt marsh occurs at the southern end of LLSR and is vegetated with native pickleweed (*Salicornia virginica*), salt grass, fleshy jaumea (*Jaumea carnosa*), and arrow grass (*Triglochin concinna*). Sea lavender (*Limonium californicum*), and brass buttons (*Cotula coronopifolia*) are also scattered through this plant community. Point Reyes bird's beak, a special-status species, is also found in this community. Greater than 2,000 Point Reyes bird's beak plants were observed in this community in July 2006 and continue to be observed within the salt marsh in high numbers every summer (Sarah Lynch personal communication).

Brackish Marsh. At the southern tip of the coastal estuarine community lies a brackish marsh (wetland). This vegetated community transitions into mudflat as it extends south towards Tomales Bay. At the center of the brackish marsh is an obvious channel where tidal waters and freshwater mix, forming a flowing stream out to the Bay. This deeper channel is 100 % vegetated with common three-square, a brackish marsh species. Outside the channel common three-square is still dominant, yet a few other species join the mix: salt grass, low bulrush (*Isolepis cernus*), and rabbit's foot grass (*Polypogon monspeliensis*).

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Northern Foredunes. Plant species diversity in the northern foredunes is relatively low due to the dominance of European beach grass. Native shrubs provide only a small percentage of the vegetative cover in the foredunes and include coyote brush, yellow bush lupine, and mock heather (*Ericameria ericoides*). Non-native forbs and grasses such as ice plant (*Carpobrotus* spp.), and rabbit's foot grass are also present, but provide a minimal percentage of the vegetative cover. Three native plants, beach evening primrose, salt rush, and beach strawberry are also present.

Man-made Ditches. Vegetation found within ditches is dominated by species that include water speedwell (*Veronica anagallis-aquatica*), spikerush, common three square, creeping spikerush, and ditch beardgrass (*Polypogon interruptus*).

2.2.2 **Forage Quality**. Palatable vegetation at LLSR is limited to herbaceous plants, primarily within the following vegetation communities: degraded dune slack, non-degraded dune slack, saturated to inundated emergent marsh, *Lolium* grassland upland, and *Pennisetum* grassland. These vegetation types intergrade with central dune scrub, foredunes, and various other types that may be consumed to a limited degree by livestock, but don't provide significant forage value.

Forage quality varies spatially within LLSR, with areas of high-quality forage dominated by Italian ryegrass, bur clover and clovers, and red-stem filaree. Areas of poor forage are composed of rushes, bulrush, spike rush, silverweed and other coarse plants. Much of LLSR consists of open, unvegetated dunes that don't provide livestock forage and are only traversed by livestock moving between vegetated areas or to and from water sources.

Forage quality also fluctuates temporally between seasons and according to phenological stages of plant growth. For cool season grasses such as Italian ryegrass and velvet grass,[2] forage quality is highest in mid-spring when grasses are approaching maturity but have not yet flowered. This corresponds with the rapid spring growth period, when grassland biomass is also highest. Grazing during this period is important for suppressing fast growing, invasive grasses.

2.2.3 **Soils and Soil Survey Forage Information**. LLSR soils mapped and described in the Marin County Soil Survey (USDA 1985) are shown in Table 1. Map unit 122, Dune land, is the predominant soil map unit, with only very small patches of 127, Fluvents, channeled; 173 Sobega loam; and 192 Tomales loam comprising minor amounts LLSR soils. Forage production values are provided for Sobega loam and Tomales loam, but are not provided for Dune land or the other minor units, making the Soils Survey information of little value for estimating LLSR forage production.

[2] Kikuyu grass is a warm season grass, most of the other forage plants at LLSR are cool season species

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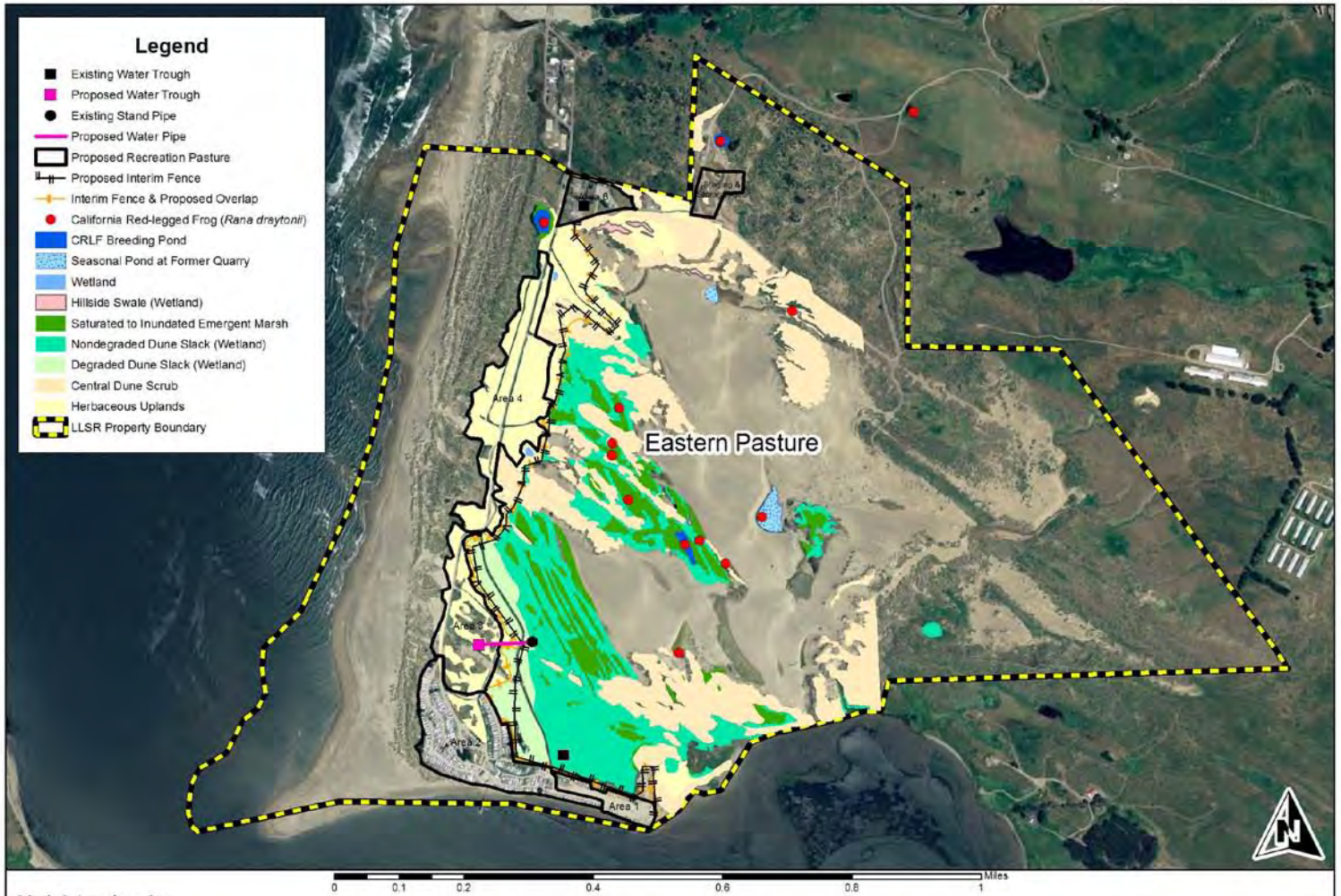

Monk & Associates, Inc.
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Figure 1. Lawson's Landing South Ranch Grazing Plan
Infrasturcture and Vegetation
Dillon Beach, California

Map Revision Date: July 17, 2010
Aerial Photograph Source:
http://goto.arcgisonline.com/maps/
World_Imagery (2008)

Table 1. Lawson's Landing South Ranch soil map units

Map Unit Number	Map Unit Name	Comments
104	Beaches	Mostly in Recreation Area 2 where there is no grazing potential
122	Dune land	The vast majority of LLSR is comprised of this soil map unit, described as "loose, shifting sand" for which the Soil Survey does not provide forage production information
127	Fluvents, channeled	Supports many of the dune slacks which will be grazed; the Soil Survey does not provide forage production estimates for this map unit
173	Sobega loam, 9 to 15 % slopes	Small area in the northern part of LLSR; according to the Soil Survey, produces 1,800 to 3,000 pounds of forage per acre annually
192	Tomales loam, 15 to 30 % slopes	Very small area in the northern part of LLSR; according to the Soil Survey, produces 2,000 to 3,000 pounds of forage per acre annually
203	Xerorthents, fill	In Recreation Area 1 where there is no grazing potential

2.2.4 **Forage Production and Grazing Capacity**. Inter-annual production of herbaceous biomass can vary greatly depending on temperatures, and amount and distribution of rainfall, especially in grasslands that are dominated by annual plants. Production at LLSR is likely less variable between years because a high percentage of forage is provided by perennial species that are not as strongly influenced by weather conditions.

Estimated herbaceous biomass production, minus the amount of residual biomass left for soil protection and to benefit the future year's species composition and forage production, is referred to as available forage. Herbaceous biomass production can typically be estimated by several different methods including: use of forage production estimates for range sites identified in Soil Surveys or on-line Soil Data Mart; direct measurement methods that involve clipping and weighing of vegetation; and knowledge of present or historical stocking rates on the site, or on a similar nearby site.

Since the Soil Survey does not provide forage production estimates for most of the LLSR acreage that supports herbaceous vegetation, and site variability and timing of preparation of this plan do not allow use of direct measurement, the herbaceous biomass production and stocking rate necessary for managing this biomass were estimated from the current stocking rate and knowledge of forage production on other nearby sites.

The four herbaceous vegetation communities that provide a majority of palatable herbaceous biomass are *Pennisetum* grassland and *Lolium* grassland upland, which are mapped together as herbaceous upland in Figure 1; degraded dune slack, and non-degraded dune slack, which total approximately 150 acres. The primary forage

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plants within these vegetation communities are non-native perennial grasses including Kikuyu grass, velvet grass, and Italian ryegrass, which is an annual. Kikuyu grass, an aggressive rhizomatous species, behaves quite differently than annual grasses and most other common native and non-native perennial grasses, having the potential to produce copious amounts of biomass, and can reach 18 inches in height in open areas, but can climb several feet onto structures or shrubs.

Grazing Capacity Estimate Based on Current Stocking Rate. Chris Lawson, who operates the livestock operation on the LLSR, usually runs 60 mother cows (animal units or AUs) on LLSR for seven and one-half months, from October to mid-May. In addition to the forage that they consume by grazing, these cattle are normally fed approximately 30 tons of hay from December until mid-March, and some years into April (Chris Lawson personal communication).

Forage demand for these 60 AUs totals 450,000 pounds over seven and one-half months. Subtracting the feed value of the hay from the total forage demand shows the approximate consumption of forage from LLSR herbaceous vegetation types to be about 410,000 pounds or 2,733 pounds per acre.[3] Assuming that roughly 1,000 pounds per acre of residual biomass remains on the ground at the end of the grazing season, average annual production within herbaceous vegetation types can be back calculated to be approximately 3,750 pounds per acre. Fall residual biomass at LLSR has not recently been measured but was estimated to be 1,000 pounds per acre throughout the Lawson Ranch in fall of 1991 (Larson 1991).

2.3 Existing Grazing Infrastructure

As shown in Figure 1, grazing infrastructure is limited to cross fencing separating LLSR from the Lawson's Landing North Ranch (LLNR) and two water troughs.

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[3] 60 AU x 7.5 months = 450 AUMs or 450,000 pounds of forage required;
30 tons hay x 2,000 pounds/ton = 60,000 pounds of feed substituted for green forage;
450,000 pounds of feed required - 60,000 pounds from hay = 410,000 pounds of forage produced by LLSR;
410,000 ÷ 150 acres = 2,273 pounds/acre

2.0 Purposes of Grazing

Grazing should continue in the coastal wetlands and herbaceous uplands at LLSR to serve two main purposes: to manage non-native weedy plants and to help maintain breeding and dispersal habitat for CRLF, which has coexisted with livestock grazing at LLSR for 86 years, and with native grazers for thousands of years before that. Grazing is the only practical method for managing the extensive stands of Kikuyu grass and velvet grass—mowing these perennial species is not feasible throughout most of the site, and the extensive and repeated applications of herbicide that would be required to significantly reduce these plants could negatively affect other desirable species. Hand removal of these plants over large areas is also not practical or feasible.

Consumption of non-native weedy plants by livestock may also beneficially affect habitat for Tidestrom's lupine and may have other ecological benefits related to management of non-native plants. Two recent studies examined the effects of grazing in coastal grasslands. One evaluated cattle grazing in 25 locations along the coast from Mendocino to San Luis Obispo (Hayes and Holl 2003), the other examined tule elk grazing at Tomales Point in PRNS (Johnson and Cushman 2007). Both studies came to similar conclusions: grazed areas had greater abundance and species richness of native annual forbs and non-native annual grass and forb species. The findings fit with theoretical predictions that grazing removes biomass and opens up micro sites favorable to annual plants. Both studies also provide evidence that grazing can be an effective means of managing velvet grass invasions.

Grazing of domestic cattle and sheep likely occurred at LLSR for many decades before the Lawson family acquired the site. During this time, many of the non-native grassland plant species that now dominate California's grasslands were introduced both deliberately and unintentionally. Kikuyu grass was first planted at Lawson's Landing in the 1950s by public agencies, in trials intended to test its suitability as a forage plant (Mike Lawson personal communication). The coastal wetlands at LLSR have been impacted and altered by excavation of drainage ditches for pasture improvement with support by public agencies, but continue to support a substantial array of native plants and animals, as well as numerous non-native grasses and broadleaved herbs.

Several of the non-native grasses that have become permanently established in these coastal wetlands have competitive advantages over native species, and their cover and density tend to increase if and when grazing is removed.

Grazing will allow native wetland plants, including grasses, rushes and sedges, and broad-leaved herbs to germinate and grow by reducing the cover and density of non-native plants, and preventing the buildup of thatch, the dead herbaceous biomass from previous years. Excess thatch can prevent germination and growth of some plants and tends to favor a narrow range of non-native grassland species.

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3.1 Management of Non-native Plant Species

Cattle grazing within and outside of the recreation areas will reduce cover and density of non-native weedy grasses, helping to maintain native plant diversity in dune slacks, prevent velvet grass expansion into new areas, and may help maintain habitat for Tidestrom's lupine and Point Ryes bird's beak.

Maintain native plant Diversity in dune slacks. Grazing will help reduce and manage cover of Kikuyu grass and other non-native grasses and will maintain a low Kikuyu grass canopy height. It will also help prevent development of monotypic stands of velvet grass that are common in ungrazed coastal grasslands.

Limit velvet grass expansion. Grazing will limit or prevent velvet grass spread into surrounding areas. Velvet grass is common in coastal Marin County, especially on ungrazed and lightly grazed sites. It is a prolific seed producer with a high germination rate, and can also propagate vegetatively. (Fitzsimmons and Burrill 1993). Tall, dense, monotypic stands of velvetgrass can be easily seen on ungrazed properties near Lawson's Landing in the late spring and early summer when the purple flower heads that carpet these sites contrast with the green of adjacent grazed fields.

Maintain potential habitat for Tidestrom's lupine. Grazing will help to maintain a low herbaceous canopy height and moderate density of potentially competing herbaceous plants within sandy habitat that could allow re-establishment of Tidestrom's lupine. Two previously identified specimens of Tidestrom's lupine (Monk & Associates, Inc. 2006) were extirpated from LLSR after a cattle-proof exclosure was constructed around them. In the absence of grazing, salt rush, cow clover, and Kikuyu grass density increased substantially, displacing the Tidestrom's lupine (Sarah Lynch personal communication).

Maintain habitat for Point Reyes bird's beak. Grazing will help to reduce herbaceous vegetation that competes with this plant in northern coastal salt marsh. The population of Point Reyes bird's beak was apparently negatively affected by competition from other herbaceous plants after it was partially excluded from grazing (Sarah Lynch personal communication).

3.2 Maintenance of California Red-legged Frog (CRLF) Habitat

As well as benefiting grassland plants, livestock grazing has been shown to enhance habitat conditions for the federally listed threatened CRLF by managing vegetation in wetlands where CRLF breed to ensure a mix of emergent vegetation and open water as recognized by the U.S. Fish and Wildlife Service (2006).

CRLF is known to occur at Lawson's Landing (Monk & Associates, Inc. 2006). Breeding habitat for CRLFs occurs in two locations at LLSR, and CRLFs have been sited in four other locations within LLSR (Monk & Associates, Inc. 2006). Preferred

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habitat consists of pools or slow water with emergent vegetation to which CRLFs attach their eggs. CRLFs also use upland grassland habitats and rodent burrows or woody litter refuges up to one mile from breeding areas during November to March (movements prior to breeding) and July to October (post metamorphic juvenile dispersal).

The U.S. Fish and Wildlife Service's Determination of Critical Habitat for the CRLF (U.S. Fish and Wildlife Service 2006) cites several reasons for conducting livestock grazing in areas with CRLF ponds, most importantly that grazing at low to moderate levels helps to maintain a mix of open water habitat and emergent vegetation, the type of habitat where frogs are usually found.

The U.S. Fish and Wildlife Service Recovery Plan for the CRLF (U. S. Fish and Wildlife Service 2002) states: "In such ponded habitat, grazing may help maintain habitat suitability by keeping ponds clear where they might otherwise fill in with cattails, bulrushes, and other emergent vegetation."

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4.0 Grazing Program and Implementation Recommendations

4.1 Livestock Species

Body size and reticulo-rumen capacity, anatomical differences in teeth, lips, and mouth structure, grazing ability, and differences in digestive systems account for some of the differences in foraging behavior between livestock species (Vallentine 1990). Mouth size directly affects the degree of selectivity that is physically possible; ruminants with small mouth parts such as sheep and goats, in contrast to cattle and horses, can more effectively utilize shrub foliage while selecting against woody stems. Dietary preferences of different livestock species are shown in Table 2.

Cattle are the recommended species for grazing within LLSR for the following reasons:

- *Cattle Graze Coarser Grasses than Sheep*. Cattle are more apt than sheep to consume, thus effectively manage, coarser grasses such as Kikuyu grass and velvet grass (Peischel and Henry 2006).
- *Predation*. Sheep are very prone to predation by domestic dogs, coyotes, and mountain lions, all of which occur regularly to occasionally at LLSR. In order to avoid large losses of sheep and lambs to predators, sheep need to be fenced in predator-proof pastures constructed of woven wire fencing, which would be difficult to impossible to maintain in shifting sands. Sheep also require protection by guard dogs that tend to bark all night to keep predators at bay, and activity that would not be compatible with camping
- *Cattle Containment is Less Problematic*. Cattle can be confined and managed with less intensive fencing than can sheep, which is less visually obtrusive and interferes less with wildlife movement.
- *Sheep Maintenance*. Sheep shearers will not sheer sheep with sand in their wool as it quickly dulls their tool (Chris Lawson Personal communication).

Table 2. Generalized dietary preferences by domestic livestock species

Species	Dietary Preferences
Cattle	Grazer: mostly grasses, some seasonal use of forbs and browse
Horses	Grazer: mostly grasses, minor forbs and browse
Sheep	Intermediate feeder: high use of forbs, but also use high volumes of grass and browse
Goats	Browser to intermediate feeder: high forb use, but can utilize large amounts of browse and grass; highly versatile

(Adapted from Vallentine 1990)

Livestock Species Recommendation:

- Continue cattle grazing as described in this plan

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4.2 Grazing Areas

The entire 679-acre LLSR is part of the larger Lawson Ranch that also includes the 326-acre LLNR. The LLSR consists of a single pasture that is accessible to cattle from October through mid-May. Within the LLSR, only about 150 acres support herbaceous vegetation suitable for grazing. Cattle graze preferentially within LLSR, based on types and availability of forage, location of water troughs, and topographic and geologic features. Although animals travel through dunes, the amount of time they spend in unvegetated dunes is very limited due to a dearth of herbaceous vegetation.

Cattle fencing and a vegetative hedgerow will be established to separate the recreation area from the remainder of LLSR, effectively creating two pastures, hereinafter referred to as the Recreation Pasture and the Eastern Pasture. The Recreation Pasture will include approximately 25 acres, while the Eastern Pasture will include approximately 400 acres, 125 acres of which support herbaceous vegetation. Further division of LLSR is not recommended due to the instability of the landscape (that is, sandy soils) and resultant difficulty in establishing and maintaining fences, limited water sources, and lack of evident potential benefits from further cross fencing.

Within the Eastern Pasture, grazing will primarily occur in the following target habitat types: 1) dune slack wetlands, and saturated to inundated emergent marsh to manage non-native grasses; 2) *Pennisetum* grasslands to control the growth and spread of Kikuyu grass; 3) portions of each of the ponds as needed to maintain open water environments for CRLF; and to a limited degree,[4] within northern coastal salt marsh.

To protect the CRLF breeding pond near the entrance gate from overuse by cattle, a California native shrub and vine hedgerow will be planted along the eastern and southern sides of the entrance pond. Split rail or other wood fencing may be used along the main entrance road to Lawson's Landing to provide protection to the plantings in an aesthetically pleasing manner. Openings through the plantings and fencing will allow managed cattle access to this breeding pond to keep emergent vegetation from filling in the pond.

Pennisetum grasslands occur primarily within the Recreation Pasture, while the dune slack wetlands, saturated to inundated emergent marsh (with the exotic velvet grass), *Lolium* grassland and ponds occur primarily in the Eastern Pasture.

Grazing Area Recommendations:

- Continue cattle grazing within LLSR
- Establish the Eastern Pasture and the Recreation Pasture with a California native shrub and vine hedgerow that will initially be protected with fencing

[4] Limited by the fact that this vegetation community provides little herbaceous biomass

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- Rotate cattle between LLSR and the 200-acre Scale Field on LLNR
- Protect the CRLF breeding pond near the entrance from overuse by cattle with split rail or other wood fencing and a California native shrub and vine hedgerow
- Based on biological assessments, consider using high-intensity short-duration grazing within the CRLF breeding pond by the entrance gate to reduce the height and density of emergent vegetation in October after frog metamorphs have moved to uplands

4.3 Stocking Rate

Herbaceous forage production, as discussed in section 2.2.4, provides the basis for determining appropriate stocking rates. Herbaceous biomass production is expressed in pounds or tons, and when used to estimate stocking rate can be expressed in AUMs, while stocking rate is expressed as AUs per time period. One AU can graze a pasture that produces 12 AUMs of available herbaceous biomass for one year (12 months) or two AUs can graze the same pasture for six months.[5]

The approximately 150 acres of herbaceous vegetation communities on LLSR produce varying amounts of forage throughout the year. Kikuyu grass is a warm season grass, with active growth from about March through November, while most other grasses present on the site are cool season species, whose active growth periods are generally fall through late spring in uplands, and can be year-round in wetlands.

4.3.1 ***Residual Biomass***. In California annual grasslands, which are the predominate grassland type in the State, grazing capacity and stocking rate are usually estimated based on expected production of forage, allowing for some residual biomass (residual dry matter or RDM) that will remain on the ground at the end of the grazing season (fall) to provide soil protection, allow for regeneration of herbaceous annual plants the following year, and for winter forage. Stocking rates are normally set to maximize animal performance while retaining enough RDM to protect the soil surface and to avoid negatively affecting grassland species composition or forage production the following year.

Because the wetland vegetation and most of the other herbaceous communities at LLSR are composed of non-native perennial grasses, and grazing will be used to suppress, not protect or enhance performance of non-native species without overutilizing native species, using target RDM levels is not an appropriate method for determining when a suitable level of grazing has occurred within any given year.

Continued grazing is recommended primarily to manage non-native herbaceous vegetation, and is expected to indirectly benefit native species and plant communities. In the absence of clearly identified residual biomass targets for these

[5] 2 AUs x 6 months = 12 AUMs

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species and communities within the Recreation Pasture or the Eastern Pasture, project biologists have set preliminary target minimum vegetation heights of 5-7" for hillside swale wetlands, degraded and non-degraded dune slacks, and emergent marsh habitats, and 1-2" for *Lolium* grassland upland and *Pennisetum* grassland, both of which are mapped as herbaceous uplands (Sarah Lynch personal communication). Biological monitoring should be used to determine if stocking rates and target vegetation heights are achieving ecological objectives.

4.3.2 ***Current Stocking Rate****.* The Lawsons currently graze 60 AUs in the LLSR from October through mid-May, a total of 7.5 months. In addition to the forage that they consume by grazing, these cattle are normally fed 600 pounds of hay per day from December through March, depending on weather conditions.

4.3.3 ***Recommended Revised Stocking Rate****.* The revised stocking rate will be variable depending on weather patterns, grassland biomass production, and plant community response to changes in timing or grazing. With an expected grazing season of February through June, and an additional month or so of grazing in the fall, the stocking rate will be reduced from the current rate of 60 AUs for 7.5 months (450 AUMs) to 60 AUs for approximately 6 months (360 AUMs) (see Section 4.4 Grazing Season and Timing), assuming that target vegetation heights can be retained. If target vegetation heights cannot be met in a given year, the stocking rate will be adjusted (see Section 4.3.4) or the grazing season will be decreased.

4.3.4 ***Stocking Rate Adjustments***. The revised stocking rate will adjusted based on plant community response and biological monitoring during the first two years after development of the Eastern Pasture and the Recreation Pasture, allowing a shift in the grazing season. In addition, in severe drought years or in years of above-average forage production, stocking rates may need to be adjusted downward or upward during the grazing season to achieve management objectives.

The stocking rate within LLSR should be adjusted downward in poor feed years by weaning calves early, culling more heavily than usual, or transferring more animals to the Scale House Field in LLNR. In good forage years, culling animals lightly, retaining more replacement animals, or decreasing grazing pressure in the Scale House Field can be used to increase stocking rates in LLSR as needed for vegetation management.

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Stocking Rate Recommendations:

- Graze the LLSR with 60 AUs for approximately 6 months
- Adjust the stocking rate as needed to meet preliminary vegetation target heights of 5”-7” for hillside swale wetlands, degraded and non-degraded dune slacks, and emergent marsh habitats, and 1-2”” for *Lolium* grassland upland and *Pennisetum* grassland
- Use biological monitoring results to adjust these target vetetation heights as needed
- In years of extreme drought, cull cattle more heavily than usual to decrease stocking or transfer more animals to the LLNR Scale House Field
- In years of unusually high forage production, cull more lightly, retain more replacement heifers, or decreasing grazing pressure in the LLNR Scale House Field to manage excess forage

4.4. Grazing Season and Timing

Development of two pastures—the Eastern Pasture and Recreation Pasture— at LLSR will allow a shift in the grazing season that has been restricted by recreational use from Memorial Day through fall.

The current seasonal pattern of grazing in the Eastern Pasture from fall through spring will be shifted to late winter through early summer, with a short grazing episode in the fall. This will move winter hay feeding off of LLSR as requested by the NRCS, and will increase grazing pressure on velvetgrass in late spring and early summer before it flowers and sets seed. The fall grazing episode of approximately one month will allow management of summer Kikuyu grass growth.

The 60 AUs that will graze LLSR during these time periods will spend the remainder of the year in the LLNR Scale House Field. Flexibility to move animals back and forth between the LLSR and the LLNR Scale House field should be allowed to increase or decrease stocking to best meet LLSR management objectives.

Grazing should occur in the Recreation Pasture in fall through mid-spring when recreational use is low. Cattle will be removed from this pasture during the grazing period for special high use recreational events such as Thanksgiving weekend when camping is popular. Trampling of Kikuyu grass by recreational users also helps keep this species under control, especially during the high use summer season.

Grazing Season and Timing Recommendations:

- Graze within the Eastern Pasture from late winter through early summer and again in fall for approximately one month
- Graze within the Recreation Pasture in fall through mid-spring when recreational use is low
- Move livestock from the Recreational Pasture to the Eastern Pasture or Scale House Field for special high use recreational events such as Thanksgiving weekend when camping is popular

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- Adjust grazing season as needed based on vegetation community response to grazing as determined by biological monitoring

4.5. Livestock Distribution and Infrastructure

A permanent human and cattle proof barrier separating the recreation areas from the wetland and dune areas will be developed, roughly following the proposed limits of camping as proposed in the Coastal Development Permit Maps Sheet 2. This barrier will initially consist of fencing but may eventually be provided only by hedgerow planting of native shrub and vine species as described in the Resource Protection Measures section of Lawsons Landing Amended Project Description April 2011.

Cattle water troughs will be located both within the Recreation Pasture and the Eastern Pasture to improve animal distribution. Troughs will include well-anchored wildlife escape ramps.

Livestock Distribution Recommendation:

- Create permanent human and cattle-proof barriers separating the Recreation Pasture from the Eastern Pasture that contains most of the wetlands and dunes
- Establish two new livestock water troughs, one within the Eastern Pasture and one within the Recreation Pasture as shown in Figure 1
- Place mineral supplements in underutilized areas if needed; do not use mineral supplements near wetlands or other sensitive resources

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5.0 Monitoring

Continued grazing is recommended primarily to manage non-native herbaceous vegetation, and is expected to indirectly benefit native species and plant communities. In the absence of clearly identified residual biomass targets for these species and communities, biological monitoring should be used to determine if stocking rates and grazing seasons are meeting the ecological objectives that include control of invasive exotic species and enhancement of conditions that promote special-status species colonization of LLSR. To achieve this monitoring the following recommendations should be followed:

Monitoring recommendations:

- Biologists should evaluate areal coverage and percent cover of exotic plant species infestations; Kikuyu grass is so prevalent that randomly selected sample plots are the appropriate focus for these efforts; trends in cover should be evaluated at least once per year
- Biologists working with a rangeland management specialist should make informed decisions regarding increases or decreases in recommended stocking rates based on vegetation response to grazing
- Special-status species should also be monitored within grazed areas at appropriate times of year
- Trends in cover of both exotic invasive species and desirable California native special-status species should be analyzed and reported at least once per year
- Biologists should field monitor grazing pressure and its effects on vegetation in the Eastern Pasture at least twice during the winter-to-spring grazing period; if at anytime biologists determine, either qualitatively or quantitatively based on target vegetation heights, that vegetation communities are subject to grazing pressure that is too high or too low, these biologists should have the unilateral right to ask that grazing pressure be adjusted.
- Subsequent monitoring should be conducted each time there is an adjustment in stocking rates

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6.0 Summary of Recommendations

Livestock Species Recommendation:

- Continue cattle grazing as described in this plan.

Grazing Area Recommendations:

- Continue cattle grazing within LLSR
- Establish the Eastern Pasture and the Recreation Pasture with a California native shrub and vine hedgerow that will initially be protected with fencing
- Rotate cattle between LLSR and the 200-acre Scale Field on LLNR
- Protect the CRLF breeding pond near the entrance from overuse by cattle with split rail of other wood fencing and a California native shrub and vine hedgerow
- Based on biological assessments, consider using high-intensity short-duration grazing within the CRLF breeding pond by the entrance gate to reduce the height and density of emergent vegetation in October after frog metamorphs have moved to uplands

Stocking Rate Recommendations:

- Graze the LLSR with 60 AUs for approximately 6 months
- Adjust the stocking rate as needed to meet preliminary vegetation target heights of 5”-7’” for hillside swale wetlands, degraded and non-degraded dune slacks, and emergent marsh habitats, and 1”-2” for *Lolium* grassland upland and *Pennisetum* grassland
- Use biological monitoring results to adjust these target vegetation heights as needed
- In years of extreme drought, cull cattle more heavily than usual to decrease stocking or transfer more animals to the LLNR Scale House Field
- In years of unusually high forage production, cull more lightly, retain more replacement heifers, or decreasing grazing pressure in the LLNR Scale House Field to manage excess forage

Grazing Season and Timing Recommendations:

- Graze within the Eastern Pasture from late winter through early summer and again in fall for approximately one month
- Graze within the Recreation Pasture in fall through mid-spring when recreational use is low
- Move livestock from the Recreational Pasture to the Eastern Pasture or Scale House Field for special high use recreational events such as Thanksgiving weekend when camping is popular
- Adjust grazing season as needed based on vegetation community response to grazing as determined by biological monitoring

Monitoring recommendations:

- Biologists should evaluate areal coverage and percent cover of exotic plant species infestations; Kikuyu grass is so prevalent that randomly selected

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sample plots are the appropriate focus for these efforts; trends in cover should be evaluated at least once per year

- Biologists working with a rangeland management specialist should make informed decisions regarding increases or decreases in recommended stocking rates based on vegetation response to grazing
- Special-status species should also be monitored within grazed areas at appropriate times of year
- Trends in cover of both exotic invasive species and desirable California native special-status species should be analyzed and reported at least once per year
- Biologists should field monitor grazing pressure and its effects on vegetation in the Eastern Pasture at least twice during the winter-to-spring grazing period; if at anytime biologists determine, either qualitatively or quantitatively based on target vegetation heights, that vegetation communities are subject to grazing pressure that is too high or too low, these biologists should have the unilateral right to ask that grazing pressure be adjusted.
- Subsequent monitoring should be conducted each time there is an adjustment in stocking rates

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Larson, Stephanie. 1991. Letter from Stephanie Larson to Jennifer Lawson dated 3 September. Dr. Larson is the University of California Cooperative Extension Livestock and Range Management Advisor for Sonoma and Marin Counties.

Lawson, Chris. 2011. Email communication on April 5, 2011. Chris Lawson is the livestock operator at LLSR.

Lawson Mike. 2010. Personal conversation on March 29, 2011. Mike Lawson is one of the owners of the LLSR

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Appendix 1

Grazing Management Terms

Animal Unit (AU). An adult cow or an adult cow and her calf, or the equivalent. A cow and her calf can be referred to as a "cow-calf pair", or simply a "pair."

Animal Unit Month (AUM). The amount of forage that is needed to support one AU for one month. One AUM is equal to 1,000 lbs. of forage[6]

Animal Unit Equivalent (AEU). A number relating the forage consumption of a kind or class of animal to one AU. For example, the AUE for a 1 year old kid is .1.

Cow-calf pair. A mother cow and her calf, considered to be one AU.

Forage. Biomass, including herbaceous and woody (also called browse), that provides feed for grazing and/or browsing animals.

Grazer. An animal that feeds primarily on herbaceous vegetation.

Grazing Capacity. The maximum number of livestock that can graze on a given site without adversely affecting range productivity, causing a decline in range condition, or resulting in other adverse impacts. Grazing capacity is expressed in pounds or tons of forage produced, often described in AUMs.

Intermediate Feeder. An animal that feeds by browsing and grazing.

Residual Dry Matter (RDM). The amount of herbaceous biomass that should be left at the end of the grazing season to provide suitable conditions for germination of the following year's forage crop and for soil protection.

Reticulo-rumen. The first chamber in the gastrointestinal tract of ruminant animals, composed of the rumen and reticulum.

Ruminant. A mammal of the order Artiodactyla that digests plant-based food by initially softening it within the animal's first stomach, then regurgitating the semi-digested mass, and chewing it again.

Stocking Density. The number of AUs present on a given area at one point in time.

Stocking Rate. The number of AUs present on a given area over a designated time period.

[6] Forage weights used for this definition are variable. Some range managers use 1,000 pounds of forage for one AUM, which accounts for wasted forage. Others use a lower rate based on actual consumption (26 pounds per day per AU) and apply a "grazing efficiency rate" to account for wasted forage.

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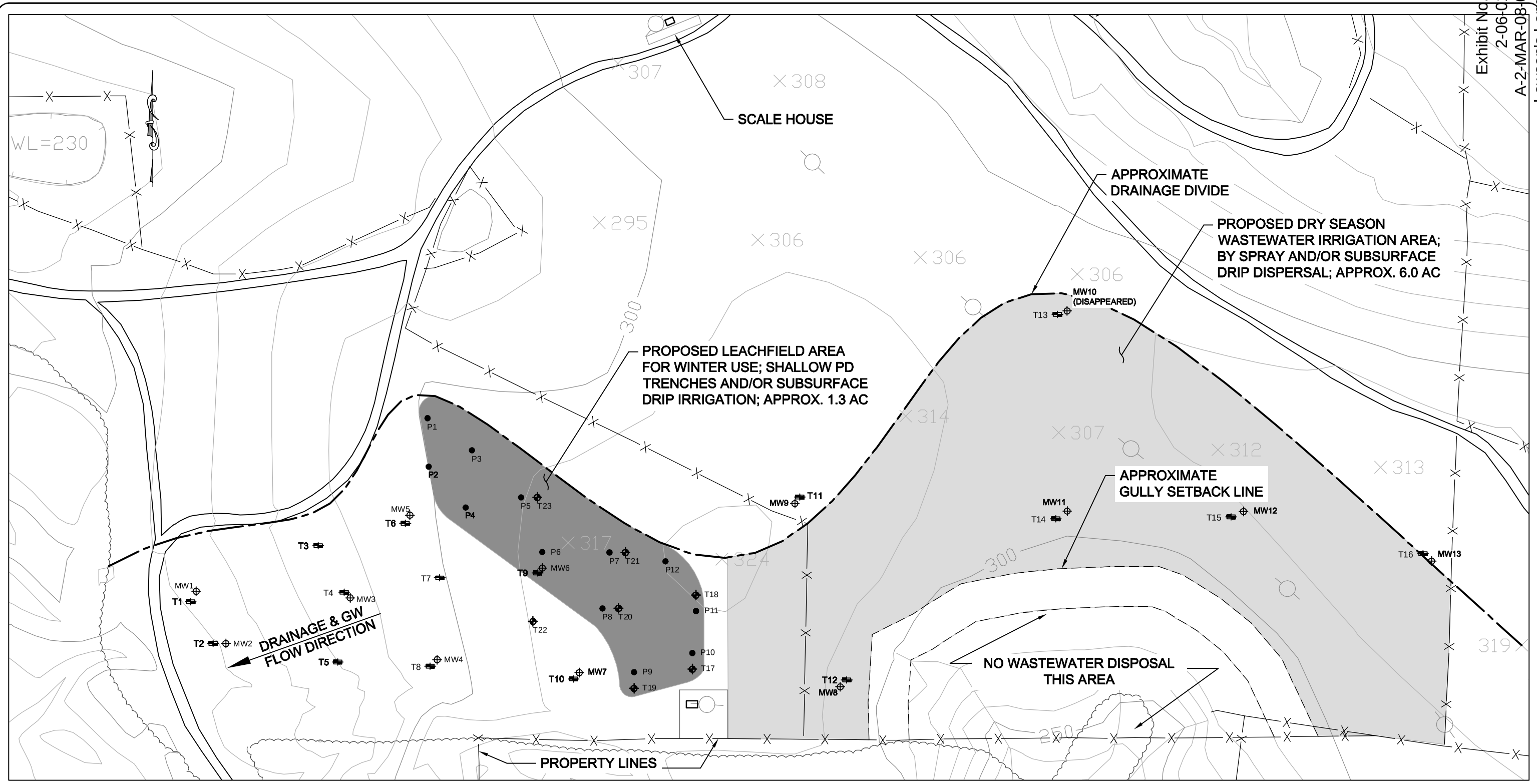
Exhibit No. 42
2-06-018 /
A-2-MAR-08-028
Lawson's Landing
Leachfield Test Location Map

Exhibit 6 – Figure 4 – Septic Field Test Location Map, Section 7.1 New RV Camping Areas



120' 0' 120' 240'

1" = 120'

LEGEND:
- TEST PIT (EXCAVATED)
- TEST HOLE (AUGERED)
- MONITORING WELL
- PERCOLATION TEST HOLE

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LAWSON'S LANDING

DILLON BEACH, CA

QUESTA ENGINEERING CORP.
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807
Civil
Environmental
& Water Resources
(510) 236-6114
FAX (510) 236-2423
questa@questaec.com

Sht:	Rev:	Date:	By:	Description:	App'd:

Design:	NH/MW
Drawn:	SH/DI
Checked:	NH
Appr'd:	NH

TEST LOCATION MAP
LAWSON'S LANDING
DILLON BEACH, CA

FIGURE
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