

# **EXHIBIT JJ**

**ALTERNATIVE 2 - VEGETATION MANAGEMENT AND SEDIMENT MANAGEMENT**

**INFRASTRUCTURE COST**

ITEM	UNIT	COST/UNIT	# UNITS	YEARS	INFLATION	TOTAL COST
1ST YEAR VEGETATION MANAGEMENT	ACRES	\$7,500	11.56	1	--	\$ 86,700
1ST YEAR SEDIMENT MANAGEMENT	CY	\$20	22,626	1	--	\$ 452,520
HABITAT ENHANCEMENT (LOG STRUCTURES)	EA	\$2,500	20	1	--	\$50,000
					SUBTOTAL	\$589,220
					CONTINGENCY 20%	\$ 117,844
					ADMINISTRATION AND PERMITTING 3%	\$17,677
					ENGINEERING AND DESIGN 13%	\$80,647
					<b>TOTAL INFRASTRUCTURE COST</b>	<b>\$805,388</b>

**10-YEAR ESTIMATED MAINTENANCE COST**

ITEM	UNIT	COST/UNIT	# UNITS	YEARS	INFLATION	TOTAL COST
YEARLY VEG. MANAGEMENT	YR	\$80,000	1	9	4%	\$ 1,024,785
YEARLY SEDIMENT MANAGEMENT	YR	\$140,000	1	9	4%	\$ 1,793,373
					SUBTOTAL	\$ 2,818,157
					CONTINGENCY 20%	\$ 563,631
					ADMINISTRATION AND PERMITTING 3%	\$ 84,545
					<b>TOTAL 10 YEAR MAINTENANCE COST</b>	<b>\$ 3,466,334</b>

**TOTAL 10 YEAR COST \$4,271,722**

**ESTIMATED INDIRECT COST DUE TO FLOODING**

ITEM	UNIT	COST/UNIT	# UNITS	YEARS	INFLATION	TOTAL COST
FARMLAND INUNDATION (700 ACRES EVERY 8.3 YEARS )	ACRES/YR <sup>1</sup>	\$8,000	84	10	4%	\$ 9,947,242

<sup>1</sup> UNITS CALCULATED AS 700 ACRES / 8.3 YEARS

**TABLE 3.3:** Estimated costs for Alternative 2 - Vegetation and Sediment Maintenance. Costs are presented separately for infrastructure upgrades and maintenance. The total cost of the project over 10 years is also presented as a way to compare costs between alternatives to assist in selecting a preferred alternative.

# **EXHIBIT K**

Arroyo Grande Creek and other major waterways throughout the area. With the protection of Lopez Dam, the city has been spared major flooding, however localized flooding continues to impact the city.

“Major floods in 1973 and 1983 and the extremely severe storms of 1995 and 1997 continue to emphasize the need for damage improvement. As part of the extensive study of the flood control situation, an examination of current deficiencies and the condition that causes the problem was made. Additionally, a field review during storm seasons was vital in pinpointing problem areas.”(8)

#### Flood of March 2001

Just as this book is being prepared for publication, the inevitable has happened: heavy rains in the month of February and early March has caused a flooding of the Arroyo Grande Creek over the farm lands and some homes in the lower Arroyo Grande Valley. Rainfall of approximately 7 inches in February plus 4 inches Sunday night, March 4, and early Monday, the 5th, with a season total of about 16 inches caused the creek to rise above its banks as it flowed through the Arroyo Grande Watershed. As it rushed to the ocean it picked up all types of debris including fallen trees. When it came to the flood control channel in Oceano it passed the 22nd Street Bridge and Southern Pacific Railroad Bridge with such force that the water plus the debris was enough to break about a 150 foot gap in the flood control levee, causing a devastating flood onto the farm area adjacent to the creek, with hundreds of acres being inundated with water.

Jasmine Marshall writes in the Times-Press-Recorder, March 7, 2001, “One of the hardest-hit areas was Bejos Seeds Inc., a national distributor of vegetable produce seeds. The farm experienced approximately \$500,000 in losses due to the onslaught of the water that

inundated the fields. ... One bright spot for Bejos Seeds was assistance from a neighboring farm, Phelan & Taylor Produce Co., which allowed Bejos Seeds to move its stock to a warehouse on higher ground. Phelan and Taylor, a vegetable farm that grows broccoli and cauliflower, was also hit hard by the levee break. John Taylor said parts of his field were still under 10 to 12 feet of water Tuesday.” (11)

Immediately work crews went to work to repair the levee in order to prepare for any additional storms in the 2001 rainy season. In an article from the same newspaper, Karen White states, “The creek channel, developed in 1958 as a Soil Conservation project, (see chapter 3) is now considered property of the Templeton-based National Conservation Resource Service (NCRS) of San Luis Obispo County, according to Margie Linguist, administrator. The NCRS will provide money to repair the levee, with engineering by its Emergency Watershed Protection program. Joining them will be technical help from the U.S. Army Corp. of Engineers.” (11)

It is evident that these last three miles of the Arroyo Grande Creek, with its built-up levees, is not a riparian creek, but a flood control channel. To maintain it as such is a problem that must be solved. Personnel from San Luis Obispo County, the City of Arroyo Grande, the Coastal San Luis Resource Conservation District, local farmers, environmentalists, and many others are working together to try to do just this. On November 18, 1999, a meeting was held at the Arroyo Grande City Hall with these groups to plan a working solution to the current flooding problems in this area. A follow-up meeting was held in November 2001.

See Chapter 3 for details of the earlier steps taken to control the flooding conditions, and Chapter 7 for current steps being taken to reduce flooding of the Arroyo Grande Creek.

# **EXHIBIT KK**

## ACKNOWLEDGEMENT OF TERMINATION DATE OF 1959 AGREEMENT

This Acknowledgement of Termination of 1959 Agreement (hereafter "Acknowledgement") entered into the 1ST day of December, 2009, between the San Luis Obispo County Flood Control and Water Conservation District, acting on behalf of Zones 1 and 1A (hereinafter referred to as "the County Flood Control District") and the Coastal San Luis Resource Conservation District (hereinafter referred to as the "RCD"), as successor in interest to the Arroyo Grande Soil Conservation District, and the Natural Resources Conservation Service (hereafter "NRCS"), of the United States Department of Agriculture, as the successor in interest to the Soil Conservation Service.

### PREAMBLE

**WHEREAS**, the aforementioned parties (and/or their predecessors in interest) are partners to that certain "Watershed Protection Operation and Maintenance Agreement for Arroyo Grande Creek Channel and Los Berros Creek Diversion Improvements (Arroyo Grande Creek Watershed)" dated May 15, 1959 (the "1959 Agreement"); and

**WHEREAS**, the 1959 Agreement relates to the operation and maintenance of the following described works of improvement:

The Arroyo Grande Channel and appurtenances from the Pacific Ocean upstream for a distance of 2.84 miles, and the Los Berros Creek Diversion and appurtenances along an easterly line for a distance of 0.59 miles, from the Arroyo Grande Creek Channel to a point where the existing Los Berros Creek Channel emerges from the hills, as described in the "Watershed Work Plan ARROYO GRANDE CREEK," San Luis Obispo County, California.

**WHEREAS**, said works of improvement described in the 1959 Agreement are hereinafter referred to as the "Original Project"; and

**WHEREAS**, the Original Project has achieved its intended purpose, and alterations to the Original Project's purpose, design and maintenance are necessary to accommodate changing regulations, watershed hydrology, and waterway management planning; and

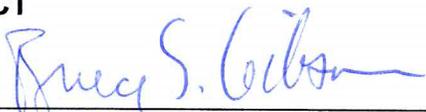
**WHEREAS**, although the 1959 Agreement has no express termination date, the parties agree that the 1959 Agreement has an implied term of 50 years.

**ACKNOWLEDGEMENT**

**NOW, THEREFORE**, the County Flood Control District, RCD, and NRCS mutually agree as follows:

1. The parties agree that the above recitals in the Preamble are true and correct, and are incorporated herein by reference.
2. The parties hereby acknowledge, and mutually agree, that the 1959 Agreement shall be deemed terminated as of May 15, 2009.

**SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT**

By   
Chairperson of the Board of Supervisors

Dated: December 1, 2009

ATTEST:  
JULIE RODEWALD  
County Clerk and Ex-Officio Clerk of the  
Board of Supervisors

By:   
Deputy Clerk

Dated: December 1, 2009

**APPROVED AS TO FORM AND LEGAL EFFECT:**

WARREN R. JENSEN  
County Counsel

By *Patrick Foran*  
Patrick Foran  
Deputy County Counsel

Dated: 6/25/09

**COASTAL SAN LUIS RESOURCE  
CONSERVATION DISTRICT**

By: *Neil Havlik*  
Neil Havlik, President

Dated: 8/21/09

**ATTEST:**

\_\_\_\_\_  
RCD

**NATURAL RESOURCE CONSERVATION  
SERVICE, UNITED STATES OF DEPT. OF  
AGRICULTURE**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Dated: \_\_\_\_\_

PJF/nw  
083005 / 1125nwagr.doc

**APPROVED AS TO FORM AND LEGAL EFFECT:**

WARREN R. JENSEN  
County Counsel

By *Patrick Foran*  
Patrick Foran  
Deputy County Counsel

Dated: *6/25/09*

**COASTAL SAN LUIS RESOURCE  
CONSERVATION DISTRICT**

By: \_\_\_\_\_  
Neil Havlik, President

Dated: \_\_\_\_\_

**ATTEST:**

\_\_\_\_\_  
RCD

**NATURAL RESOURCE CONSERVATION  
SERVICE, UNITED STATES OF DEPT. OF  
AGRICULTURE**

By: *Gayle Norman*

Name: *Gayle Norman*

Title: *Acting State Consist.*

Dated: *9/29/2009*

# **EXHIBIT L**

STATE. California  
EWP PROJECT: Arroyo Grande Levee  
Repair  
AGREEMENT NO.: 69-9104-1-197

UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

COOPERATIVE AGREEMENT - LOCALLY AWARDED CONTRACT

THIS AGREEMENT is between the San Luis Obispo County Flood Control and Water Conservation District, hereinafter called the Sponsor; and the Natural Resources Conservation Service, United States Department of Agriculture, hereinafter called NRCS.

WITNESSETH THAT:

WHEREAS, under the provisions of Section 216 of Public Law 81-516, Emergency Watershed Protection Program, and Title IV of the Agricultural Credit Act of 1978, Public Law 95-334, NRCS is authorized to assist the Sponsor in relieving hazards created by natural disasters that cause a sudden impairment of a watershed, and

WHEREAS, NRCS and the Sponsor agree to install emergency watershed protection measures to relieve hazards and damages created by storms of 2001.

NOW, THEREFORE, in consideration of the premises and of the several promises to be faithfully performed by the parties hereto as set forth, the Sponsor and NRCS do hereby agree as follows:

- A. It is agreed that the following described work is to be constructed at an estimated cost of \$400,000.00.

*Levee repair, channel clearing, and debris removal along Arroyo Grande Channel, DSR #01-01-2705*

- B. The Sponsor will:

1. Provide 25 percent of the cost of the construction described in Section A through cash contribution and/or in-kind services approved in this agreement.

Be allowed 12.5 percent for in-kind services of the final cost of construction toward the Sponsor's cost share. In-kind services approved are for preparation of plans and specifications and contract documents and inspection of work. The Sponsor's cash contribution is 12.5 percent of the cost of

of 5

performing the works of restoration described in Section A.  
The Sponsor's cash contribution is estimated to be \$50,000.00.

2. Designate the following individual as the liaison between the Sponsor and NRCS.

Glen L. Priddy

(Name)

Room 207, County Government Center

(Street)

San Luis Obispo, CA 93408

(City and State)

(805) 781-5292

(Phone)

Prepare a design, construction specifications, and drawings in accordance with standard engineering principles and be in compliance with programmatic requirements. The construction plans shall be reviewed and approved by the Sponsor prior to submittal to NRCS. The construction plans for measures other than stream debris removal and disposal will be reviewed and approved by a Professional Engineer registered in the State of California prior to submittal to NRCS.

Provide certification that real property rights have been obtained for installation of emergency watershed protection measures prior to advertising. Certification will be provided on Form NRCS-ADS-78, Assurances Relating to Real Property Acquisition, as amended (no attorney's opinion is required).

Accept all financial and other responsibility for excess costs resulting from their failure to obtain, or their delay in obtaining, adequate land and water rights, permits, and licenses needed for the emergency watershed protection measures described in Section A.

Contract for construction of the emergency watershed protection measures described in Section A in accordance with applicable state requirements.

Comply with the applicable requirements in Attachments A and B to this agreement.

Ensure that all contracts for construction of emergency watershed protection measures include the provisions contained in Attachment B to this agreement.

## Page 3 of 6

9. Provide copies of site maps to appropriate Federal and State agencies for environmental review. Sponsor will notify NRCS of environmental clearance, modification of construction plans, or any unresolved concerns prior to award of the contract(s) for construction of the emergency watershed protection measures.
10. Ensure that requirements for compliance with environmental and/or cultural resource laws are incorporated into the project.
11. Pay the contractor as provided in the contract(s). Submit billings for reimbursement to NRCS on Form SF-270, Request for Advance or Reimbursement with supporting documentation.
12. Take reasonable and necessary actions to dispose of all contractual and administrative issues arising out of the contract(s) awarded under this agreement. This includes, but is not limited to, disputes, claims, protests of award, source evaluation, and litigation that may result from the project. Such actions will be at the expense of the Sponsor including legal expenses.
13. Arrange for and conduct final inspection of completed emergency watershed protection measures. Certify that the project was installed in accordance with contractual requirements.
14. Upon acceptance of the work from the contractor(s), assume responsibility for operation and maintenance, as applicable.
15. Hold and save NRCS free from any and all claims or causes of action whatsoever resulting from the obligations undertaken by the Sponsor under this agreement or resulting from the work provided for in this agreement.
16. Retain all records dealing with the award and administration of the contract(s) for 3 years from the date of the Sponsor's submission of the FINAL Request for Reimbursement or until final audit findings have been resolved, whichever is longer. If any litigation is started before the expiration of the 3-year period, the records are to be retained until the litigation is resolved or the end of the 3-year period, whichever is longer. Make such records available to the Comptroller General of the United States or his or her duly authorized representative and accredited representatives of the U.S. Department of Agriculture or cognizant audit agency for the purpose of making audit, examination, excerpts, and transcripts.

## Page 4 of 6

17. Work with and recognize NRCS in any public or legislative outreach deemed appropriate for aiding citizens in understanding the use of public funds and repair of watersheds undertaken as a result of this cooperative venture.

## C. NRCS will:

1. Provide 87.5 percent of the cost of constructing the emergency watershed protection measures described in Section A which includes 12.5 percent approved for in-kind services toward the Sponsor's 25 percent cost share. This cost to NRCS is estimated to be \$350,000.00. If construction is not completed, NRCS is under no obligation for in-kind services incurred by the Sponsor.
2. Not be substantially involved with the technical or contractual administration of this agreement. However, NRCS will provide advice and counsel as needed.
3. Review and approve construction plans as identified in Section B.3 of this agreement.
4. Make payment to the Sponsor covering NRCS's share of the cost upon receipt and approval of Form SF-270, Request for Advance or Reimbursement.
5. Be available to conduct progress checks and participate in final inspections.
6. Designate the following individual as the liaison between the Sponsor and NRCS.

Margy Lindquist, District Conservationist  
(Name)

65 Main Street, Suite 108  
(Street)

Templeton, California  
(City and State)

(805) 434-0396  
(Phone)

## D. It is mutually agreed that:

1. This agreement is effective the date it is fully executed by all parties to this agreement. It shall become null and void

- 90 calendar days after the date NRCS has executed this agreement if a contract has not been awarded.
2. The furnishing of financial and other assistance by NRCS is contingent upon the continuing availability of appropriations by Congress from which payment may be made and shall not obligate NRCS if Congress fails to so appropriate.
  3. The contract for performing the work described in Section A will not be awarded to the Sponsor, or to any firm in which any Sponsor official or any member of such official's immediate family has direct or indirect interest in the pecuniary profits or contracts of such firms.
  4. This agreement may be temporarily suspended by NRCS if NRCS determines that corrective action by the Sponsor is needed to meet the provisions of this agreement. Further, NRCS may suspend this agreement when it is evident that a termination is pending.
  5. NRCS may terminate this agreement in whole or in part if it is determined by NRCS that the Sponsor has failed to comply with any of the conditions of this agreement. NRCS shall promptly notify the Sponsor in writing of the determination and reasons for the termination, together with the effective date. Payments made by or recoveries made by NRCS under this termination shall be in accord with the legal rights and liabilities of NRCS and the Sponsor.
  6. This agreement may be renegotiated, amended, extended, or modified by a written amendment as mutually agreed by both parties.
  7. The program or activities conducted under this agreement will be in compliance with the nondiscrimination provisions contained in Titles VI and VII of the Civil Rights Act of 1964, as amended; the Civil Rights Restoration Act of 1987 (Public Law 100-259); and other nondiscrimination statutes: namely, Section 504 of the Rehabilitation Act of 1973, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, and American's With Disabilities Act of 1990. They will also be in accordance with regulations of the Secretary of Agriculture (7 CFR-15, Subparts A & B), which provide that no person in the United States shall on the grounds of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal

Page 6 of 6

financial assistance from the U.S. Department of Agriculture or any agency thereof.

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

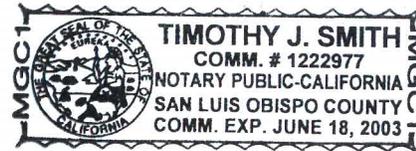
By: [Signature]  
Title: Co. Administrator  
Date: 3/9/01

This action authorized at an official meeting of the sponsor on the 09 day of March 2001, at SAN LUIS OBISPO, CA (City) (State)

[Signature]  
(Attest Signature) 176m B-23

UNITED STATES DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

By: Raymond Miller  
Title: Contract Specialist  
Date: 3/9/01



# **EXHIBIT LL**

## 2.2. HYDROLOGIC AND HYDRAULIC MODELING

### 2.2.1. TOPOGRAPHIC SURVEYS

An aerial photogrammetric survey of the project area was performed on March 10, 2005 by Central Coast Aerial Mapping, Inc., under subcontract with SH+G. The survey was tied to photo control points set by Cannon & Associates, Inc., using GPS survey equipment. The products of the aerial survey include a set of digital ortho-rectified color images of the project area as well as a topographic map showing two-foot contours in areas where the ground surface was not obscured by vegetation, standing water, or other obstructions.

To augment and improve upon topographic data collected remotely, SH+G conducted a ground-based survey that mapped cross sections along the project reach. Cross-section data was collected from the Valley Road Bridge on Los Berros Creek to the confluence with Arroyo Grande Creek and then extending from the confluence with Los Berros Creek on the Arroyo Grande mainstem downstream to the mouth of Arroyo Grande Creek at the Pacific Ocean. In addition, the ground survey extended approximately 200 feet up Arroyo Grande Creek from its confluence with Los Berros Creek to capture the remaining portion of the flood control reach and to establish boundary conditions. The survey was conducted using an electronic total station and data collector. A traverse was run along the levee crests, with periodic field ties made to the aerial photo control points set by Cannon & Associates, Inc. The purpose of the survey was to obtain detailed data at bridges and in locations where tree cover or other obstructions made aerial mapping impossible, including areas inundated with water at the time of the aerial mapping. Cross sections were surveyed approximately every 500 feet, with additional sections mapped at locations of hydraulic significance.

### 2.2.2. HEC-RAS MODEL DEVELOPMENT

The existing-conditions HEC-RAS model was developed using *Geo-RAS* software to sample cross sections from the topographic base map. Sections were sampled approximately every 200 feet, with additional sections placed at locations of hydraulic significance.

*Manning's roughness ("n")* values for the model were determined from field observations and a review of aerial and ground photographs taken in March of 2005. Field data and photos for the roughness survey are included as an appendix to the digital version of this report (Appendix C). An average composite roughness value of 0.057 was calculated (Figure 2.2) for the project area, with composite roughness for individual cross sections varying between .037 and .07. Bridge geometry was input to the model from field survey measurements taken in March of 2005.

Note: Maximum capacity without freeboard: 2,500 cfs

Composite  $n=0.057$

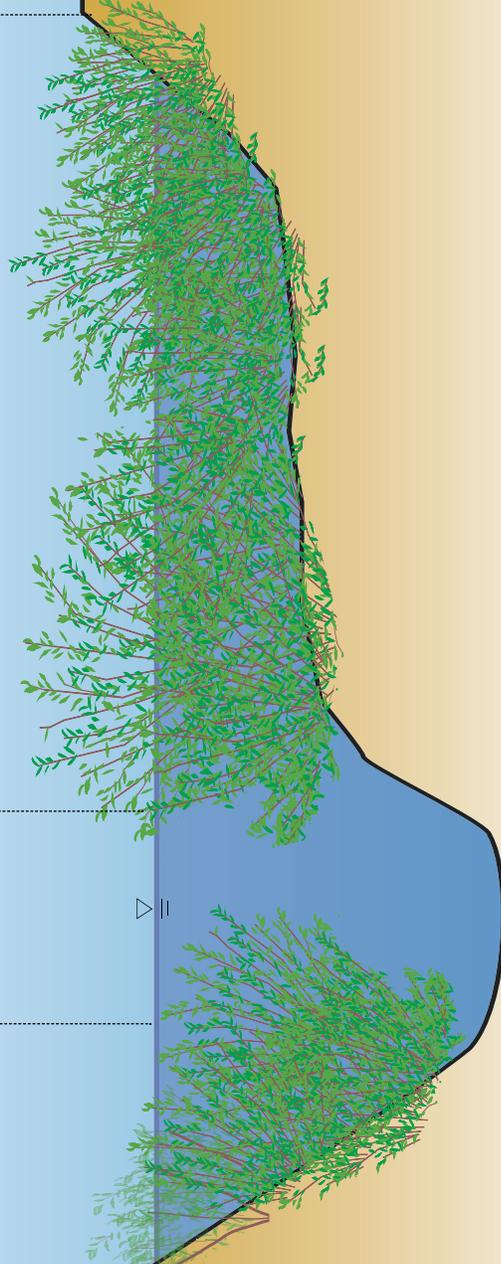
$n=0.07$

$n=0.035$

$n=0.07$

Levee

2 ft Freeboard\*



Capacity with 2 ft Freeboard: 1,300 cfs  
2.8-year flow

**FLOOD CONTROL CHANNEL**

\* Freeboard is the distance from the water's surface to the lowest levee crest.

**FIGURE 2.2:** Schematic diagram of existing conditions on the Arroyo Grande Creek flood control channel. A average composite Manning's roughness value ( $n$ ) of 0.057 was estimated for the hydraulic modeling effort based on field observations in summer 2005.

# **EXHIBIT MM**

## Levels of Protection

Flood risk management projects are often characterized as having a certain “level of protection” (for example, 100- or 200- year). Often these labels are misleading because of (a) the inherent uncertainties in their estimation, (b) the wrong connotations they sometimes give to the public (i.e., a 100-year flood will only occur once every 100 years), and (c) they ignore residual risk. However, despite these limitations, it is still necessary to report levels of protection (without- and with-project) using consistent methods.

The two primary methods of measuring levels of protection include:

- **Deterministic method:** this method relies on defining a potential water surface elevation for a specific frequency flow event and then applying a specific freeboard on top of this water surface elevation to account for uncertainty. Often the freeboard is three feet, but it can be higher depending on local conditions. The water surface elevation would be determined by traditional hydrologic, hydraulic and related methods. No uncertainty in these parameters would be considered.
- **Probabilistic method:** directly incorporates “risk-based” analysis, usually using the HEC-FDA model and the project performance statistics; uncertainty in each of the major physical parameters is considered. The USACE uses the conditional non-exceedence statistic to certify to FEMA that levees and other flood structures meet the 100-year standard (i.e., it must be shown that there is at least a 90% confidence of passing the 100-year event).<sup>28</sup>

Figure 4 illustrates the differences between these approaches for a levee project being designed to provide 100-year level of protection (note: the probabilistic method may result in a levee height that is greater, lesser or equal to that determined by the deterministic method).

---

<sup>28</sup> For more information on levee certification issues, see the DWR *Quick Guide* at <http://www.fpm.water.ca.gov/docs/CAQG-screen.pdf>

# **EXHIBIT NN**



COUNTY OF SAN LUIS OBISPO  
**Department of Agriculture/Weights and Measures**

2156 SIERRA WAY, SUITE A, SAN LUIS OBISPO, CALIFORNIA 93401-4556  
ROBERT F. LILLEY  
AGRICULTURAL COMMISSIONER/SEALER  
[www.sloag.org](http://www.sloag.org)

April 1, 2010

**Contact:** Bob Lilley, County Ag Commissioner/Sealer  
805-781-5924

**FOR IMMEDIATE RELEASE**

**Crop Statistics for 2009 for San Luis Obispo County Released.**

**2009 Production, Valued at \$623,095,000, Increased 3% Compared to 2008.**

**SAN LUIS OBISPO, CA** April 1, 2010—The San Luis Obispo County Department of Agriculture/Weights and Measures is pleased to announce the release of annual production statistics for the local agricultural industry for 2009. Statistics can be found on the Department's website at [www.slocounty.ca.gov/agcomm](http://www.slocounty.ca.gov/agcomm). Hard copies of the annual report will be available in June.

Total crop values for 2009 are estimated at a gross value of \$623,095,000 compared to \$602,922,000 for 2008. This increase is an improvement of approximately 3%, according to Bob Lilley, County Agricultural Commissioner. "Many growers continued to feel the negative effects of the four year drought in 2009. However, other than the lack of rainfall, the overall mild winter and summer temperatures provided ideal growing conditions for some of the county's crops", continued Lilley.

Wine grapes continue to hold the top position in overall value. Favorable weather conditions contributed to a 42% increase in yields over 2008 tonnage totals. The prices for San Luis Obispo County's grapes declined slightly, however higher yields created a 34% overall increase in value compared to 2008. Wine Grape values were \$166,378,000 or 27% of the combined value of the County's entire agricultural industry.

The strawberry industry expanded by 370 acres to 1893 total acres, a 24% increase over 2008. Despite lower prices compared to 2008 levels, the local industry was valued at \$73,198,000, an increase of approximately 12% over 2008.

Coastal avocado and Valencia orange trees suffered fruit loss due to one week of unusually high temperatures in June, 2009, resulting in significantly lower yields, compared to 2008. Lemon yields were high, but reduced consumer demand caused prices to fall.

##more##

# VEGETABLE CROPS

CROP	YEAR	HARVESTED ACREAGE	PRODUCTION		UNIT	PER UNIT	TOTAL
			PER ACRE	TOTAL			
Bell Peppers	2009	822	1,153.0	947,766	30#	7.59	\$7,194,000
	2008 **	937	1,091.0	1,022,267	30#	6.80	\$6,951,000
Bok Choy	2009 +	427	814.0	347,578	80#	8.87	\$3,083,000
Broccoli (All)	2009	12,909	547.0	7,061,223	23#	8.52	60,162,000
	2008 **	14,977	565.0	8,462,005	23#	8.32	70,404,000
Cabbage	2009	653	1,341.0	875,673	45#	7.67	6,716,000
	2008 **	977	772.0	754,244	45#	8.70	6,562,000
Cauliflower	2009	1,533	831.0	1,273,923	25#	10.69	13,618,000
	2008	1,567	666.0	1,043,622	25#	8.70	9,080,000
Celery	2009	787	1,160.0	912,920	60#	8.93	8,152,000
	2008 **	953	1,212.0	1,155,036	60#	9.83	11,354,000
Lettuce, Head	2009	5,312	591.0	3,139,392	50#	8.83	27,721,000
	2008 **	5,106	682.0	3,482,292	50#	6.84	23,819,000
Lettuce, Leaf	2009	2,163	482.0	1,042,566	25#	11.81	12,313,000
	2008 **	2,112	547.0	1,155,264	25#	11.95	13,805,000
Napa Cabbage (Oriental Vegetables)	2009 +	1,294	877.0	1,134,838	80#	9.61	10,906,000
	2008 **	1,185	835.0	989,475	80#	11.37	11,250,000
Peas Edible Pod	2009	361	245.0	88,445	10#	8.26	731,000
	2008	547	332.0	181,604	10#	10.40	1,889,000
Spinach	2009	834	463.0	386,142	20#	12.54	4,842,000
	2008	1,007	506.0	509,542	20#	11.77	5,997,000
Squash	2009	242	758.0	183,436	30#	7.37	1,352,000
	2008	278	771.0	214,338	30#	5.86	1,256,000
* Miscellaneous	2009	4,589					30,519,000
	2008 **	6,125					37,411,000
TOTAL VEGETABLE CROPS	2009	31,926					\$187,309,000
	2008 **	35,771					\$199,778,000

\* Anise, Artichokes, Arugula, Beans, Beets, Brussel Sprouts, Carrots, Chard, Chili Peppers, Cilantro, Collards, Cucumbers, Daikon, Dandelion, Dill, Endive, Escarole, Garlic, Green Garbanzo Beans, Herbs, Kale, Leeks, Melons, Mushrooms, Mustard, Onions, Parsley, Potatoes, Pumpkins, Radicchio, Radishes, Rutabagas, Sweet Corn, Tomatillos, Tomatoes, Turnips

\*\* Revised

+ Formerly reported as Oriental Vegetable

# FRUIT & NUT CROPS

CROP	YEAR	ACREAGE		PRODUCTION		UNIT	PER UNIT	TOTAL
		PLANTED	BEARING/ HARVESTED	PER ACRE	TOTAL			
Avocados	2009	4,800	3,919	0.922	3,613	Ton	2,551.00	\$9,218,000
	2008 **	4,800	3,919	1.354	5,306	Ton	2,060.00	\$10,931,000
Grapes, Wine (All)	2009	36,276	34,100		147,380	Ton		166,378,000
	2008	36,845	34,622		103,507	Ton		124,126,000
Chardonnay	2009		3,481	6.192	21,554	Ton	1,289.00	27,784,000
	2008		3,109	5.516	17,149	Ton	1,445.00	24,781,000
Sauvignon Blanc	2009		983	6.025	5,923	Ton	920.00	5,449,000
	2008		1,147	3.660	4,198	Ton	962.00	4,038,000
White Wine (Other)	2009		1,763	4.933	8,697	Ton	1,212.00	10,541,000
	2008		2,053	3.221	6,613	Ton	1,373.00	9,079,000
Cabernet Sauvignon	2009		11,280	3.993	45,041	Ton	1,031.00	46,437,000
	2008		11,377	2.408	27,396	Ton	1,005.00	27,533,000
Merlot	2009		4,765	5.060	24,111	Ton	829.00	19,988,000
	2008		4,934	3.081	15,202	Ton	898.00	13,651,000
Pinot Noir	2009		1,905	2.299	4,380	Ton	2,714.00	11,887,000
	2008		1,548	1.866	2,889	Ton	3,107.00	8,975,000
Syrah	2009		3,525	2.986	10,526	Ton	1,188.00	12,504,000
	2008		3,550	2.517	8,935	Ton	1,261.00	11,267,000
Zinfandel	2009		2,883	3.812	10,990	Ton	1,106.00	12,155,000
	2008		3,253	3.025	9,840	Ton	1,064.00	10,470,000
Red Wine (Other)	2009		3,515	4.597	16,158	Ton	1,215.00	19,633,000
	2008		3,651	3.091	11,285	Ton	1,270.00	14,332,000
Lemons	2009	1,634	1,542	20.058	30,929	Ton	198.00	6,124,000
	2008	1,634	1,532	14.171	21,852	Ton	599.00	13,089,000
Strawberries (All)	2009		1,893		57,890	Ton		73,198,000
	2008		1,523		45,660	Ton		65,481,000
Fresh	2009			21.918	41,491	Ton	1,533.00	63,605,000
	2008			21.610	32,912	Ton	1,708.00	56,214,000
Processed	2009			8.663	16,399	Ton	585.00	9,593,000
	2008			8.370	12,748	Ton	727.00	9,267,000
Valencia Oranges	2009	304	304	6.015	1,829	Ton	261.00	477,000
	2008	304	304	21.262	6,464	Ton	137.00	886,000
English Walnuts	2009	2,371	2,330	0.330	769	Ton	1,796.00	1,381,000
	2008 **	2,371	2,330	0.233	543	Ton	2,413.00	1,310,000
* Miscellaneous	2009	2,788	1,946					14,698,000
	2008	3,173	2,083					13,838,000
<b>TOTAL FRUIT &amp; NUT CROPS</b>	2009	48,173	46,034					\$271,474,000
	2008 **	49,127	46,313					\$229,661,000

\* Almonds, Apples, Apricots, Asian Pears, Blueberries, Bushberries, Cherries, Feijoas, Grapefruit, Kiwis, Mandarin Oranges, Navel Oranges, Nectarines, Olives, Peaches, Pears, Persimmons, Pistachios, Pomegranates, Quince, Specialty Citrus, Table Grapes, Tangerines

\*\* Revised

## FIELD CROPS

CROP	YEAR	ACREAGE		PRODUCTION		UNIT	VALUE	
		PLANTED	HARVESTED	PER ACRE	TOTAL		PER UNIT	TOTAL
Alfalfa Hay	2009	2,001	2,001	5.89	11,786	Ton	\$132.00	\$1,556,000
	2008	2,119	2,119	6.42	13,604	Ton	\$237.00	\$3,224,000
Barley	2009	12,465	8,593	0.71	6,101	Ton	144.00	879,000
	2008	8,288	6,015	0.91	5,474	Ton	214.00	1,171,000
++ Grain Hay	2009	11,376	10,237	1.66	16,993	Ton	116.00	1,971,000
	2008	12,355	11,275	1.62	18,266	Ton	205.00	3,744,000
Grain Stubble (Grazed)	2009		10,098			Acre	11.00	111,000
	2008		9,910			Acre	10.00	99,000
Rangeland, Grazed	2009		1,025,000			Acre	9.00	9,225,000
	2008		1,025,000			Acre	8.00	8,200,000
* Miscellaneous	2009	2,688	3,313					1,436,000
	2008 **	8,655	6,264					1,352,000
<b>TOTAL FIELD CROPS</b>	2009	28,530	1,059,242					\$15,178,000
	2008 **	31,417	1,060,583					\$17,790,000

\* Irrigated Pasture, Garbanzo Beans, Oats, Safflower, Wheat, Field seed

++ Includes winter forage

\*\* Revised

# **EXHIBIT 00**

Estimated Crop Loss and Clean Up Cost  
for Flooding during the 5, 8, and 10 year Events

**Estimated Proportion of Typical Crops Harvested in the 5-year Flood Area (~700 acres)**

Typical Crops	2009 Harvested	% of Total	Typical Crop
Bell Peppers	822	4.75%	33.3
Cabbage	653	3.78%	26.4
Celery	787	4.55%	31.9
Lettuce, head	5,312	30.71%	215.0
Lettuce, leaf	2,163	12.51%	87.5
Spinach	834	4.82%	33.8
Squash	242	1.40%	9.8
Misc: Brussel Sprouts, Endive, Onions, Tomatoes	4,589	26.53%	185.7
Strawberries	1,893	10.95%	76.6
<b>Total Harvested Acreage of Typical Crops</b>	<b>17,295</b>	<b>100.00%</b>	<b>700.0</b>

**Potential Annual Crop Revenue**

Crops	Potential Annual	Potential		Unit	Per Unit	Total
		per Acre	Total			
Bell Peppers	33.3	1153	38,360	30#	\$7.59	\$291,152
Cabbage	26.4	1341	35,442	45#	\$7.67	\$271,841
Celery	31.9	1160	36,950	60#	\$8.93	\$329,960
Lettuce, head	215.0	591	127,064	50#	\$8.83	\$1,121,976
Lettuce, leaf	87.5	482	42,197	25#	\$11.81	\$498,346
Spinach	33.8	463	15,629	20#	\$12.54	\$195,985
Squash	9.8	758	7,424	30#	\$7.37	\$54,718
Misc: Brussel Sprouts, Endive, Onions, Tomatoes	185.7	1	186	acre	\$6,650.00	\$1,235,143
Strawberries	76.6	30.6	2,344	Ton	\$1,265.00	\$2,965,788
<b>Potential Annual Harvested Acreage Total</b>	<b>700.0</b>	<b>Potential Annual Crop Revenue Total</b>				<b>\$6,964,909</b>
						<b>Potential Annual Crop Revenue \$9,950</b>

Assumptions:

1. Farm fields capable of 2 to 3 crops each year and that flooding would make fields inoperable for at least one (1)
2. Typical crops being brussel sprouts, celery, cabbage, endive, lettuce, onions, peppers, spinach, squash, tomatoes, cherry tomatoes, and strawberries.
3. Harvested acreage, per acre, and per unit crop values taken from the 2009 SLO County Crop Report prepared by the SLO County Agriculture Dept.

Estimated Crop Loss and Clean Up Cost  
for Flooding during the 5, 8, and 10 year Events

**Estimated Clean up Cost**

Item	Quantity	Unit	Est. Repair	Total Damage
Set-up of Temporary Pump <sup>1</sup>	1	LS	\$1,200	\$1,200
Operation of Temporary Pump <sup>2,3</sup>	50	Day	\$500	\$25,000
Take-down of Temporary Pump <sup>1</sup>	1	LS	\$1,200	\$1,200
Debris Removal/Disposal	700	Acre	\$1,300	\$910,000
<b>Total Clean-up Cost</b>				<b>\$937,400</b>
<b>Clean-up Cost per Acre</b>				<b>\$1,339.14</b>

**Assumptions:**

1. Cost for 2 PW Worker III's to assemble/disassemble temporary piping and connect temporary pump (16 hours)
2. Operation costs includes \$300 for fuel plus time for 1 PW Worker III to perform one service check during a single 24-hour operation period.
3. Flooded depth of 4-feet over 700 acres. Duration of pumping activity based on time to pump 2,800 acre-feet (~122M cubic feet) of water back into the channel using the District's trailer mounted pump (~30 cfs capacity).
4. Debris Removal / Disposal unit cost based on estimated cost to clear and grub fields to help aerate soil for drying and remove contaminated top soil. Clearing and grubbing costs assumed to be \$0.03/SF or \$1,306/acre, based on *SLO County Public Works Department Bonding Estimate - County Approved Unit Costs, 2009*.

# **EXHIBIT PP**

## Protect Yourself with Flood Insurance

Just a few inches of water from a flood can cause tens of thousands of dollars in damage. **Over the past 10 years, the average flood claim has amounted to over \$33,000.** Flood insurance is the best way to protect yourself from devastating financial loss.

Flood insurance is available to homeowners, renters, condo owners/renters, and commercial owners/renters. Costs vary depending on how much insurance is purchased, what it covers, and the property's flood risk.

All policy forms provide coverage for buildings and contents. However, you might want to discuss insuring personal property with your agent, since contents coverage is optional. Typically, there's a 30-day waiting period—from date of purchase—before your policy goes into effect. That means now is the best time to buy flood insurance.

Insurance for a [Homeowner](#) >>

Insurance for a [Renter](#) >>

Insurance for a [Condo Owner or Renter](#) >>

Learn your risk, and find an agent, by taking Your Risk Profile.

# EXHIBIT QQ



"Julie Thomas"  
<jthomas@coastalrcd.org>

12/19/2007 01:40 PM

Please respond to  
<jthomas@coastalrcd.org>

To <dhollowell@morrogroup.com>, <jwerst@co.slo.ca.us>

cc

bcc

Subject Costs estimates for hypothetical flooding in Zone 1/1A

Hi Deb, Jeff

I spoke with Pamela Mitchell of SLO County Liability and Claims, who spoke with Deb Hosli, and it appears that the County does not have any projections of costs of flooding in Zone 1/1A. All they have is a record of the payouts from the 2001 flood: 16 claimants, \$1,000,245. Plus \$215,947 for attorneys and mediation. Total cost: \$1,216,191. One of the claimants was Bejo Seeds, who received \$215,000.

Of course, since there was no stream gage in the AG channel, we don't know what flood event 2001 - perhaps extrapolate from the upstream AG gage?

I've attached what I wrote up as a rough estimate of potential costs of the 20-year event in Zone 1/1A - the best I could do with the time and data available (due date is today). Obviously, could use better local estimates of potential flood repair costs to houses vs. businesses vs. mobile homes. Don't know if it'll be helpful for what you're working on for the IRWM, but maybe there's something you could use. Tom Zehnder gave me the \$5,000,000 estimate for the Sanitation Plant. Of course, unless there's a levee breach/failure, flooding would most likely be confined to the south side since south levee is kept lower, but I used worst case scenario of flooding on both sides.

(Jeff - can you please forward to Diana Haines?)

Julie Thomas  
South County Watershed Coordinator  
Coastal San Luis Resource Conservation District  
545 Main St, Suite B-1, Morro Bay CA 93442  
Phone: 805-471-9479  
Fax: 805-772-4398

Website: <http://www.coastalrcd.org/>



Estimating damage from 20-year flood.doc

**Question 18: Flood repair costs; pre- and post-project anticipated flood damage repair costs and flood recurrence interval used in the determination.**

Estimating flood damage costs: 20-year event

The County of San Luis Obispo does not have projections available on potential costs of flood repairs for landowners adjacent to the Arroyo Grande Creek flood control channel, so other methods of estimating potential costs were used.

Defining the 20-year floodplain: In 2006, a Proposition 218 ballot measure was passed establishing a zone of special benefit in which landowners within the 20-year floodplain received additional assessments to finance Arroyo Grande Creek flood channel maintenance. The SLO County's Assessment Engineer defined this zone of special benefit by modeling those areas that would be flooded in a 20-year event:

“The boundary of the Zones was determined through the use of the Hydraulic Model prepared by Swanson Hydrology and Geomorphology as part of their work for the Coastal San Luis Resource Conservation District. The water surface elevations generated by the hydraulic model at each of the cross sections in the hydraulic model were intersected with the ground surface to establish the worst case inundation level should the channel's levee be breached or damaged. The 20 year flood recurrence was used for the purpose of defining benefit for this additional assessment.”

(From the “Assessment Engineers Report for Added Special Benefit” prepared by Cannon Associates for San Luis Obispo County Flood Control and Water Conservation District, Zone 1/1A, March 2006.) Swanson Hydrology & Geomorphology used U.S. Army Corps of Engineer data (USACOE, 1999) from a HEC-1 model to create a updated HEC-HMS model in order to generate input hydrographs for an unsteady state HEC-RAS hydraulic model. The unsteady state hydraulic model provided levee overtop volumes to evaluate the extent and depth of flooding for the different flood protection alternatives described in the 2006 “Arroyo Grande Creek Erosion, Sedimentation and Flooding Alternatives Study”. The Army Corps of Engineer HEC-1 model (and consequently the SH+G HEC-HMS model), assumed that Lopez Dam, upstream of the AG Creek flood control channel, was full and spilling, thereby providing a conservative, worst-case flooding scenario. Because Lopez Dam is managed for water supply and not flood control, spilling is not managed in any formal way.

Flooding cost estimates: To estimate costs for flooding repairs and replacement of losses, the following sources were used:

- The 2006 Alternatives Study used an estimate of \$8000 per acre for losses to agricultural land.
- The government website [www.floodsmart.gov](http://www.floodsmart.gov) provides a national average flood insurance claim payout for flood losses as \$46,168 per claim. (<http://www.floodsmart.gov/floodsmart/pages/statistics.jsp>). This average of \$46,168 per

claim is applied to all homes, mobile homes, and businesses in Zone 1/1A for purposes of developing an estimate of AG Creek flood costs in the table below.

Assuming a scenario in which there is flooding of the entire Prop 218 area on both the north and south sides of the levee, estimated costs of damage in the 20-year event are shown below.

**Estimated cost of flood repairs for Prop 218 Zone of Special Benefit for Arroyo Grande Creek flood control channel**

	Unit	No.	Est. repair / loss compensation	Cost of repairs / losses	Notes
Agricultural land (acres)	acres	1760	\$8,000	\$14,080,000	Unit cost based on 2006 Arroyo Grande Creek "Alternatives Study"
Single family residence	home	137	\$46,168	\$6,325,016	Unit cost based on national average given on website www.floodsmart.gov
Mobile homes (in 4 parks)	home	400	\$46,168	\$18,467,200	"
Manufacturing / residential / commercial	business	120	\$46,168	\$5,540,160	"
South San Luis Sanitation District	facility	1	\$5,000,000	\$5,000,000	Estimate based on personal conversation with San. District engineer
Oceano Airport	facility	1	\$500,000	\$500,000	Rough estimate of costs of repair of damaged airplanes and runways
<b>TOTAL:</b>				\$49,912,376	

Based on the assumptions shown in the table above, repairs during a 20-year flood event would total nearly \$50,000,000. Note that this estimate does not include costs of any damages to the Union Pacific Railroad tracks, which lie on both sides of the levee, crossing the channel via a bridge west of 22<sup>nd</sup> Street.

An estimate of costs of flooding of a portion of the 20-year floodplain can be based on costs to the County of the 2001 flood event, in which the south levee was breached west of the Union Pacific Railroad Bridge, in the lower portion of the flood control channel (see Figures 3 and 4 in Attachment A of Clark grant proposal). By breaching downstream of the railroad tracks, on the south side of the levee, in the lower reach of the flood channel, flooding was largely confined to the westernmost agricultural land in the Cienega Valley (rather than all of the ag land in the Prop 218 zone), plus one residence and a few businesses. The Sanitation Plant, the Airport, all of the mobile home parks, and most of the residences are on the north side of the levee, and were unaffected by the 2001 flood. Ultimately, the 2001 flood led to 16 claims against SLO County, resulting in a settlement of \$1,000,245, plus \$215,947 in attorney and mediation costs, for a total cost to taxpayers of \$1,216,191. Of this amount, the reimbursement to one business alone was \$215,000. Because the AG Creek flood control channel did not have a stream gage installed in 2001 (gages are scheduled for installation by SLO County Public Works in early 2008), the flood recurrence interval of the 2001 event is unknown.

# **EXHIBIT R**

# ARROYO GRANDE CREEK CHANNEL SEDIMENT AND VEGETATION MANAGEMENT PLAN CONCEPTUAL PLANS

## PROJECT DESCRIPTION

THESE PLANS PROVIDE DETAILS FOR THE REMOVAL OF SEDIMENT FROM ARROYO GRANDE AND LOS BERROS CREEK CHANNELS IN THE COUNTY OF SAN LUIS OBISPO. CONSTRUCTION ACTIVITIES WILL CONSIST OF EXCAVATION AND DISPOSAL OF SEDIMENT FROM THE CHANNEL FLOODPLAINS AND INSTALLATION OF LOG HABITAT STRUCTURES.

## GRADING SUMMARY

TOTAL CUT VOLUME = 21,332 CY  
TOTAL FILL VOLUME = 0 CY  
NET CUT = 21,332 CY

THE ABOVE QUANTITIES ARE APPROXIMATE IN-PLACE VOLUMES CALCULATED AS THE DIFFERENCE BETWEEN EXISTING GROUND, AS MAPPED IN 2006, AND THE PROPOSED FINISH GRADE. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF EARTH TO BE CONSTRUCTED.

THE ABOVE QUANTITIES HAVE BEEN CALCULATED FOR PERMITTING PURPOSES ONLY AND HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION, AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.

THE CONTRACTOR SHALL PERFORM AN INDEPENDENT EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING BID PRICES FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS EARTH MATERIALS.

PRIOR TO COMMENCEMENT OF CONSTRUCTION, CONTRACTOR SHALL PERFORM AN UPDATED CROSS SECTION SURVEY TO DETERMINE ACTUAL CONDITIONS.

## GENERAL NOTES

- 1) PREPARED AT THE REQUEST OF:  
SAN LUIS OBISPO COUNTY  
FLOOD CONTROL AND WATER CONSERVATION DISTRICT
- 2) AERIAL MAPPING OF THE PROJECT AREA WAS PERFORMED BY:  
CENTRAL COAST AERIAL MAPPING, INC.  
710 FIERO LN #24  
SAN LUIS OBISPO, CALIFORNIA 93401  
(805)543-4307  
JOB# 2005-841  
PHOTOGRAPHY DATE: 3/10/2005
- 3) ELEVATION DATUM: NAVD 88, BASED ON NGS BENCHMARK X 532, PID "FV0421", ELEVATION= 13.5'
- 4) HORIZONTAL DATUM: HORIZONTAL COORDINATES CONSTRAINED TO NGS MONUMENT HPGN CA 05 05, PID "FV2048", NAD83, CALIFORNIA STATE PLAN ZONE 5
- 5) APN'S: T.B.D.
- 6) ELEVATIONS AND DISTANCES SHOWN ARE IN FEET AND DECIMALS THEREOF. CONTOUR INTERVAL IS 2 FEET.
- 7) PROPERTY LINES ARE NOT SHOWN HEREON.
- 8) ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE CURRENT EDITION OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS FOR CONSTRUCTION OF LOCAL STREETS AND ROADS (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS", AND SHALL BE SUBJECT TO APPROVAL OF THE OWNER.
- 9) THE COUNTY PUBLIC WORKS DEPARTMENT SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. A QUALIFIED CIVIL ENGINEER WITH EXPERIENCE IN THE INSTALLATION OF FEATURES OF THE TYPE SHOWN ON THESE PLANS, SHALL PROVIDE INSPECTION SERVICES DURING THE CONSTRUCTION PROCESS.
- 10) CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTION LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL. NEITHER THE PROFESSIONAL ACTIVITIES OF CONSULTANT NOR THE PRESENCE OF CONSULTANT OR HIS OR HER EMPLOYEES OR SUB-CONSULTANTS AT A CONSTRUCTION SITE SHALL RELIEVE THE CONTRACTOR AND ITS SUBCONTRACTORS OF THEIR RESPONSIBILITIES INCLUDING, NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND APPLICABLE HEALTH OR SAFETY REQUIREMENTS OF ANY REGULATORY AGENCY OR OF STATE LAW.

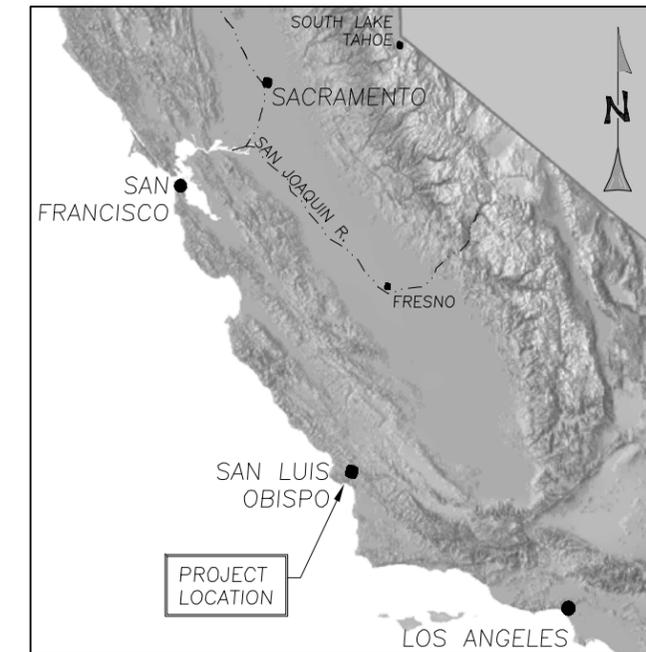
## SECTION AND DETAIL CONVENTION

SECTION OR DETAIL IDENTIFICATION  
(NUMBER OR LETTER)



REFERENCE SHEET FROM WHICH  
DETAIL OR SECTION IS TAKEN.

REFERENCE SHEET ON WHICH  
SECTION OR DETAIL IS SHOWN.



**REGIONAL MAP**  
N.T.S.



**VICINITY MAP**  
N.T.S.

## SHEET INDEX

C1	COVER SHEET	C6	SITE PLAN 4 OF 5
C2	PROJECT AREA OVERVIEW	C7	SITE PLAN 5 OF 5
C3	SITE PLAN 1 OF 5	C8	TYPICAL SITE PLAN
C4	SITE PLAN 2 OF 5	C9	TYPICAL SECTIONS
C5	SITE PLAN 3 OF 5	C10	DETAILS

## GENERAL NOTES CONT'D

### 11) EXISTING UNDERGROUND UTILITY LOCATIONS:

LOCATIONS SHOWN ARE COMPILED FROM INFORMATION SUPPLIED BY THE APPROPRIATE UTILITY AGENCIES OR FROM FIELD MEASUREMENTS TO ABOVE GROUND FEATURES READILY VISIBLE AT THE TIME OF SURVEY. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND DEPTH OF UNDERGROUND UTILITIES.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE LOCATION AND/OR PROTECTION OF ALL EXISTING AND PROPOSED PIPING, UTILITIES, TRAFFIC SIGNAL EQUIPMENT (BOTH ABOVE GROUND AND BELOW GROUND), STRUCTURES, AND ALL OTHER EXISTING IMPROVEMENTS THROUGHOUT CONSTRUCTION.

PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION, CONTRACTOR SHALL DISCOVER OR VERIFY THE ACTUAL DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES AND POTHOLE THOSE AREAS WHERE POTENTIAL CONFLICTS ARE LIKELY OR DATA IS OTHERWISE INCOMPLETE.

CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT EXISTING UTILITIES DURING CONSTRUCTION OPERATIONS, AND SHALL BE SOLELY RESPONSIBLE FOR THE COST OF REPAIR/REPLACEMENT OF ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. CONTRACTOR TO CALL UNDERGROUND SERVICE ALERT (1-800-642-2444) TO LOCATE ALL UNDERGROUND UTILITY LINES PRIOR TO COMMENCING CONSTRUCTION.

UPON LEARNING OF THE EXISTENCE AND/OR LOCATIONS OF ANY UNDERGROUND FACILITIES NOT SHOWN OR SHOWN INACCURATELY ON THE PLANS OR NOT PROPERLY MARKED BY THE UTILITY OWNER, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY OWNER AND THE CITY BY TELEPHONE AND IN WRITING.

UTILITY RELOCATIONS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT FACILITIES WILL BE PERFORMED BY THE UTILITY COMPANY, UNLESS OTHERWISE NOTED.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL CONTACT ALL UTILITIES COMPANIES WITH REGARD TO WORKING OVER, UNDER, OR AROUND EXISTING FACILITIES AND TO OBTAIN INFORMATION REGARDING RESTRICTIONS THAT ARE REQUIRED TO PREVENT DAMAGE TO THE FACILITIES.

12) SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE CONDITIONS EXISTING IN THE FIELD AND THE INFORMATION SHOWN ON THESE DRAWINGS, HE SHALL NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

13) THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, PERMITTING, INSTALLATION, AND MAINTENANCE OF ANY AND ALL TRAFFIC CONTROL MEASURES DEEMED NECESSARY.

14) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE GENERAL SAFETY DURING CONSTRUCTION. ALL WORK SHALL CONFORM TO PERTINENT SAFETY REGULATIONS AND CODES. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF OSHA IN THE CONSTRUCTION PRACTICES FOR ALL EMPLOYEES DIRECTLY ENGAGED IN THE CONSTRUCTION OF THIS PROJECT.

15) THE CONTRACTOR SHALL PURSUE WORK IN A CONTINUOUS AND DILIGENT MANNER TO ENSURE A TIMELY COMPLETION OF THE PROJECT.

16) ALL CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE ENGINEER SO THAT THE QUALITY OF WORK CAN BE CHECKED FOR APPROVAL.

17) THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SITE IN A NEAT AND ORDERLY MANNER THROUGHOUT THE CONSTRUCTION PROCESS. ALL MATERIALS SHALL BE STORED WITHIN APPROVED CONSTRUCTION AREAS.

18) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AT HIS EXPENSE, ALL PERMITS AS REQUIRED BY THE LOCAL AGENCIES, INCLUDING BUT NOT LIMITED TO; ENCROACHMENT, GRADING AND LANE CLOSURES NOT PREVIOUSLY OBTAINED BY THE OWNER. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLY WITH ALL APPLICABLE PERMIT CONDITIONS AND REQUIREMENTS.

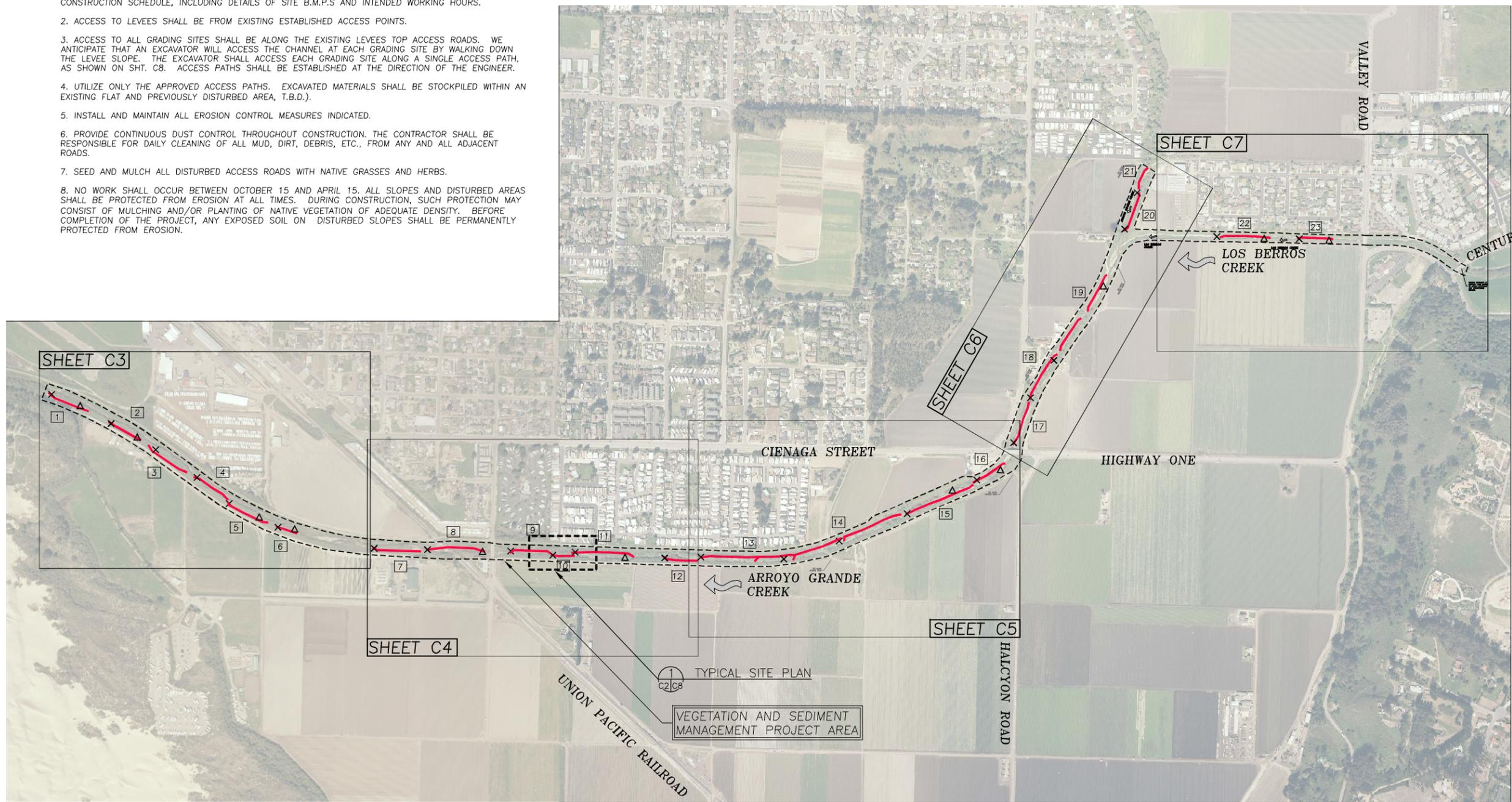
19) CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND LAYOUT, UNLESS OTHERWISE SPECIFIED IN THE PLANS.

20) NO CONSTRUCTION SHALL BE STARTED WITHOUT PLANS APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEPARTMENT OF PUBLIC WORKS SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION AND OF THE TIME AND LOCATION OF THE PRE-CONSTRUCTION CONFERENCE. ANY CONSTRUCTION PERFORMED WITHOUT PRIOR NOTIFICATION TO THE DEPARTMENT OF PUBLIC WORKS WILL BE REJECTED AND WILL BE AT THE CONTRACTOR'S RISK.

21) THE CONTRACTOR SHALL NOT BEGIN ANY CONSTRUCTION WORK UNTIL THE PROJECT SCHEDULE AND WORK PLAN IS APPROVED BY THE ENGINEER.

**EROSION CONTROL AND ACCESS NOTES**

1. PRIOR TO COMMENCEMENT OF WORK, CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A DETAILED CONSTRUCTION SCHEDULE, INCLUDING DETAILS OF SITE B.M.P.S AND INTENDED WORKING HOURS.
2. ACCESS TO LEVEES SHALL BE FROM EXISTING ESTABLISHED ACCESS POINTS.
3. ACCESS TO ALL GRADING SITES SHALL BE ALONG THE EXISTING LEVEES TOP ACCESS ROADS. WE ANTICIPATE THAT AN EXCAVATOR WILL ACCESS THE CHANNEL AT EACH GRADING SITE BY WALKING DOWN THE LEVEE SLOPE. THE EXCAVATOR SHALL ACCESS EACH GRADING SITE ALONG A SINGLE ACCESS PATH, AS SHOWN ON SHT. C8. ACCESS PATHS SHALL BE ESTABLISHED AT THE DIRECTION OF THE ENGINEER.
4. UTILIZE ONLY THE APPROVED ACCESS PATHS. EXCAVATED MATERIALS SHALL BE STOCKPILED WITHIN AN EXISTING FLAT AND PREVIOUSLY DISTURBED AREA, T.B.D.).
5. INSTALL AND MAINTAIN ALL EROSION CONTROL MEASURES INDICATED.
6. PROVIDE CONTINUOUS DUST CONTROL THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY CLEANING OF ALL MUD, DIRT, DEBRIS, ETC., FROM ANY AND ALL ADJACENT ROADS.
7. SEED AND MULCH ALL DISTURBED ACCESS ROADS WITH NATIVE GRASSES AND HERBS.
8. NO WORK SHALL OCCUR BETWEEN OCTOBER 15 AND APRIL 15. ALL SLOPES AND DISTURBED AREAS SHALL BE PROTECTED FROM EROSION AT ALL TIMES. DURING CONSTRUCTION, SUCH PROTECTION MAY CONSIST OF MULCHING AND/OR PLANTING OF NATIVE VEGETATION OF ADEQUATE DENSITY. BEFORE COMPLETION OF THE PROJECT, ANY EXPOSED SOIL ON DISTURBED SLOPES SHALL BE PERMANENTLY PROTECTED FROM EROSION.



**PROJECT AREA OVERVIEW**  
SCALE: 1"=500'

**LEGEND**

- △ TYPE "A" LOG HABITAT STRUCTURE (11 TOTAL)
- × TYPE "B" LOG HABITAT STRUCTURE (24 TOTAL)
- 9 GRADING SITE IDENTIFICATION NUMBER
- PROPOSED GRADING SITE (SECONDARY CHANNEL)

**CONCEPTUAL**  
NOT FOR CONSTRUCTION

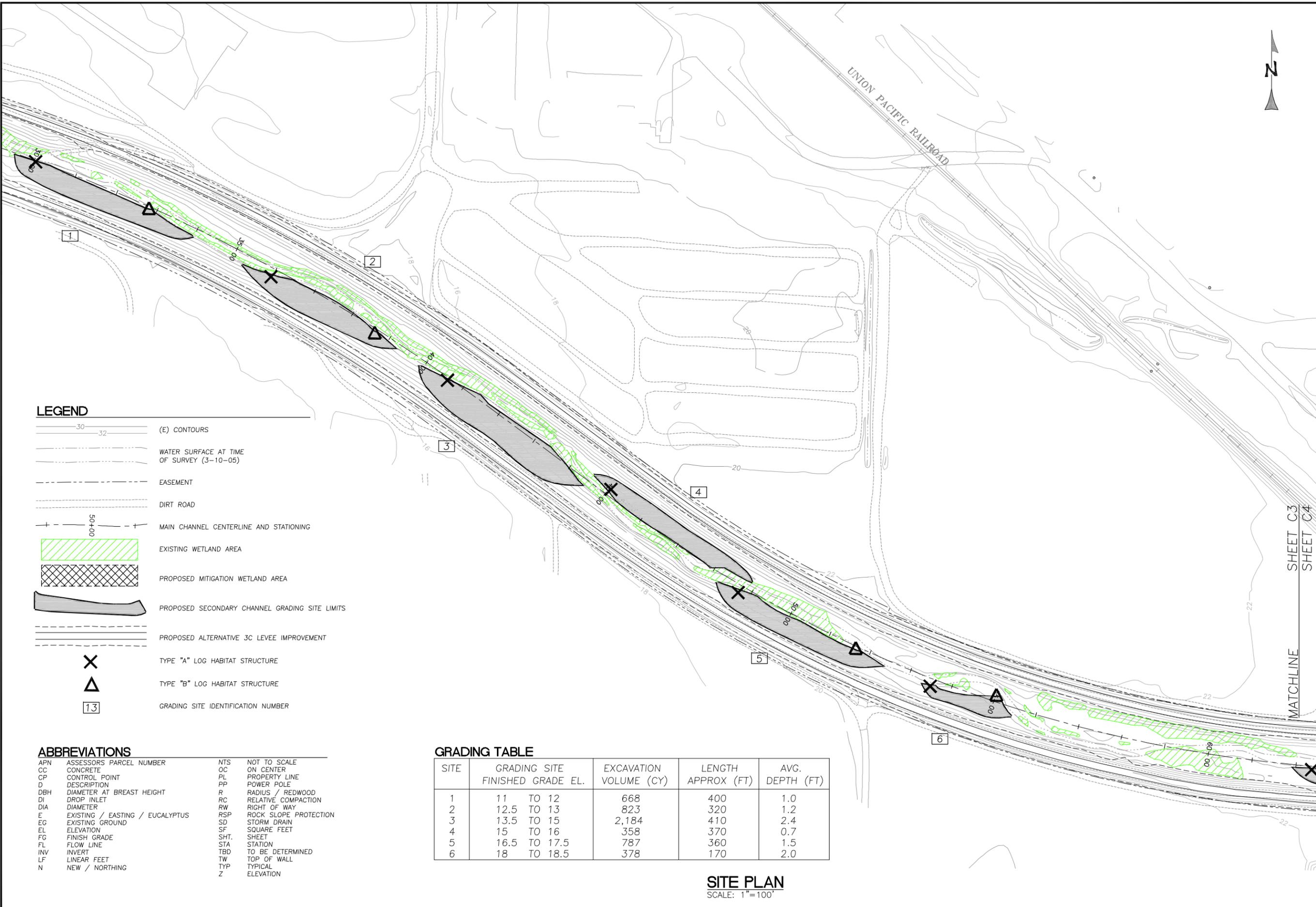
PREPARED AT THE REQUEST OF:  
SAN LUIS OBISPO COUNTY  
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

PROJECT AREA OVERVIEW

ARROYO GRANDE CREEK CHANNEL SEDIMENT AND VEGETATION MANAGEMENT PLAN CONCEPTUAL PLANS

DESIGNED BY: B.M.S.  
DRAWN BY: B.M.S.  
CHECKED BY: M.W.W.  
DATE: 9/21/09  
JOB NO.: 08-707

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS  
0 1"



**LEGEND**

- (E) CONTOURS
- WATER SURFACE AT TIME OF SURVEY (3-10-05)
- EASEMENT
- DIRT ROAD
- MAIN CHANNEL CENTERLINE AND STATIONING
- EXISTING WETLAND AREA
- PROPOSED MITIGATION WETLAND AREA
- PROPOSED SECONDARY CHANNEL GRADING SITE LIMITS
- PROPOSED ALTERNATIVE 3C LEVEE IMPROVEMENT
- TYPE "A" LOG HABITAT STRUCTURE
- TYPE "B" LOG HABITAT STRUCTURE
- GRADING SITE IDENTIFICATION NUMBER

**ABBREVIATIONS**

APN	ASSESSORS PARCEL NUMBER	NTS	NOT TO SCALE
CC	CONCRETE	OC	ON CENTER
CP	CONTROL POINT	PL	PROPERTY LINE
D	DESCRIPTION	PP	POWER POLE
DBH	DIAMETER AT BREAST HEIGHT	R	RADIUS / REDWOOD
DI	DROP INLET	RC	RELATIVE COMPACTION
DIA	DIAMETER	RW	RIGHT OF WAY
E	EXISTING / EASTING / EUCALYPTUS	RSP	ROCK SLOPE PROTECTION
EG	EXISTING GROUND	SD	STORM DRAIN
EL	ELEVATION	SF	SQUARE FEET
FG	FINISH GRADE	SHT.	SHEET
FL	FLOW LINE	STA	STATION
INV	INVERT	TBD	TO BE DETERMINED
LF	LINEAR FEET	TW	TOP OF WALL
N	NEW / NORTHING	TYP	TYPICAL
		Z	ELEVATION

**GRADING TABLE**

SITE	GRADING SITE FINISHED GRADE EL.	EXCAVATION VOLUME (CY)	LENGTH APPROX (FT)	AVG. DEPTH (FT)
1	11 TO 12	668	400	1.0
2	12.5 TO 13	823	320	1.2
3	13.5 TO 15	2,184	410	2.4
4	15 TO 16	358	370	0.7
5	16.5 TO 17.5	787	360	1.5
6	18 TO 18.5	378	170	2.0

**SITE PLAN**  
 SCALE: 1"=100'

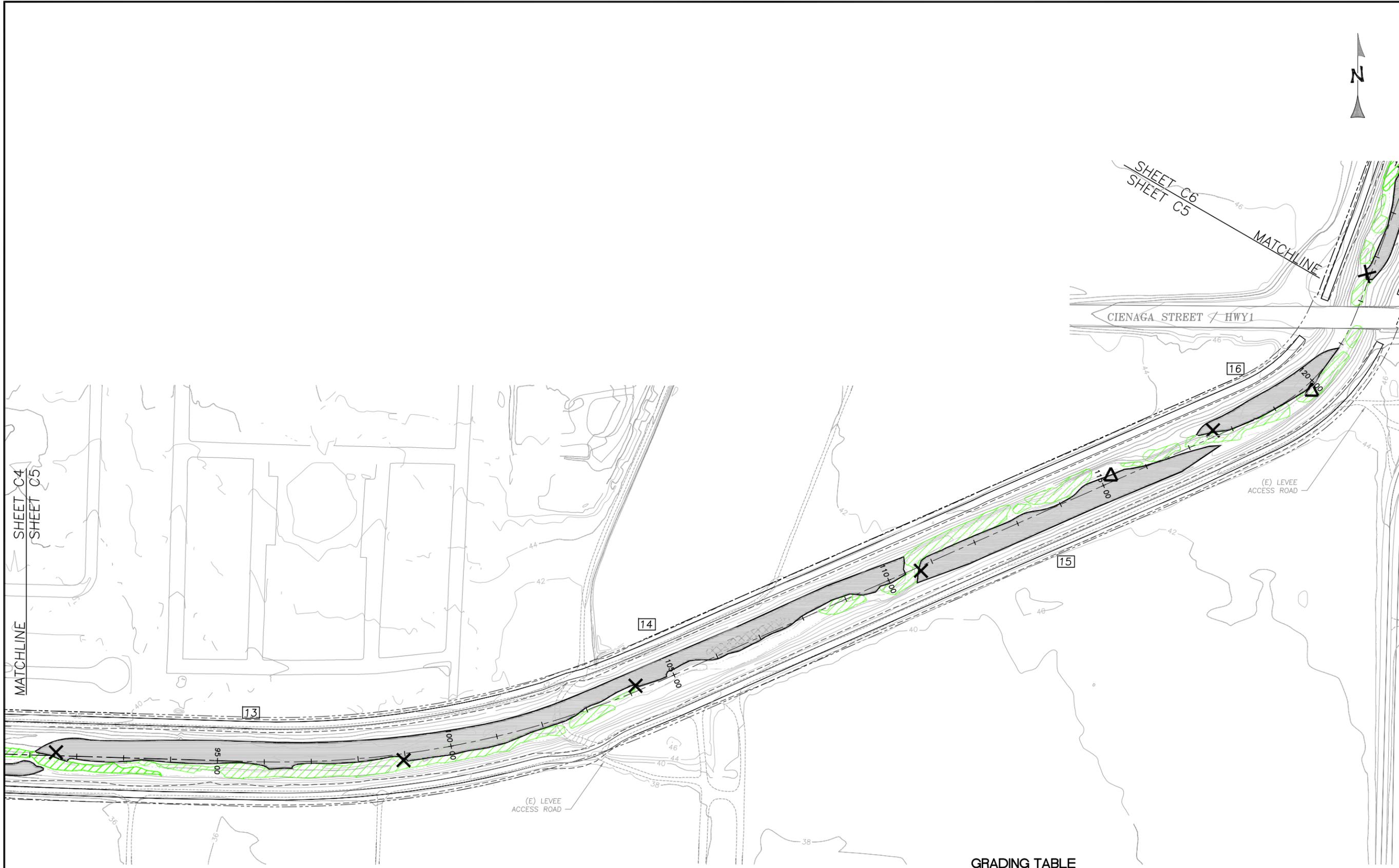
MATCHLINE  
 SHEET C3  
 SHEET C4



**SITE PLAN**  
SCALE: 1"=100'

**GRADING TABLE**

SITE	GRADING SITE FINISHED GRADE EL.	EXCAVATION VOLUME (CY)	LENGTH APPROX (FT)	AVG. DEPTH (FT)
7	21 TO 22	193	450	0.3
8	22 TO 24	1,121	560	1.1
9	24.5 TO 25.8	738	400	1.0
10	25.8 TO 26.1	498	210	1.4
11	26.2 TO 28.5	1,262	530	1.3
12	29 TO 29.2	243	300	0.6



**SITE PLAN**  
SCALE: 1"=100'

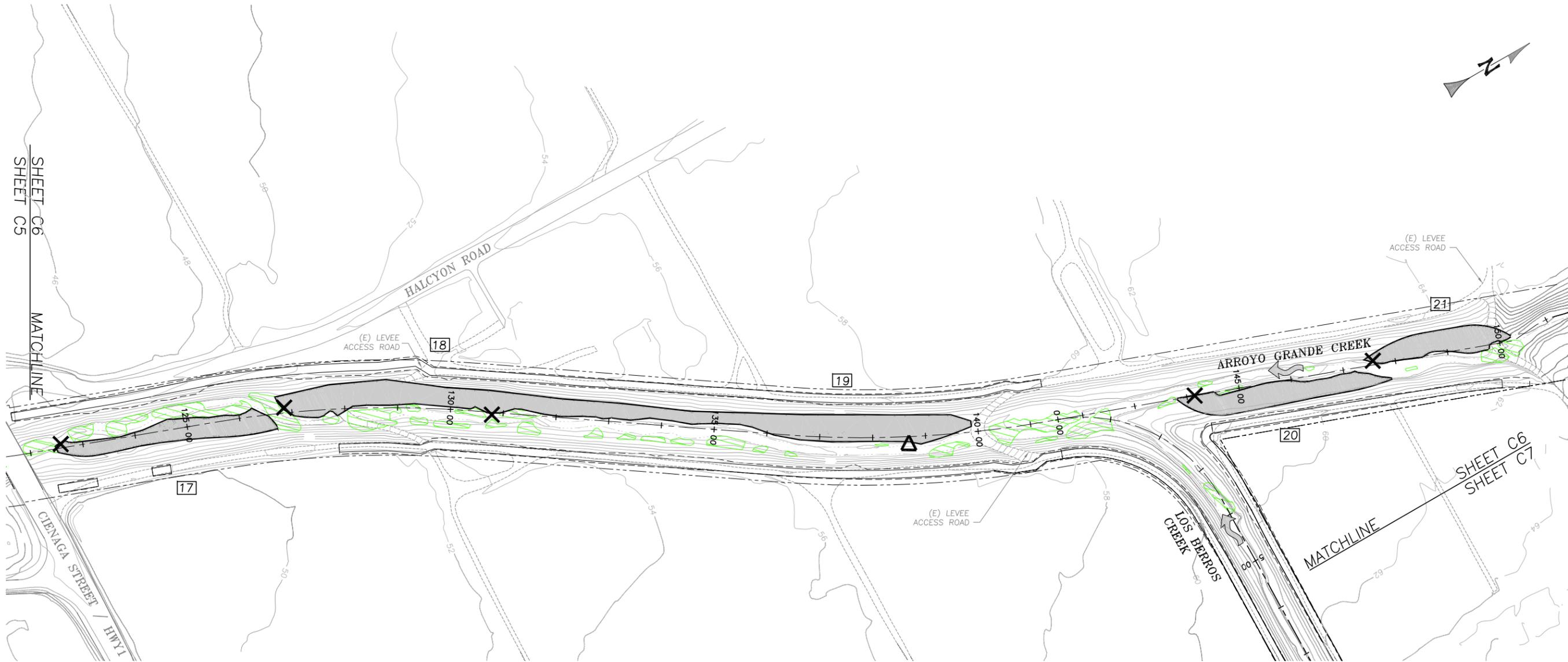
**GRADING TABLE**

SITE	GRADING SITE FINISHED GRADE EL.	EXCAVATION VOLUME (CY)	LENGTH APPROX (FT)	AVG. DEPTH (FT)
13	29.5 TO 31.5	2,700	830	1.8
14	31.5 TO 35	3,110	1,030	2.0
15	35.5 TO 37	1,309	660	1.2
16	37.5 TO 38.5	516	310	1.1

DESIGNED BY: B.M.S.  
 DRAWN BY: B.M.S.  
 CHECKED BY: M.W.W.  
 DATE: 9/21/09  
 JOB NO.: 08-707

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

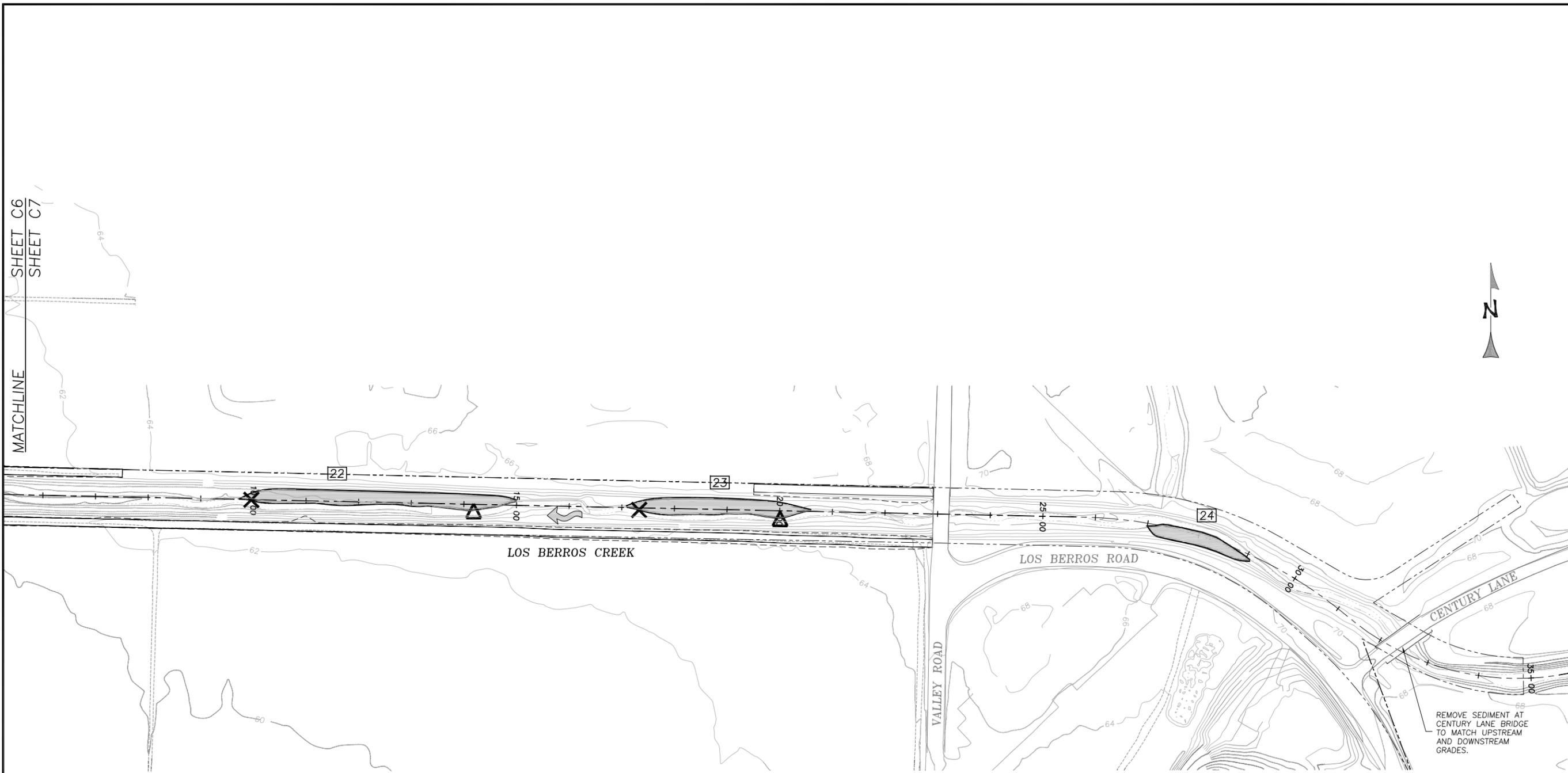
0 1" 5 OF 10



**SITE PLAN**  
SCALE: 1"=100'

**GRADING TABLE**

SITE	GRADING SITE FINISHED GRADE EL.	EXCAVATION VOLUME (CY)	LENGTH APPROX (FT)	AVG. DEPTH (FT)
17	38.5 TO 40.5	605	400	1.2
18	40.5 TO 44	615	490	0.8
19	44 TO 46	504	800	0.5
20	47 TO 48	767	350	1.3
21	48.5 TO 49	532	250	1.3



**SITE PLAN**  
SCALE: 1"=100'

REMOVE SEDIMENT AT CENTURY LANE BRIDGE TO MATCH UPSTREAM AND DOWNSTREAM GRADES.

MATCHLINE  
SHEET C6  
SHEET C7

**GRADING TABLE**

SITE	GRADING SITE FINISHED GRADE EL.	EXCAVATION VOLUME (CY)	LENGTH APPROX (FT)	AVG. DEPTH (FT)
22	52.5 TO 54.5	825	480	1.5
23	55.5 TO 56	592	320	1.7
24	60.2 TO 60.6	106	140	0.7

DESIGNED BY: B.M.S.  
DRAWN BY: B.M.S.  
CHECKED BY: M.W.W.  
DATE: 9/21/09  
JOB NO.: 08-707

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

0 1"

C7  
7 OF 10

**WATERWAYS CONSULTING**  
403B SWIFT ST.  
SANTA CRUZ, CA 95060  
PH: (831)421-9291 / FAX: (888)819-6847  
WWW.WATWAYS.COM

**CONCEPTUAL**  
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:  
SAN LUIS OBISPO COUNTY  
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

SITE PLAN  
5 OF 5

ARROYO GRANDE CREEK CHANNEL SEDIMENT AND VEGETATION MANAGEMENT PLAN CONCEPTUAL PLANS

**CONCEPTUAL  
NOT FOR CONSTRUCTION**

PREPARED AT THE  
REQUEST OF:  
SAN LUIS OBISPO COUNTY  
FLOOD CONTROL AND  
WATER CONSERVATION  
DISTRICT

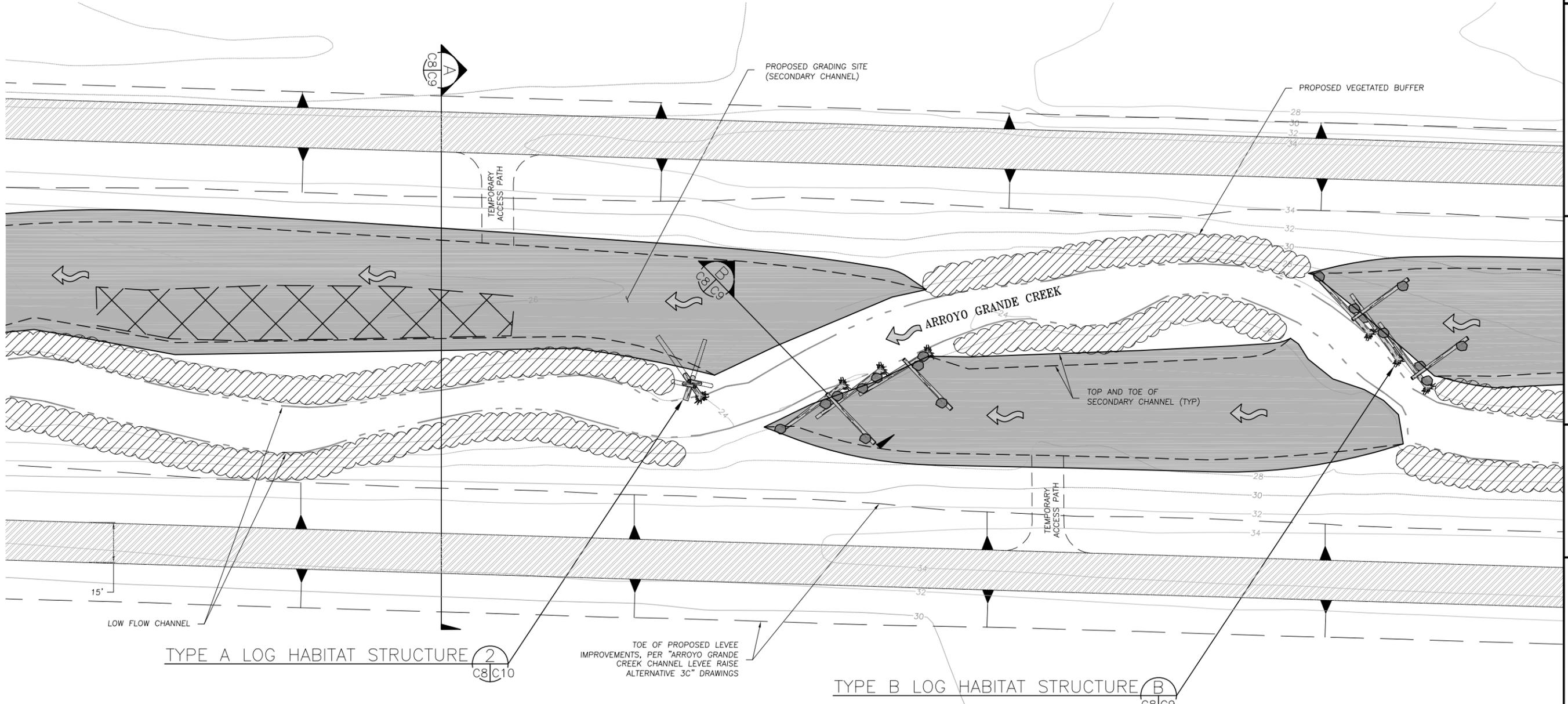
TYPICAL SITE  
PLAN

ARROYO GRANDE CREEK  
CHANNEL SEDIMENT  
AND VEGETATION  
MANAGEMENT PLAN  
CONCEPTUAL PLANS

DESIGNED BY: B.M.S.  
DRAWN BY: B.M.S.  
CHECKED BY: M.W.W.  
DATE: 9/21/09  
JOB NO.: 08-707

BAR IS ONE INCH ON  
ORIGINAL DRAWING.  
ADJUST SCALES FOR  
REDUCED PLOTS

8  
OF  
10



**LEGEND**

	(E) CONTOURS
	LOW FLOW CHANNEL AT TIME OF SURVEY (3-10-05)
	PROPOSED MITIGATION WETLAND AREA
	PROPOSED VEGETATED BUFFER
	LEVEE TOP PER ALTERNATIVE 3C

**TYPICAL SITE PLAN**  
SCALE: 1"=20'

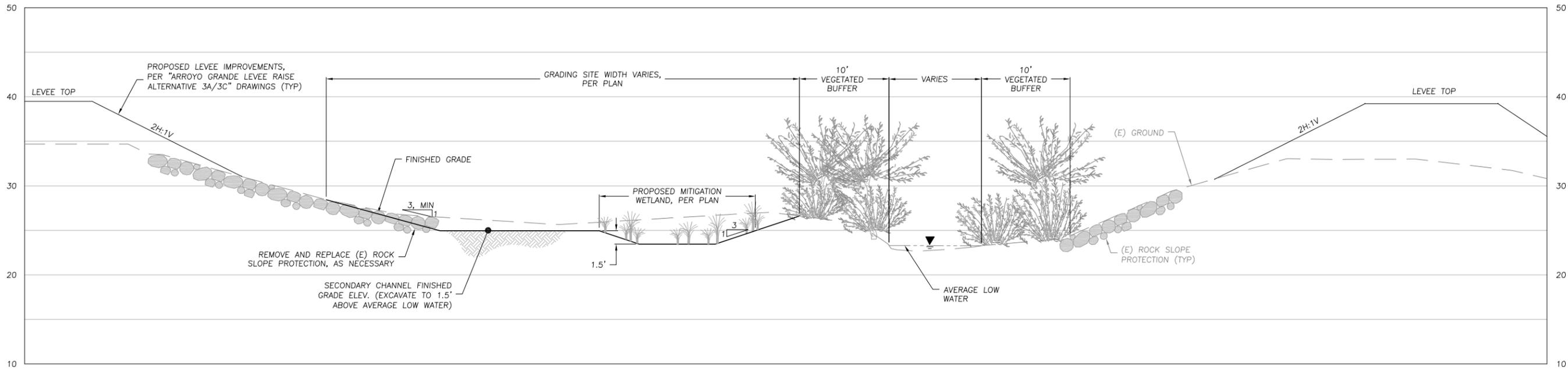
15'

LOW FLOW CHANNEL

TYPE A LOG HABITAT STRUCTURE

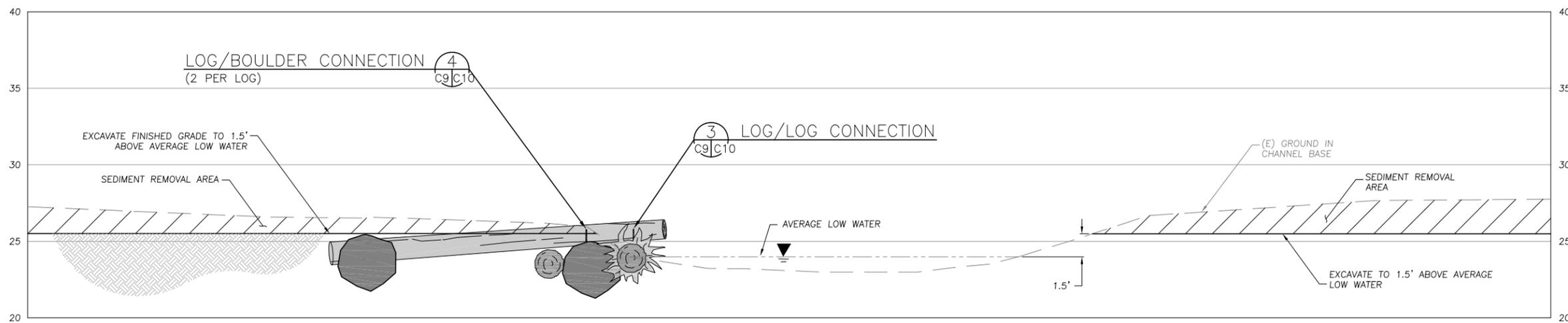
TOE OF PROPOSED LEVEE IMPROVEMENTS, PER "ARROYO GRANDE CREEK CHANNEL LEVEE RAISE ALTERNATIVE 3C" DRAWINGS

TYPE B LOG HABITAT STRUCTURE



**TYPICAL SECTION**  
SCALE: 1"=6'  
A  
C8|C9

- NOTES:**
1. REMOVE IMPOUNDED SEDIMENT BETWEEN PROPOSED VEGETATED BUFFER AND LEVEE TOE. EXCAVATED SLOPES SHALL NOT EXCEED 3H:1V. EXCAVATE TO 1.5 FEET ABOVE AVERAGE LOW WATER. DO NOT DISTURB EXISTING LOW FLOW CHANNEL.
  2. REMOVE VEGETATION FROM OUTSIDE OF VEGETATED BUFFER TO TOP OF LEVEE.



**TYPE B LOG HABITAT STRUCTURE SECTION**  
SCALE: 1"=4'  
B  
C8|C9

**CONCEPTUAL**  
NOT FOR CONSTRUCTION

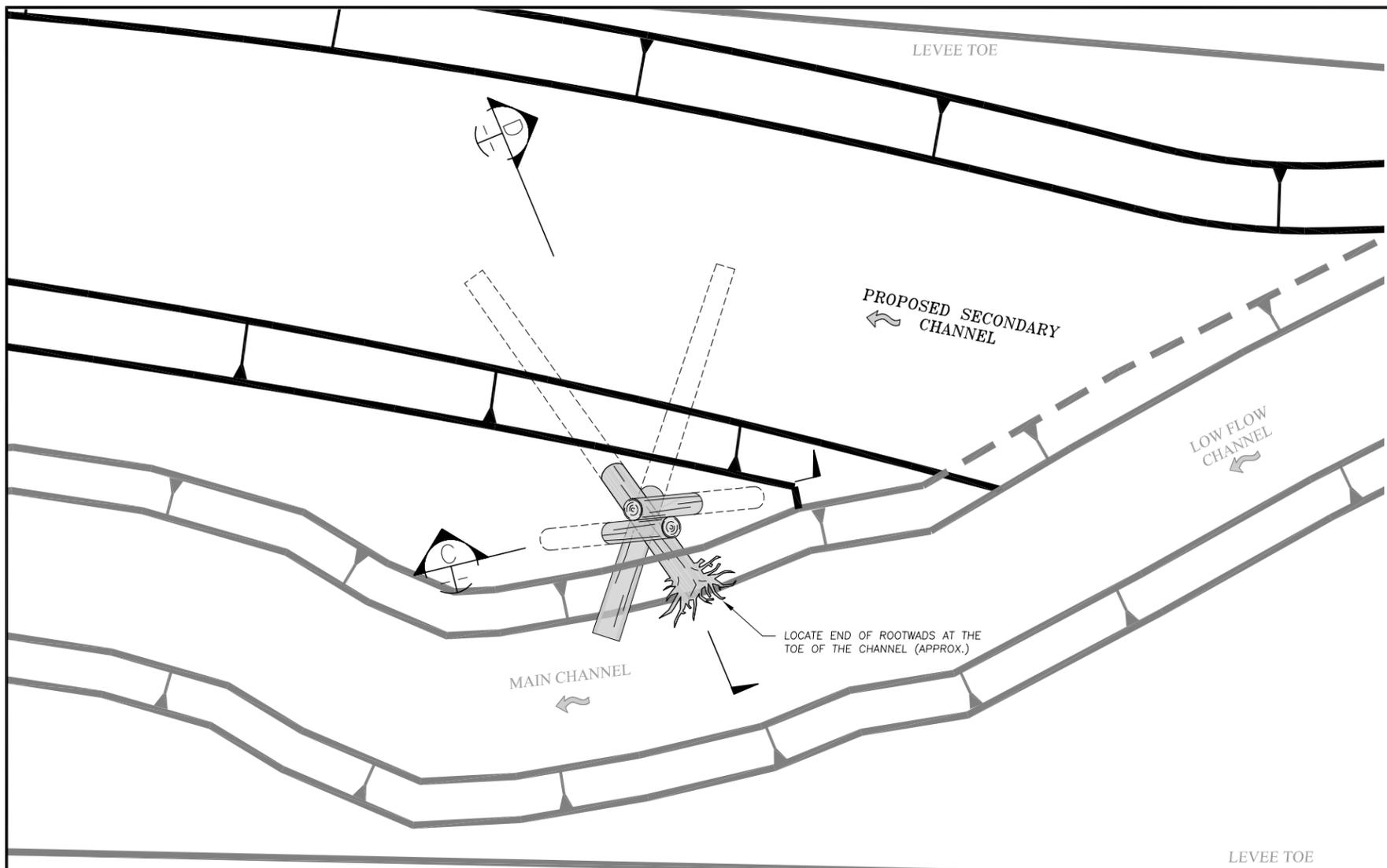
PREPARED AT THE REQUEST OF:  
SAN LUIS OBISPO COUNTY  
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

TYPICAL SECTIONS

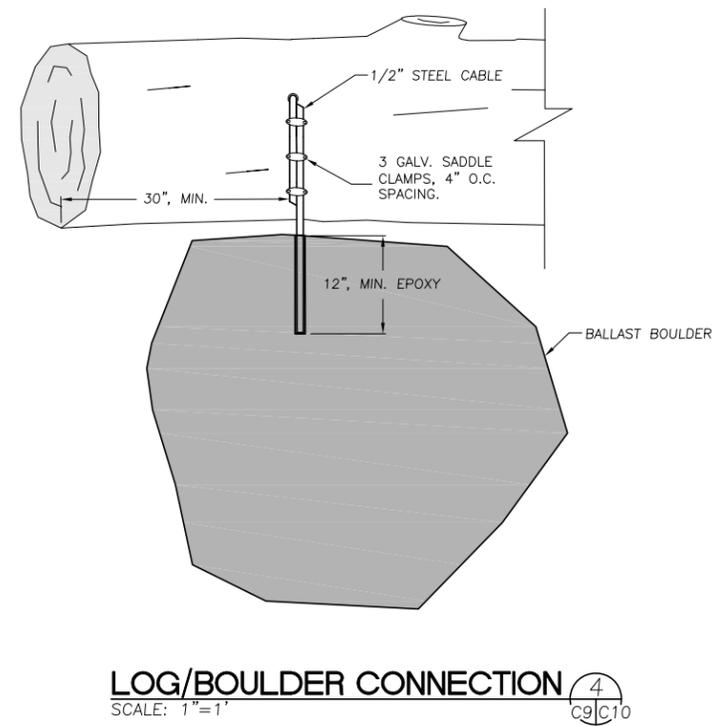
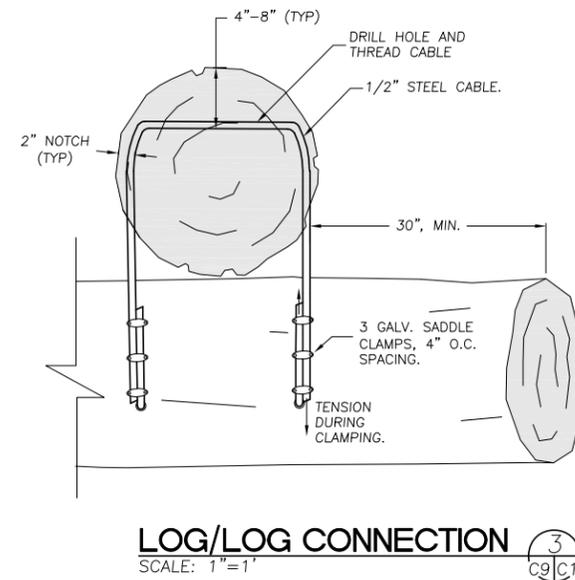
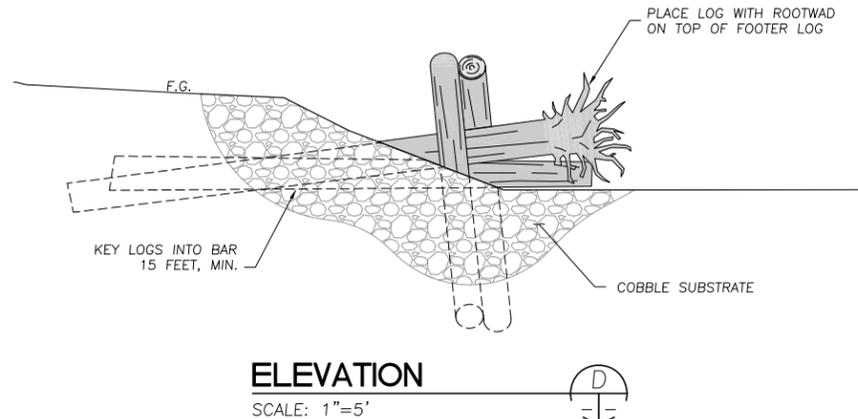
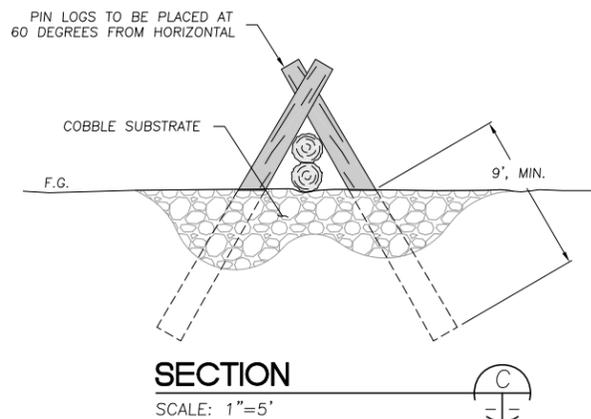
ARROYO GRANDE CREEK CHANNEL SEDIMENT AND VEGETATION MANAGEMENT PLAN CONCEPTUAL PLANS

DESIGNED BY: B.M.S.  
DRAWN BY: B.M.S.  
CHECKED BY: M.W.W.  
DATE: 9/21/09  
JOB NO.: 08-707

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS



**TYPE A LOG HABITAT STRUCTURE** 2  
SCALE: 1"=5' C8 | C10



# **EXHIBIT RR**

SAN LUIS OBISPO COUNTY  
DAM and LEVEE FAILURE EVACUATION PLAN  
EMERGENCY RESPONSE PLAN

**STANDARD OPERATING PROCEDURE**

**FOR**

**SAN LUIS OBISPO COUNTY  
PUBLIC WORKS DEPARTMENT**

**ARROYO GRANDE CREEK LEVEE FAILURE  
EMERGENCY RESPONSE PLAN**

(AGCLFERP)

ORIGINAL  
MARCH 2009

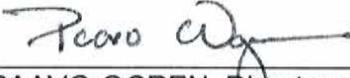
(page intentionally left blank)

**AUTHENTICATION**

This Standard Operating Procedure has been approved and is hereby incorporated as a department/agency/jurisdiction procedure.

OK  
6/2/09

Signed and Accepted:



PAAVO OGREN, Director of Public Works

3/4/09

Date

## PREFACE

This SOP is a component of the San Luis Obispo County Dam and Levee Failure Evacuation Plan. Detailed preparedness measures and emergency procedures concerning the operation of the Arroyo Grande Creek Levees by the Public Works Department are included herein. The San Luis Obispo County Dam and Levee Failure Evacuation Plan describes the overall County emergency organization and response, including Implementing Instructions to be used by the County Command group and other key officials at the County Public Works Department Operations Center (PWDOC) and the County Emergency Operations Center (EOC), in directing the emergency response activities.

**REVISIONS**

<b>DESCRIPTION</b>	<b>DATE</b>
Original Document	12/2008
Complete Revision	03/2009
Annual Revision (Describe Salient Changes)	

**DISTRIBUTION**

<b>COPY</b>	<b>QUANTITY</b>	<b>LOCATION</b>	<b>DATE</b>
Original	1	PWD Office File	
Working Copy	1	PWD Office File	
EOC	1	Agency Binder	
	1	Command Room File Cabinet	
Sanitized Version	1	SLO County Library (CD)	
	1	Cal Poly Library (CD)	
Dept./Agency	1	Public Works, Utilities Div. Manager	
	2	Public Works DOC	
	1	Public Works, Hyd. Ops. Administrator	
	1	Lopez Water Treatment Plant	
	1	Public Works Section 4 Yard	
	1	Public Works, Road Division Manager	
	1	Sherriff's Dept	
	1	County Fire	
	1	CHP	
	1	County OES	
	1	Public Health	
	1	PH Environmental Health	
	1	American Red Cross	
	1	City of Arroyo Grande	
	1	Oceano CSD	
	1	South County Sanitation District	

DUPLICATION QUANTITY [ 21 ]

**TABLE OF CONTENTS**

**PART ONE – OVERVIEW** .....1

1. INTRODUCTION.....1

    1.1 PURPOSE .....1

    1.2 OBJECTIVES .....1

2. BACKGROUND.....1

3. SCOPE.....2

4. RESPONSIBILITIES .....2

5. CONCEPT OF OPERATIONS .....2

6. COMMUNICATIONS.....3

7. EMERGENCY FACILITIES AND EQUIPMENT .....3

    7.1 FACILITIES.....3

    7.2 EQUIPMENT AND SUPPLIES .....3

8. EMERGENCY WORKER SAFETY .....3

9. REQUESTS FOR FLOOD EMERGENCY ASSISTANCE.....4

10. EXERCISES AND DRILLS .....4

11. PROCEDURE MAINTENANCE .....4

**PART TWO - CHECKLISTS**.....5

CHECKLIST 1: Storm Flow Stage Determination .....7

CHECKLIST 2: Pre-Storm Flow Stage Response .....9

CHECKLIST 3: FULL STORM FLOW STAGE RESPONSE.....11

CHECKLIST 4: PRE-STORM FLOW INSPECTION .....15

CHECKLIST 4: PRE-STORM FLOW INSPECTION .....15

CHECKLIST 5: FULL-STORM FLOW INSPECTION.....17

CHECKLIST 6: POST-STORM FLOW INSPECTION.....19

---

<b>FIGURES</b> .....	21
FIGURE 1-1: Storm Flow Stages at Valley Road Bridge .....	23
FIGURE 1-2: Storm Flow Stages at 22 <sup>nd</sup> Street Bridge .....	24
FIGURE 1-3: Storm Flow Stages at Low Point on South Levee – Station 9068 .....	25
FIGURE 1-4: Stream Gauge Location Map .....	26
FIGURE 2-1: Patrol Areas Location Map.....	27
FIGURE 2-2: Patrol Area 1 Map .....	28
FIGURE 2-3: Patrol Area 2 Map .....	29
FIGURE 2-4: Patrol Area 3 Map .....	30
FIGURE 3-1: Flood Evacuation Zone Map .....	31
<b>TABLES</b> .....	32
TABLE 1-1: FULL-STORM FLOW STAGE CREEK LEVELS .....	33
TABLE 1-2: POST-STORM FLOW STAGE CREEK LEVEL.....	33
TABLE 1-3: STAGE GAUGE LOG.....	34
TABLE 6-1: FLOOD DAMAGE LOG .....	35
<b>PART THREE – APPENDICES</b> .....	37
Appendix 1: Procedural Memorandum AD-18, Storm Emergency Operations .....	39
Appendix 2: Emergency Call List.....	47
Appendix 3: Anticipated Rates of Increase in Water Surface Elevation.....	55

## **PART ONE – OVERVIEW**

### **1. INTRODUCTION**

#### **1.1 PURPOSE**

This Standard Operating Procedure (SOP) details the specific standard operating procedures to be followed by the Department of Public Works in carrying out the San Luis Obispo County Dam and Levee Failure Evacuation Plan for the Arroyo Grande Creek Levees.

#### **1.2 OBJECTIVES**

The objectives of this plan are:

- Provide a background of the threat posed by the Arroyo Grande Creek Levees
- Provide procedures for operation and maintenance of Arroyo Grande Creek Levees and facilities during periods of potential flood emergency.
- Provide guidelines that Public Works may use to predict a levee failure
- Define and explain initial emergency responses to a potential or actual levee failure
- Establish guidelines under which Public Works can operate upon determination of a potential or actual failure of the levees

### **2. BACKGROUND**

The Arroyo Grande Flood Control Project was constructed to convey the design capacity of 7,500 cubic feet per second (cfs) with 2 feet of freeboard. The originally constructed channel was believed to provide flood protection from a storm with over a 50 year recurrence interval.

Due to challenges in maintaining the channel, such as inadequate funding and regulatory requirements, the channel has lost significant capacity since it was originally constructed in 1961. Although the maintenance efforts are improving since assessments were approved in July 2006 to pay for maintenance on the channel, the existing capacity of the channel is estimated to be 2,500 cfs, a reduction in capacity of over 75%. It is estimated that the channels can provide flood protection from a storm with only a 4.6 year recurrence interval. This means that the channel has the probability to overtop once every 4.6 years<sup>1</sup>.

---

<sup>1</sup> Arroyo Grande Creek Erosion, Sedimentation and Flooding Alternatives Study, Swanson Hydrology & Geomorphology, January 4, 2006.

The local threat of flood related damage due to a channel overtopping or levee failure is primarily confined to low-lying areas less than 50 feet above mean sea level that are immediately adjacent to the Arroyo Grande Creek levees. If the gradient is shallow, flood waters can spread over a large area. The primary effects of a flood can be destruction and damage to low-lying areas.

The effects of a flood can range from insignificant damage to heavy damage with fatalities. The northern levee protects several residential developments, as well as the regional wastewater treatment plant that services the communities of Arroyo Grande, Oceano, and Grover Beach and the Oceano Airport. If the north levee is overtopped or breached, risk to human life will be a threat. The southern levee protects hundreds of acres of farmland and several residences.

### **3. SCOPE**

This SOP is to be used in conjunction with the Department's Procedural Memorandum AD-18 - Storm Emergency Operations (Appendix 1).

### **4. RESPONSIBILITIES**

Declaration of a storm event and/or storm emergency conditions will be in accordance with AD-18 (Storm Emergency Operations). In case of emergency, please refer to the emergency call list for the Department of Public Works (Appendix 2).

The responsible operating personnel (Utilities Division Manager/Roads Maintenance Manager or designee(s)) will ascertain when these conditions are likely to occur by monitoring National Oceanic and Atmospheric Administration (NOAA) and local weather forecasts during storm periods.

Utilities Operations or Road Maintenance crews will be responsible for performing facility inspections, operation and maintenance.

### **5. CONCEPT OF OPERATIONS**

Procedures for operation and maintenance of Arroyo Grande Creek Levees and facilities during periods of expected flood emergency were developed for three storm stages:

1. Pre-storm flow
2. Full-storm flow
3. Post-storm flow

Checklists were developed for Public Works' required response to each storm stage and are included in Part 2 of this document.

Guidelines for the responsible operating personnel (Utilities Division Manager/Roads Maintenance Manager or designee(s)) to determine the storm stage or potential flood emergency are included in Checklist 1.

Pre-storm flow and full-storm flow stage response guidelines are included in Checklists 2 and 3, respectively.

If a storm emergency is determined by the Utilities Division Manager/Roads Maintenance Manager, then 2 person mobile patrols (Utilities Operations or Roads Maintenance personnel) will be assigned to specific sections of the levee system. Patrols will perform inspections as necessary. Patrol checklists for each storm stage are also included in Part 2 of this document.

## **6. COMMUNICATIONS**

Alert alarms from existing stream gauges at Valley Road and 22<sup>nd</sup> Street Bridges will notify key personnel of when high flows are occurring in Arroyo Grande Creek Channel and/or Los Berros Diversion.

Utilities Division Manager/Roads Maintenance Manager will remain in contact with assigned patrols via telephone and or radio. Patrols may report results of levee system inspection to the Public Works Department Operation Center (PWDOC), if available.

## **7. EMERGENCY FACILITIES AND EQUIPMENT**

### **7.1 FACILITIES**

If the Full-Storm flow stage is occurring and there is a potential flood emergency, the PWDOC will be opened and located at the County Government Center (Old Courthouse), Room 207.

### **7.2 EQUIPMENT AND SUPPLIES**

Materials and equipment that are necessary to perform operation and maintenance on the channel system during a flood emergency may be obtained from the Section 4 yard.

## **8. EMERGENCY WORKER SAFETY**

All field personnel are to exercise extreme caution when working in the vicinity of the flood control channel and levee system during a storm event and are to avoid any situation which may place county personnel and/or equipment in danger. All field personnel should follow Occupational Safety and Health Administration (OSHA) regulations for storm emergency operations.

Personnel performing inspections on the levee tops during storm events should only drive on the levee tops if they are in a 4-wheel drive vehicle and conditions are safe.

## **9. REQUESTS FOR FLOOD EMERGENCY ASSISTANCE**

When it is evident that local agency manpower, equipment and/or funds will be exhausted and other local resources are insufficient to cope with the situation, then assistance may be requested from the State Department of Water Resources per AD-18.

If it appears that the particular flood situation cannot be controlled with either local or state resources, then DWR will request federal assistance. The director of DWR will coordinate the activation of Public Law 84-99 for emergency assistance from the U.S. Army Corps of Engineers.

## **10. EXERCISES AND DRILLS**

Exercises and drills will be conducted annually or whenever procedures are revised. Applicable agencies will be included in all exercises and drills.

## **11. PROCEDURE MAINTENANCE**

This procedure will be maintained by the Utilities Division Manager or designee(s). SOP will be reviewed annually and after any flood emergency to evaluate SOP effectiveness. Lessons learned during a flood emergency will be documented and incorporated into the annual revision of the SOP.

## **PART TWO - CHECKLISTS**

- CHECKLIST 1: Determination of Storm Flow Stage
- CHECKLIST 2: Pre-Storm Flow Stage Response
- CHECKLIST 3: Full-Storm Flow Stage Response
- CHECKLIST 4: Pre-Storm Flow Inspection
- CHECKLIST 5: Full-Storm Flow Inspection
- CHECKLIST 6: Post-Storm Flow Inspection

(page intentionally left blank)

## CHECKLIST 1: Storm Flow Stage Determination

**PURPOSE:** The purpose of this checklist is to provide a list of steps to assist the Utilities Division Manager in determining the storm flow stage.

### 1. FULL-STORM FLOW STAGE DETERMINATION

- \_\_\_\_\_ 1.1 National Weather Service forecasts heavy rainfall of more than 0.3 inches per hour or more than 2 inches within a 24-hour period
- \_\_\_\_\_ 1.2 Receive "high flow" notification from mobile patrols, automatic stream gauge alarm system, or other source.
- \_\_\_\_\_ 1.3 Confirm/verify flow at specific gauging station location in each channel reaches or exceeds the levels indicated in Table 1-1 and illustrated on Figures 1-1, 1-2, and/or Figure 1-3.
- \_\_\_\_\_ 1.4 Log confirmed flows on Table 1-3.

### **CONFIRM/VERIFY USING COUNTY WEBSITE STAGE READING:**

Go to [www.SLOCountyWater.org](http://www.SLOCountyWater.org)

1. From the orange menu bar at the top of the page, navigate to:  
Real-Time Water Data → Stream Flow
2. From the "Station" pull-down menu (mid-page), select:  
"22nd Street Bridge" or "Valley Road"

(Alternately, click on the appropriate green icon on map.)

3. From this webpage:

The "Stream Stage Hydrograph" (stage plot) shows the height of the water over time. The County website offers plots with 3-, 5-, 7-, and 14-day intervals. (The default view is the 14-day interval.)

The "Stream Stage Data" (data table) presents tabular stage data, logged every 15 minutes and when the stage changes by 0.05 feet or more.

Notes:

The "Stream Stage Hydrograph" and "Stream Stage Data" web pages are updated every 10 minutes.

Be sure to check the date and time the page or chart was updated to ensure that the presented stage data is current.

**CONFIRM/VERIFY AT STAFF GAUGE:**

1. To view the staff gauge readings:

Los Berros staff gauge is located on the northerly side of the southwestern bridge pier on the downstream side of the bridge. Refer to photo below and Figure 1-4.

Arroyo Grande staff gauge is located on the southerly side of the middle bridge bent on the upstream side of the bridge. Refer to the photo below and Figure 1-4.



Valley Road Staff Gauge  
(looking South)



22nd Street Bridge  
(looking North)

2. To view the electronic stage gauge reading, unlock lid (Southco key, # CH751) to instrument housing and open lid on data logger
3. Press the "On/Off" button once.
4. Startup screen disappears and "Stage..." appears
5. Press the "Enter" button to measure (and display) the current stage

Notes:

Unit will automatically turn off after 5 minutes of non-use.

**2. POST-STORM FLOW STAGE DETERMINATION**

- \_\_\_\_ 2.1 National Weather Service no longer forecasts heavy rainfall
- \_\_\_\_ 2.2 Confirm/verify that flow at the 22<sup>nd</sup> Street Bridge stream gauge is under the post storm flow stage, as indicated in Table 1-2.

## CHECKLIST 2: Pre-Storm Flow Stage Response

**PURPOSE:** The purpose of this checklist is to provide a list of steps to assist the Utilities Division Manager/Road Maintenance Manager in responding to the pre-storm flow stage.

### 1. EXISTING CONDITIONS

- \_\_\_\_\_ 1.1 Monitor NOAA and local weather forecasts during storm periods
- \_\_\_\_\_ 1.2 National Weather Service forecasts heavy rainfall of more than 0.3 inches per hour or more than 2 inches within a 24-hour period

### 2. INITIAL ACTIONS

#### 2.1 Notifications

- \_\_\_\_\_ 2.1.1 Alert Director or his designee and place on emergency standby to open PW DOC.
- \_\_\_\_\_ 2.1.2 Alert **OES (781-5011)** and place on emergency standby.
- \_\_\_\_\_ 2.1.3 Alert Public Works Environmental Programs Division per Procedural Memorandum AD-18 (Appendix 1).
- \_\_\_\_\_ 2.1.4 Alert emergency crews (Utilities Operations/Road Maintenance personnel) and place on emergency standby for possible activation under the Full-Storm Flow Stage.

#### 2.2 Actions

- \_\_\_\_\_ 2.2.1 Assign 2-person mobile patrols (Road Maintenance or Utilities Operations personnel) to inspect three (3) areas of the channel system shown in Figures 2-1, 2-2, 2-3, and 2-4. Note: Patrols should follow steps in Checklist #4.

Patrol Area 1 assigned to: \_\_\_\_\_

\_\_\_\_\_

Patrol Area 2 assigned to: \_\_\_\_\_

\_\_\_\_\_

Patrol Area 3 assigned to: \_\_\_\_\_

\_\_\_\_\_

- \_\_\_\_\_ 2.2.2 Follow up with patrols to get a verbal report on the condition of the facilities and if there is a limited area emergency that needs correction availability of equipment and supplies.
- \_\_\_\_\_ 2.2.3 Coordinate necessary repair and maintenance to correct any limited area emergency that prevents proper operation of the facilities; see steps 3 and 4 below

### 3. GENERAL EMERGENCY

If storm and/or limited area emergencies escalate to create hazardous conditions threatening channel and levee system integrity, initiate Checklist 3: Full Storm Flow Stage Response.

### 4. POST STORM FLOW ACTIONS

- \_\_\_\_\_ 4.1 In accordance with Checklist 1 (Post-Storm Flow Stage Determination), confirm/verify flow at the stream gauge at the 22<sup>nd</sup> Street Bridge is under the post storm flow stage
- \_\_\_\_\_ 4.2 Notify Director that storm flows have ceased and that major operations effort has been completed.
- \_\_\_\_\_ 4.3 Notify **OES (781-5011)** that storm flows have ceased and end emergency standby
- \_\_\_\_\_ 4.4 Notify Public Works emergency crews that storm flows have ceased and end emergency standby
- \_\_\_\_\_ 4.5 Follow-up with the Public Works Environmental staff regarding any repairs or maintenance activities to determine if any mitigation is necessary
- \_\_\_\_\_ 4.6 Document operations and maintenance efforts during storm event

### CHECKLIST 3: FULL STORM FLOW STAGE RESPONSE

**PURPOSE:** The purpose of this checklist is to provide a list of steps to assist the Utilities Division Manager/Road Maintenance Manager in responding to the full-storm flow stage.

#### 1. EXISTING CONDITIONS

- \_\_\_\_\_ 1.1 National Weather Service forecasts heavy rainfall of more than 0.3 inches per hour or more than 2 inches within a 24-hour period
- \_\_\_\_\_ 1.2 Receive "high flow" notification from mobile patrols, automatic stream gauge alarm system, or other source.
- \_\_\_\_\_ 1.3 Confirm/verify flow at specific gauging station location in each channel reaches or exceeds specified thresholds
  - \_\_\_\_\_ 1.3.1 Complete Checklist 1: Determination of Storm Flow Stage

#### 2. INITIAL ACTIONS

##### 2.1 Notification

- \_\_\_\_\_ 2.1.1 Alert Director or his designee to open PW DOC.
- \_\_\_\_\_ 2.1.2 Alert **Sheriff's Watch Commander** at **781-4553**. Request that Watch Commander alert OES and place on emergency standby for possible activation of the Emergency Alert System (EAS) per Attachment No. 10 of the County Dam and Levee Failure Evacuation Plan
- \_\_\_\_\_ 2.1.3 Alert Public Works Environmental Programs Division per Procedural Memorandum AD-18 (Appendix 1).
- \_\_\_\_\_ 2.1.4 Alert Public Works emergency crews (Utilities Operations/Road Maintenance personnel) for activation under the Full-Storm Flow Stage. Emergency Call List is included in Appendix 2.
- \_\_\_\_\_ 2.1.5 Alert **South County Sanitation District** at **489-6666**. After hours staff contact information is included in Appendix 2.
- \_\_\_\_\_ 2.1.6 Alert **County Environmental Health Services** at **781-5500**.

##### 2.2 Actions

- \_\_\_\_\_ 2.2.1 Verify Lopez Dam releases have been shut off.
- \_\_\_\_\_ 2.2.2 Continually monitor rainfall and creek levels per guidelines in Checklist 1, and record creek levels in Table 1-3. Rates of

increase of water surface elevation for each channel for varying rainfall intensities are included in Appendix 3 to assist with determining how much time it there is before an evacuation of the flood zone is required.

\_\_\_\_\_ 2.2.3 Set up a field command post that is nearby but outside of the flood area, as necessary. If Public Works does not have the resources to staff the command post, alert **OES (781-5011)** and request assistance.

\_\_\_\_\_ 2.2.4 Assign 2-person mobile patrols (Road Maintenance or Utilities Operations personnel) to inspect three (3) areas of the channel shown in Figures 2-1, 2-2, 2-3 and 2-4. Note: Patrols should follow steps in Checklist #5.

Patrol Area 1 assigned to: \_\_\_\_\_

\_\_\_\_\_

Patrol Area 2 assigned to: \_\_\_\_\_

\_\_\_\_\_

Patrol Area 3 assigned to: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ 2.2.5 Follow up with patrols to get a verbal report on the condition of the facilities; patrols should report if there is a limited area emergency that needs correction

\_\_\_\_\_ 2.2.6 Coordinate necessary repair and maintenance to correct any limited area emergency that prevents proper operation of the facilities; see steps 3 and 4 below

***\*Note: If time permits, prior to conducting any repair or maintenance to the levees or within the channel itself, the Public Works Environmental staff should be contacted per Procedural Memorandum AD-18 (Appendix 1).***

### 3. EMINENT LEVEE FAILURE ACTIONS

#### 3.1 Notification

\_\_\_\_\_ 3.1.1 Alert Director or his designee and recommend that **Watch Commander (781-4553)** be notified that a levee failure is eminent and recommend activation of the Emergency Alert System (EAS) per the County Dam and Levee Failure Evacuation Plan. Describe specific areas to be evacuated per Figure 3-1: Flood Evacuation Zone Map.

- \_\_\_\_\_ 3.1.2 Alert responding Public Works emergency crews (Utilities Operations/Road Maintenance personnel) that levee failure is eminent and instruct them to remain at a safe observation distance from the channel system and outside of the Flood Evacuation Zone shown on Figure 3-1.

3.2 Initial Actions

- \_\_\_\_\_ 3.2.1 Obtain updated report from patrols on the condition of the facilities including location of levee failure and approximate extent and depth of flows outside channels:

Location of failure: \_\_\_\_\_

\_\_\_\_\_

Extent of flow outside of channels: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Depth of flow outside of channels: \_\_\_\_\_

- \_\_\_\_\_ 3.2.2 Assign emergency crews to barricade off roads leading to flooded areas

**4. POST STORM FLOW ACTIONS**

- \_\_\_\_\_ 4.1 In accordance with Checklist 1 (Post-Storm Flow Stage Determination), confirm/verify flow at the stream gauge at the 22<sup>nd</sup> Street Bridge is under the post storm flow stage
- \_\_\_\_\_ 4.2 Notify Director that major operations efforts to mitigate the levee failure emergency have been completed and that storm flows have ceased
- \_\_\_\_\_ 4.3 Notify OES that major operations effort to mitigate general emergency has been completed and whether or not storm flows have ceased
- \_\_\_\_\_ 4.4 Notify Public Works emergency crews that storm flows have ceased and end emergency standby; may allow partial demobilization
- \_\_\_\_\_ 4.5 Assign 2-person mobile patrols to inspect facilities
- \_\_\_\_\_ 4.6 Follow-up with patrols to obtain report of all damaged flood control facilities or appurtenant structures
- \_\_\_\_\_ 4.7 Initiate temporary or permanent repair of damaged flood control facilities

- 
- \_\_\_\_\_ 4.8 Follow-up with the Public Works Environmental staff regarding any repairs or maintenance activities to determine if any mitigation is necessary
  
  - \_\_\_\_\_ 4.9 Follow-up with **County Environmental Health Services (781-5500)** so they may begin assessment of general health issues and authorize re-habitation.
  
  - \_\_\_\_\_ 4.10 Document operations and maintenance efforts during general emergency; include photographs of storm damage that were taken by patrols during inspections and performed maintenance

## CHECKLIST 4: PRE-STORM FLOW INSPECTION

**PURPOSE:** The purpose of this checklist is to provide a list of steps to assist the Utilities Division/Road Maintenance personnel in responding to the pre-storm flow stage.

### 1. ASSIGNMENT

\_\_\_\_\_ 1.1 Receive assignment to patrol/inspect channel and levee system

Patrol (name/title): \_\_\_\_\_  
\_\_\_\_\_

Assigned Patrol Area (circle one):    1       2       3

Report results of inspection to (name/title):  
\_\_\_\_\_

Phone number to report to: \_\_\_\_\_

**\*NOTE: Patrols should carry County identification if not traveling in a County vehicle.**

### 2. INSPECTION

\_\_\_\_\_ 2.1 Check that **channels are clear of excessive debris** (or natural barriers, such as live trees, beaver dams, etc.) that may cause reduction in channel capacity or endanger drainage structures and other facilities

Location of debris jam: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ 2.2 Check **side drain inlet gates are free of debris** and clear debris as necessary and feasible; check for proper operation and seating

Location of clogged/inoperable side drain inlet (flap gate): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Action taken to clear/repair side drain inlet (flap gate): \_\_\_\_\_  
\_\_\_\_\_

**3. NOTIFICATION**

- \_\_\_\_ 3.1 Provide verbal report back to responsible operating personnel (contact listed above)

**4. INITIAL ACTIONS**

- \_\_\_\_ 4.1 Check availability of equipment and supplies

**5. FOLLOW-UP ACTIONS**

- \_\_\_\_ 5.1 Submit this checklist when completed to responsible personnel

## CHECKLIST 5: FULL-STORM FLOW INSPECTION

**PURPOSE:** The purpose of this checklist is to provide a list of steps to assist the Utilities Division/Road Maintenance personnel in responding to the full-storm flow stage.

### 1. ASSIGNMENT

\_\_\_\_\_ 1.1 Receive assignment to **continuously** patrol channel and levee system

Patrol (name/title): \_\_\_\_\_

\_\_\_\_\_

Assigned Patrol Area (circle one):    1       2       3

Report results of inspection to (name/title):

\_\_\_\_\_

Phone number to report to: \_\_\_\_\_

**\*NOTE: Patrols should carry County identification if not traveling in a County vehicle.**

### 2. INSPECTION

\_\_\_\_\_ 2.1 Check for wavewash, boils, seepage, cracks or sloughing on the banks and sides of the levees or any other conditions that may indicate that failure of the levee is imminent

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ 2.2 Check that **channels are clear of excessive debris** (or natural barriers, such as live trees, beaver dams, etc.) that may cause reduction in channel capacity or endanger drainage structures and other facilities

Location of debris jam: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- \_\_\_\_ 2.3 Check **side drain inlet gates are free of debris** and clear debris as necessary and feasible; check for proper operation and seating

Location of clogged/inoperable side drain inlet (flap gate): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Action taken to clear/repair side drain inlet (flap gate): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- \_\_\_\_ 2.4 Photograph all locations where damage is occurring or has occurred, where damage has been repaired, or where any unusual conditions have been encountered

### 3. NOTIFICATION

- \_\_\_\_ 3.1 Provide verbal report back to responsible operating personnel (contact listed above)

***\*Note: Patrolling personnel should maintain communications with the Public Works Department Operations Center (per AD-18) and report problem areas that are too large or time consuming to repair with the minimal amount of equipment and material carried on patrol vehicles.***

### 4. INITIAL ACTIONS

- \_\_\_\_ 4.1 Initiate full mobilization, including all necessary equipment, supplies and man power

***\*Note: All equipment, supplies and personnel not in the immediate area should have been alerted during the pre-storm flow stage and should be available at minimum delay should emergency conditions arise***

- \_\_\_\_ 4.2 Dislodge all major debris accumulations if channel capacity is reduced or structures endangered.

***\*Note: Any condition endangering any flood control structure should be corrected as soon as possible.***

### 5. FOLLOW-UP ACTIONS

- \_\_\_\_ 5.1 Submit this checklist and applicable photographs to responsible personnel

## CHECKLIST 6: POST-STORM FLOW INSPECTION

**PURPOSE:** The purpose of this checklist is to provide a list of steps to assist the Utilities Division/Road Maintenance personnel in responding to the post-storm flow stage.

### 1. ASSIGNMENT

\_\_\_\_\_ 1.1 Receive assignment to patrol channel and levee system

Patrol (name/title): \_\_\_\_\_  
\_\_\_\_\_

Assigned Patrol Area (circle one):    1       2       3

Report results of inspection to (name/title):  
\_\_\_\_\_

Phone number to report to: \_\_\_\_\_

### 2. INSPECTION

\_\_\_\_\_ 2.1 Check for damaged flood control facilities in the channels or appurtenant structures, damage to public and private property and log in Table 6-1

\_\_\_\_\_ 2.2 Photograph all locations where damage has occurred

\_\_\_\_\_ 2.3 Check **side drain inlet gates are free of debris** and clear debris as necessary and feasible; check for proper operation and seating

Location of clogged/inoperable side drain inlet (flap gate): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Action taken to clear/repair side drain inlet (flap gate): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 3. NOTIFICATION

\_\_\_\_\_ 3.1 Provide verbal report back to responsible operating personnel (contact listed above)

**4. INITIAL ACTIONS**

\_\_\_\_\_ 4.1 Initiate partial de-mobilization

***\*Note: Full demobilization should be delayed until the operations under this post-storm flow stage have been completed***

\_\_\_\_\_ 4.2 Initiate applicable temporary or permanent repair of damaged flood control facilities

***\*Note: Any condition endangering any flood control structure should be corrected as soon as possible.***

\_\_\_\_\_ 4.3 Inventory equipment and materials and make ready for subsequent stream flows

**5. FOLLOW-UP ACTIONS**

\_\_\_\_\_ 5.1 Submit this checklist with completed Table 6-1 and applicable photographs to responsible personnel

## FIGURES

FIGURE 1-1: Storm Flow Stages at Valley Road Bridge

FIGURE 1-2: Storm Flow Stages at 22<sup>nd</sup> Street Bridge

FIGURE 1-3: Storm Flow Stages at Low Point on South Levee – Station 9068

FIGURE 1-4: Staff Gauge Location Map

FIGURE 2-1: Patrol Areas Location Map

FIGURE 2-2: Patrol Area 1 Map

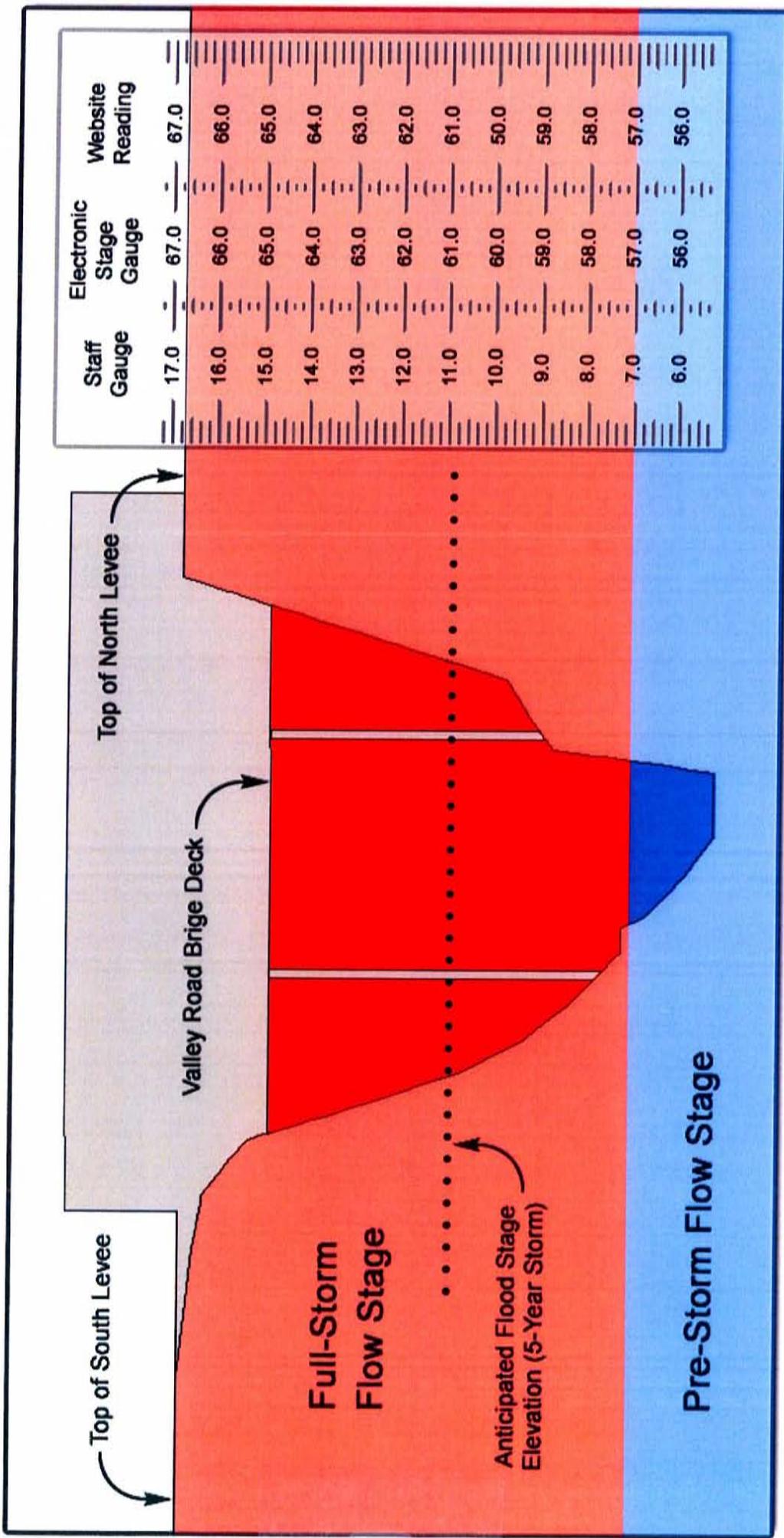
FIGURE 2-3: Patrol Area 2 Map

FIGURE 2-4: Patrol Area 3 Map

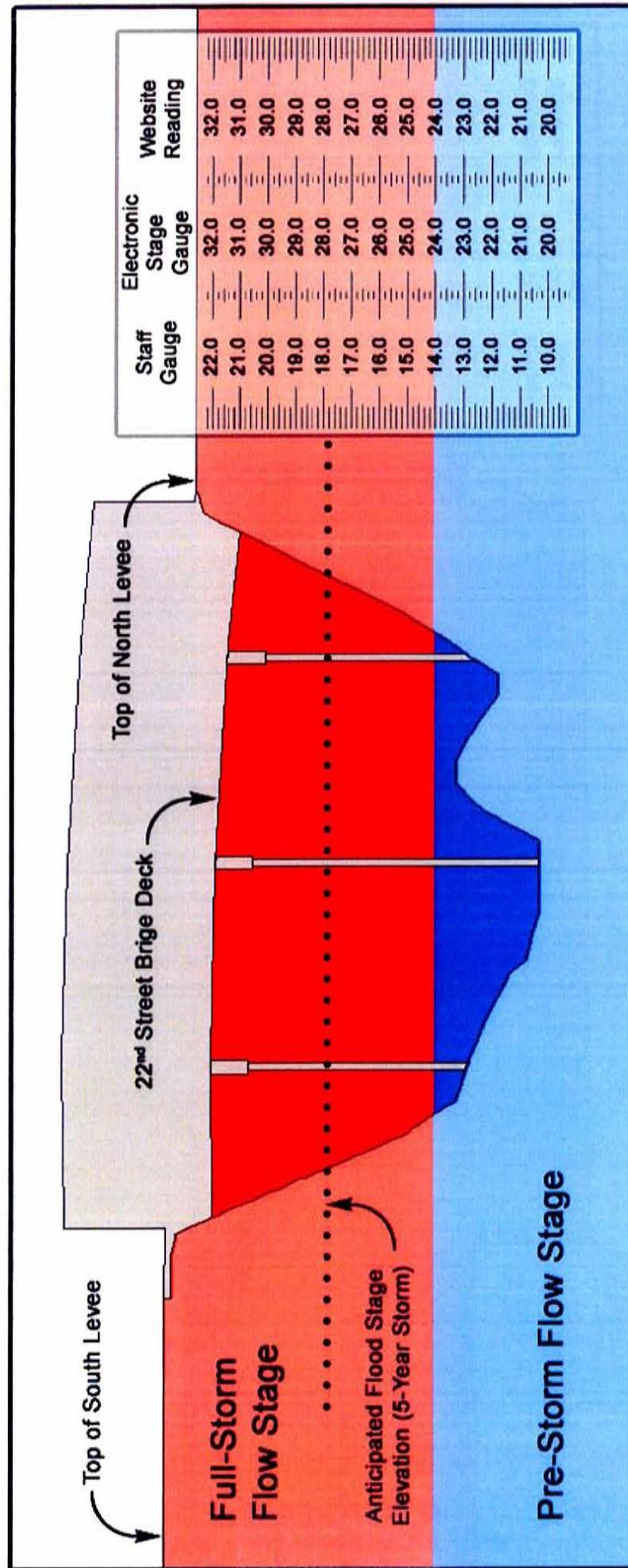
FIGURE 3-1: Flood Evacuation Zone Map

(page intentionally left blank)

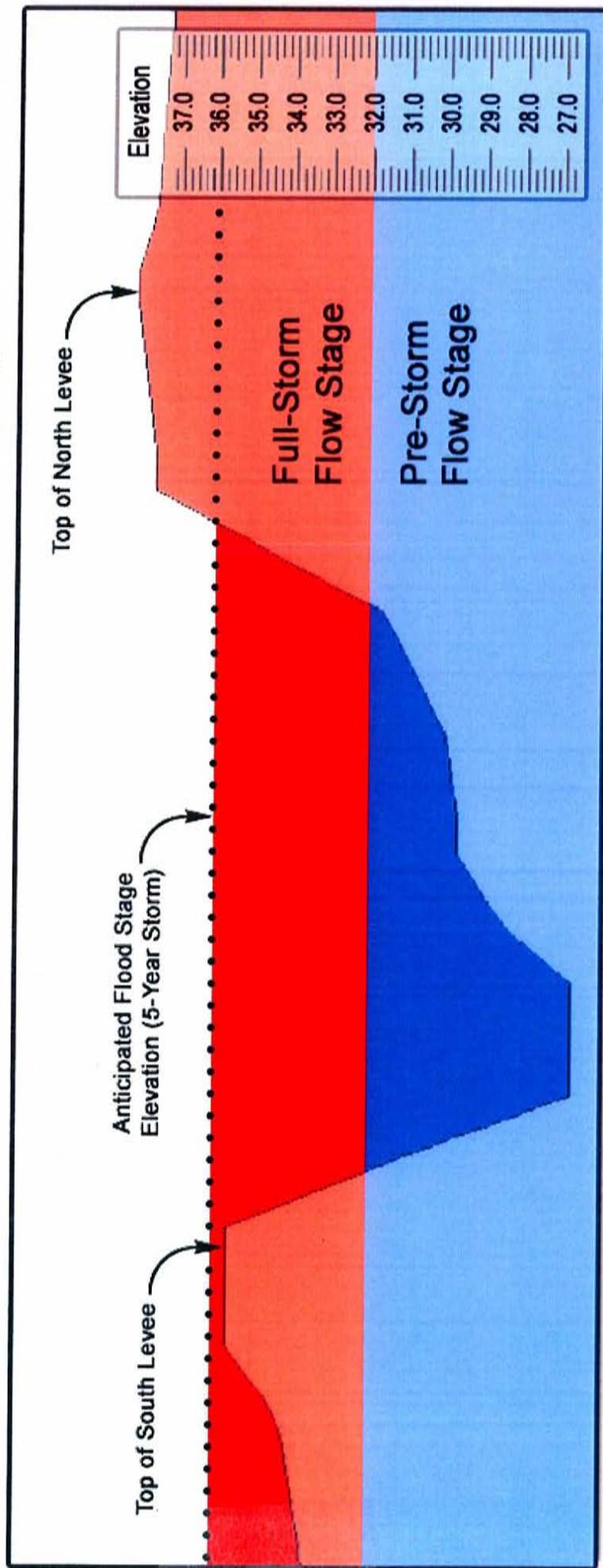
**Figure 1-1: Storm Flow Stages at Valley Road Bridge**



**Figure 1-2: Storm Flow Stages at 22nd Street Bridge**



**Figure 1-3: Storm Flow Stages at Low Point on South Levee**  
 Station 9068 - Patrol Area 2 - Rapp, George Property





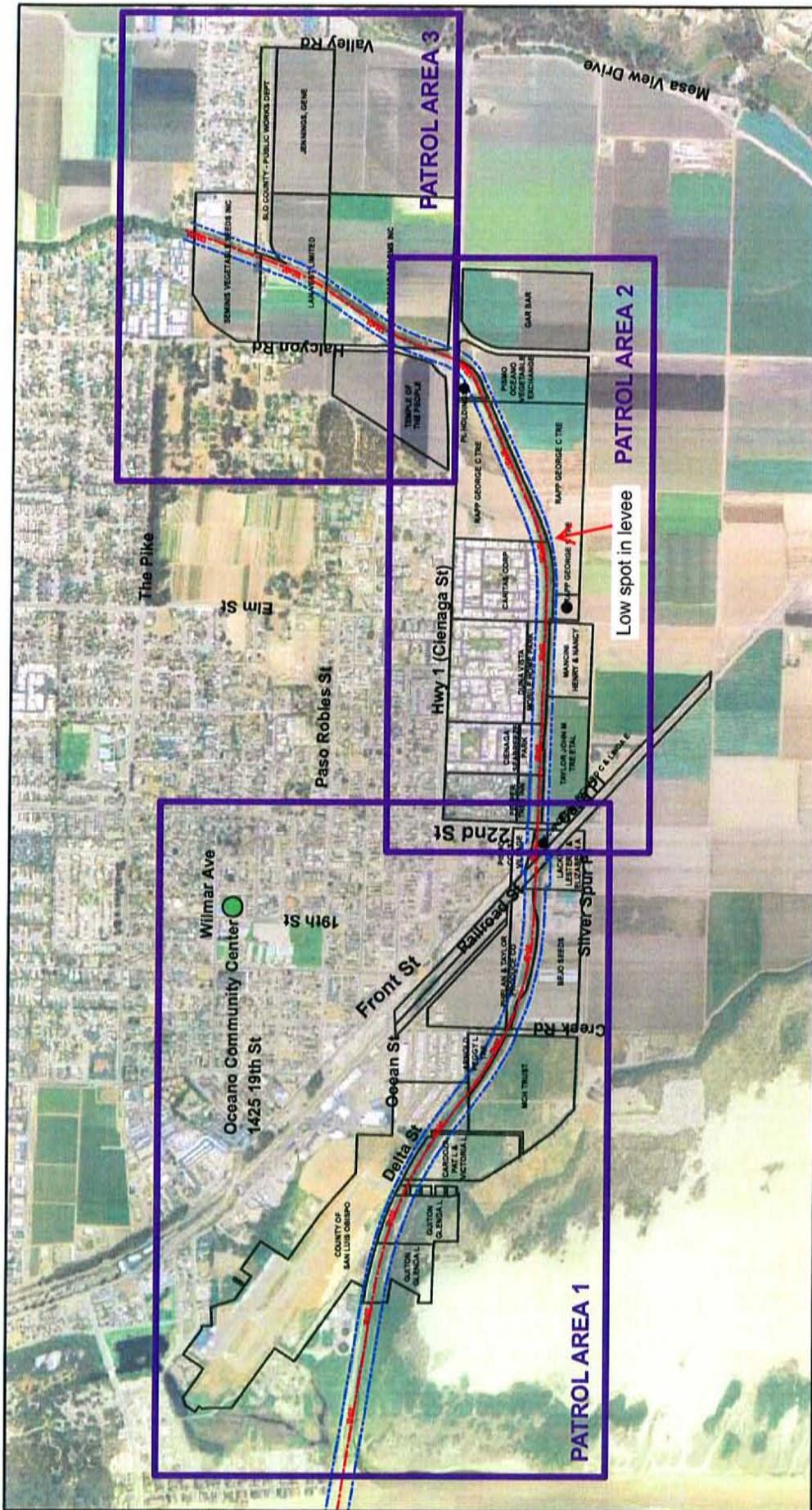


FIGURE 2-1: Patrol Areas Location Map

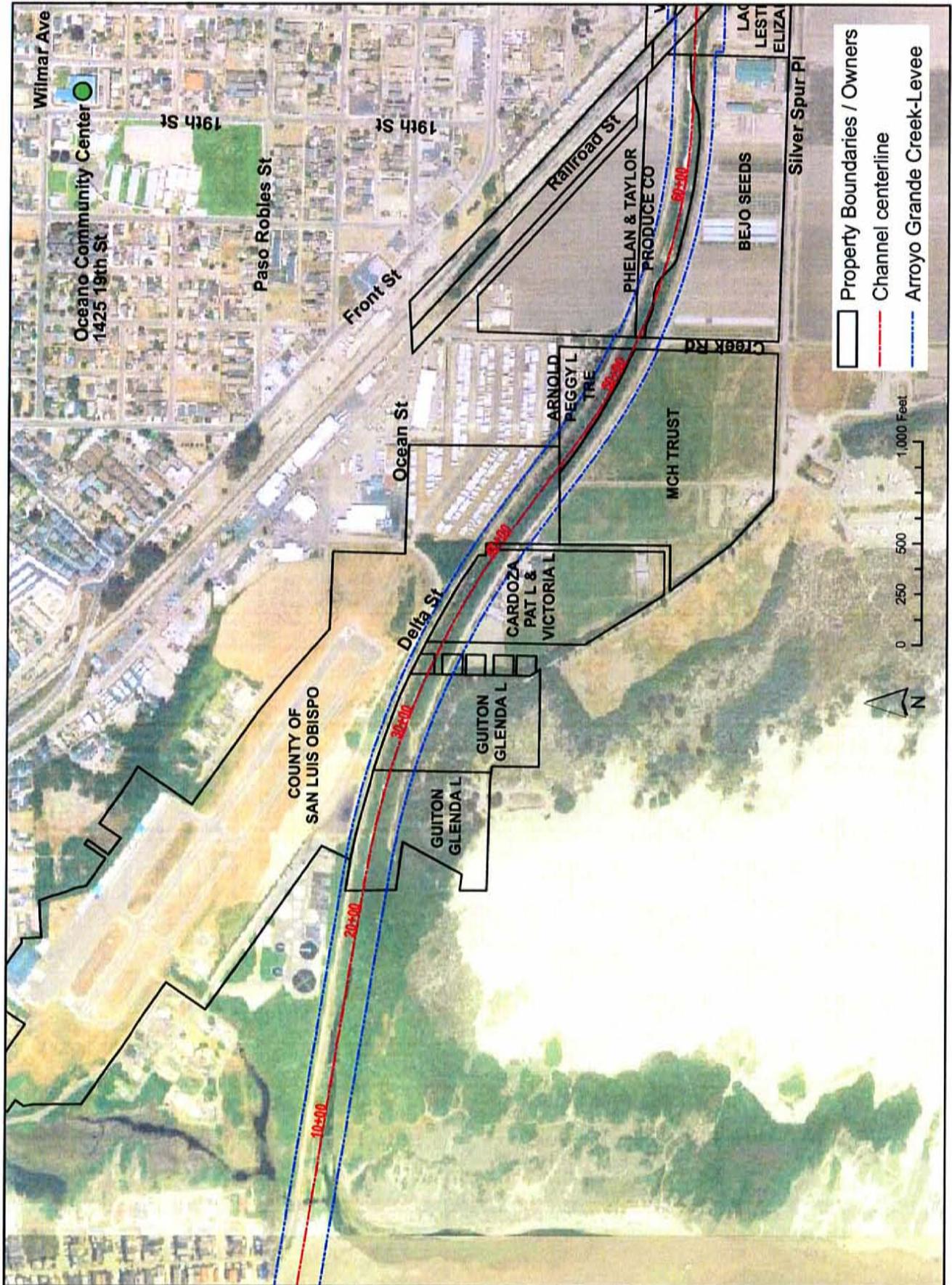


FIGURE 2-2: Patrol Area 1 Map

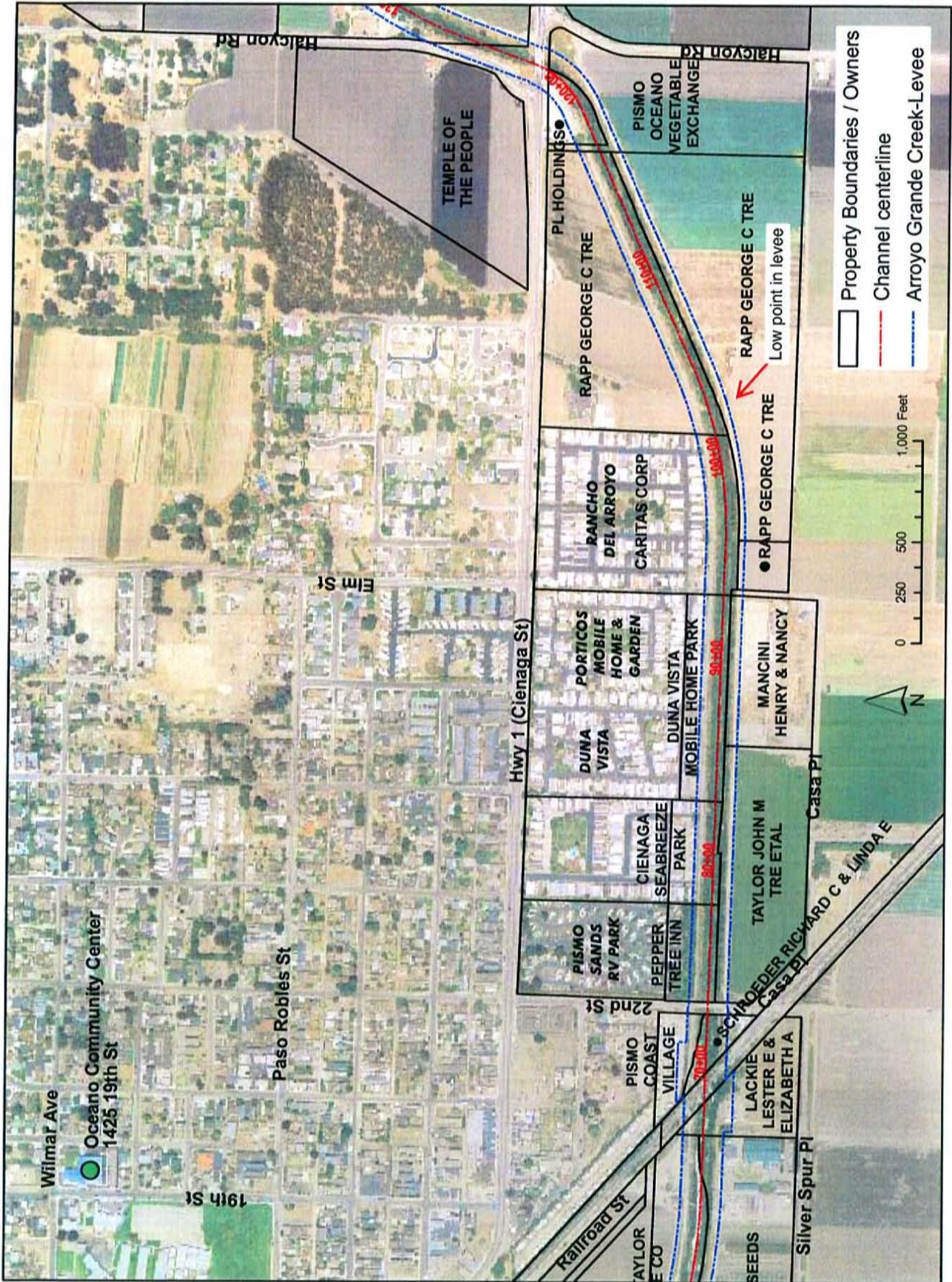


FIGURE 2-3: Patrol Area 2 Map

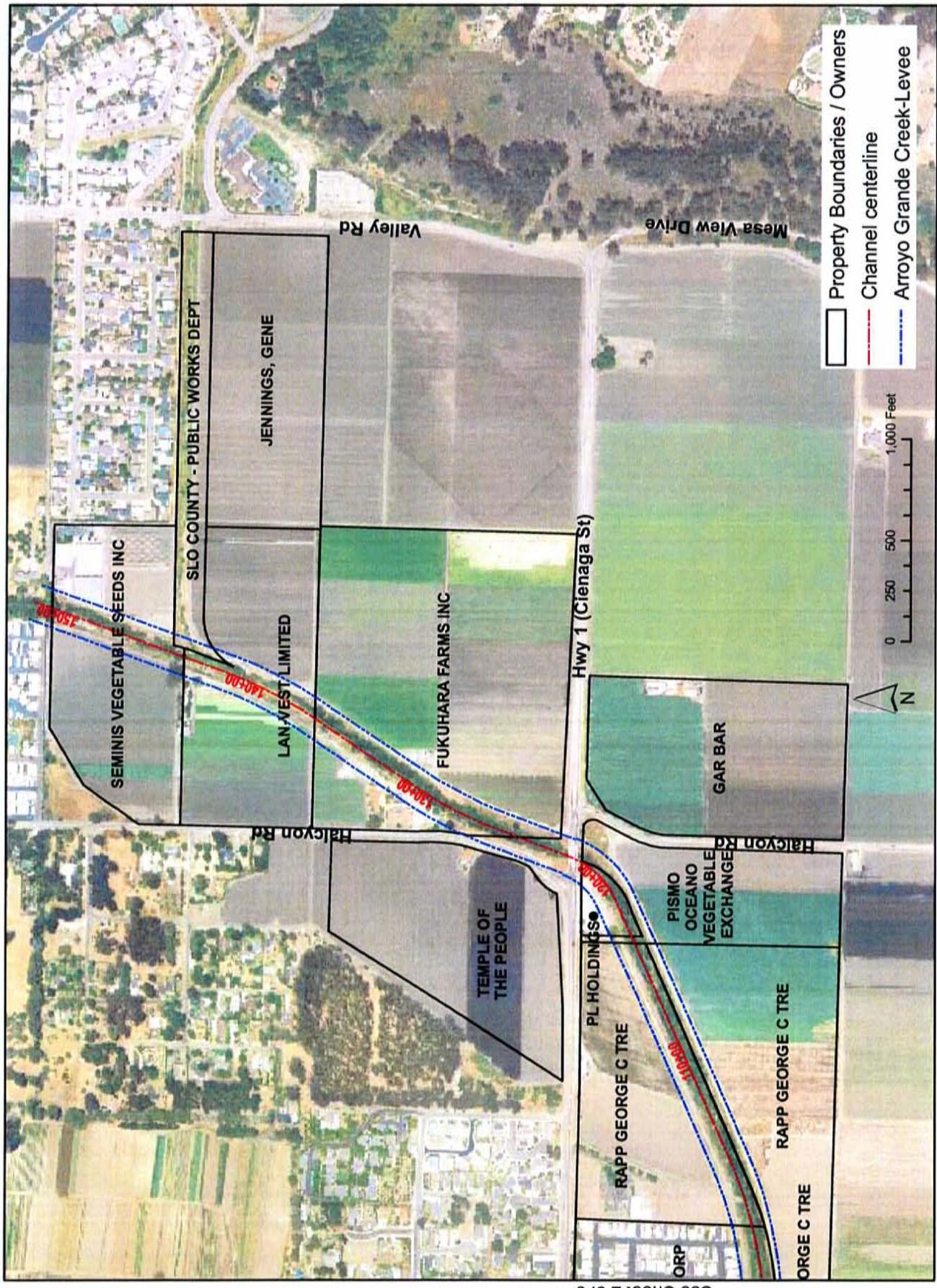


FIGURE 2-4: Patrol Area 3 Map



FIGURE 3-1: Flood Evacuation Zone

**TABLES**

TABLE 1-1:	FULL STORM FLOW CREEK LEVELS
TABLE 1-2:	POST STORM FLOW CREEK LEVELS
TABLE 1-3:	STAGE GAUGE LOG
TABLE 6-1:	FLOOD DAMAGE LOG

**TABLE 1-1: FULL-STORM FLOW STAGE CREEK LEVELS**

Creek Channel	Gauge Site	Full Storm Flow Stage		
		Staff Gauge Reading <sup>1</sup> (feet, NAVD29)	Electronic Stage Gauge Reading <sup>2</sup> (feet, NAVD29)	Website Reading <sup>3</sup> (feet)
Los Berros	Valley Road	[=WSE-50.0]	[=WSE]	[=WSE]
Arroyo Grande	22nd Street	[=WSE-10.0]	[=WSE]	[=WSE]
		7.0	57.0	57.0
		14.0	24.0	24.0

**NOTES:**

<sup>1</sup> Staff gauge located in creek channel

<sup>2</sup> Stage gauge located in instrument enclosure, on bridge rail

<sup>3</sup> Data located on website

**TABLE 1-2: POST-STORM FLOW STAGE CREEK LEVEL**

Creek Channel	Gauge Site	Post Storm Flow Stage		
		Staff Gauge Reading <sup>1</sup> (feet, NAVD29)	Electronic Stage Gauge Reading <sup>2</sup> (feet, NAVD29)	Website Reading <sup>3</sup> (feet)
Arroyo Grande	22nd Street	[=WSE-10.0]	[=WSE]	[=WSE]
		13.0	23.0	23.0

**NOTES:**

<sup>1</sup> Staff gauge located in creek channel

<sup>2</sup> Stage gauge located in creek equipment enclosure, on bridge rail

<sup>3</sup> Data located on website

**TABLE 1-3: STAGE GAUGE LOG**

Date	Time	Creek Channel	Gauge Site	Staff Gauge Reading by Inspection	Electronic Staff Gauge Reading	Website Reading
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			
		Los Berros	Valley Road			
		Arroyo Grande	22 <sup>nd</sup> Street			

**TABLE 6-1: FLOOD DAMAGE LOG**

Inspector: \_\_\_\_\_ Date: \_\_\_\_\_

Patrol Area (circle one):    1    2    3

Item	Location (approximate station)	Remarks

Item	Location (approximate station)	Remarks

## **PART THREE – APPENDICES**

APPENDIX 1: Procedural Memorandum AD-18, Storm Emergency Operations

APPENDIX 2: Emergency Call List

APPENDIX 3: Rates of Increase in Water Surface Elevation

(page intentionally left blank)

Appendix 1: Procedural Memorandum AD-18, Storm Emergency  
Operations

(page intentionally left blank)

## Appendix 2: Emergency Call List

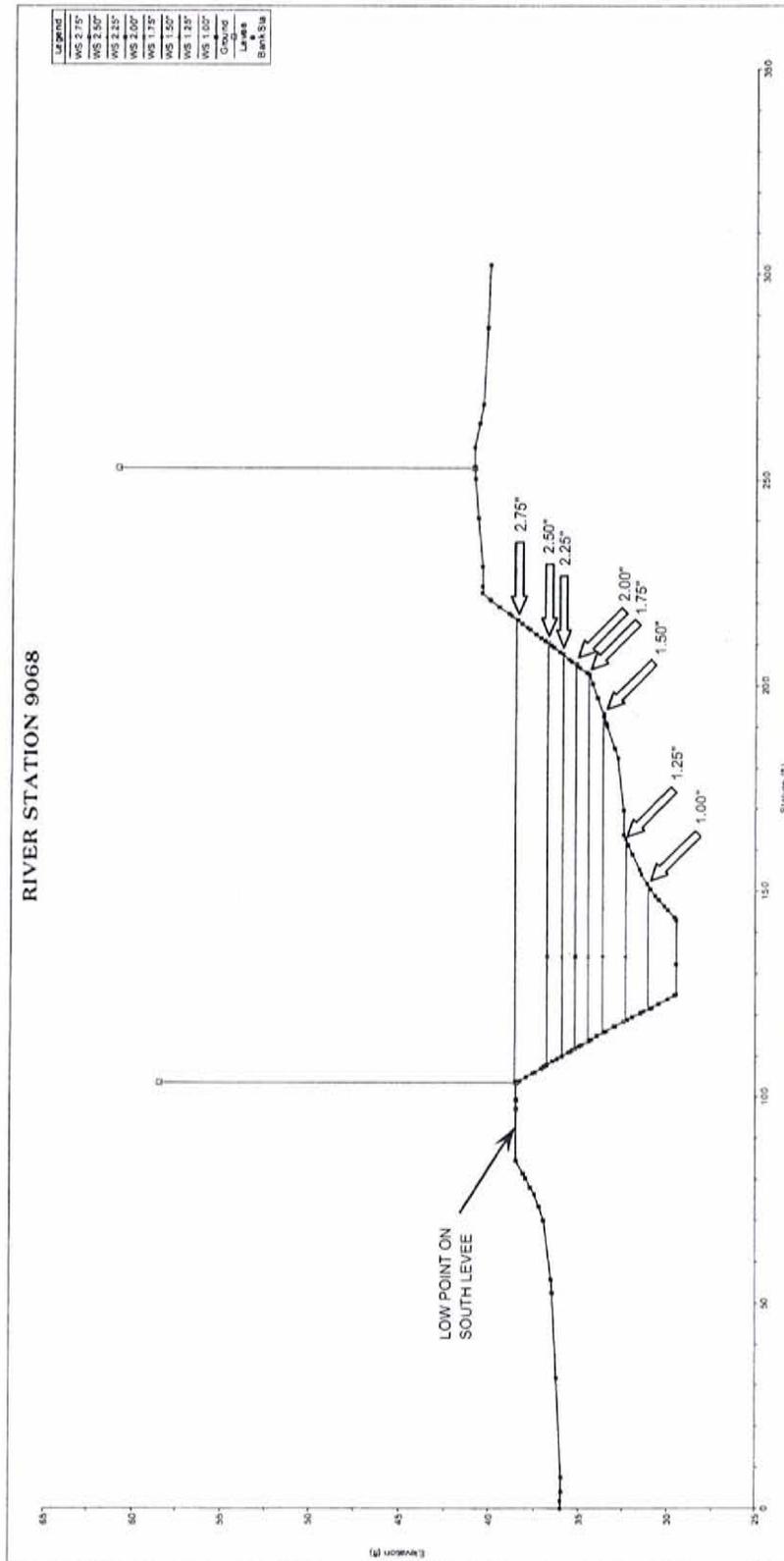
### Appendix 3: Anticipated Rates of Increase in Water Surface Elevation

(page intentionally left blank)



**WATER SURFACE LEVELS AT VARIOUS PRECIPITATION AMOUNTS OVER A 24-HOUR DURATION**

RIVER STATION 9068



# **EXHIBIT SS**

# IMPORTANT SAFETY INFORMATION ABOUT ARROYO GRANDE CREEK FLOODING & EVACUATION

INFORMACIÓN DE SEGURIDAD  
IMPORTANTE SOBRE  
INUNDACION Y EVACUACIÓN  
DEL RIO DE ARROYO GRANDE



INFORMATION BOOKLET FROM  
THE PUBLIC SAFETY AGENCIES  
OF THE FIVE CITIES AREA AND  
THE COUNTY OF SAN LUIS OBISPO

## **WHY DO I NEED TO BE PREPARED FOR CATASTROPHIC FLOODING FROM ARROYO GRANDE CREEK?**

While many families are familiar with minor flooding issues, most people do not know what to do in case a levee breaks. Heavy rainfall and excessive runoff could lead to catastrophic flooding in areas adjacent to the levee.

People who live or work in the portions of Arroyo Grande Valley and Oceano need to be prepared in the unlikely event of a failure of the Arroyo Grande Levee. Officials in San Luis Obispo County have developed this booklet that will help direct you safely should you be threatened by a flood.

A catastrophic flood is a serious life-threatening event. In the event that heavy rains cause the levee to fail, deep, fast-moving water could begin flooding parts of Oceano almost immediately. This is why you and your family need to be prepared to evacuate immediately if you are in the flood zone. The map on the reverse side of this brochure indicates the approximate flood zone for a 100 year storm event.

## **IS THE ARROYO GRANDE CREEK LEVEE SAFE?**

The levee is considered to be safe during smaller rainfall events. However, due to excessive buildup of soils, vegetation, and other materials within the creek, during a large storm event it is possible that the levee could fail and cause flooding of areas within one quarter mile of the creek as indicated by the map on the reverse side of this brochure.

## **WHAT IS THE PLAN?**

In the event of a potential levee failure and/or flooding, emergency personnel will evaluate the situation to determine the best course of action. If the order to evacuate is given, the emergency sirens could sound and Public Works, law enforcement, and fire personnel will respond. Residents and visitors should go to the Oceano Community Building at 1425 19th Street. This is a temporary Area of Safe Refuge until the decision is made whether to allow re-entry or relocate evacuees to a designated shelter.

## **WHAT SHOULD I DO IF THE SIRENS SOUND AND I NEED TO EVACUATE?**

If the sirens sound, immediately tune your radio to a local radio or television station for instructions. If the instructions are to evacuate, do so immediately. Do not expect that you will have more than 5 or 10 minutes to get to safety. Use the map inside this guide to plan your route NOW. Make sure your family knows where to go in the event of a catastrophic flood. This may mean seeking higher ground anywhere. For many residents in the flood zone it will be quicker and safer to evacuate a short distance on foot rather than by car. Take a prepared “Grab & Go” kit of essential supplies, if you have time. When in doubt, leave all possessions behind, because your life is more important.

## **DON'T BE SCARED! BE PREPARED! LEARN THE 6 KEYS TO SURVIVAL**

1. Be familiar with evacuation routes, and know how to find higher ground.
2. Have a family plan that includes the name and telephone number of someone outside the area you can notify of your whereabouts, know school's plans for evacuation, and any special arrangements for the disabled, elderly, and very young.
3. If you are disabled or do not have transportation, make evacuation plans with neighbors now. Public transportation may not be available.
4. Prepare your own “Grab & Go” kit now. Include essential items such as a portable radio with extra batteries, drinking water, flashlight, pen and paper, medications, and a whistle.
5. Be prepared to self-evacuate immediately. Plan to evacuate to the house of a friend or relative who lives on higher ground outside the flood zone.
6. Use common sense and try to stay calm..  
*Stay safe and you can help others!*

## **¿PORQUE NECESITO ESTAR PREPARADO PARA UNA INUNDACION CATASTRÓFICA CAUSADA POR EL RIO DE ARROYO GRANDE?**

Mientras muchas familias están familiarizadas con inundaciones de menor categoría, la mayoría de la gente no sabe qué hacer en caso de que un dique se rompa. Una extensa lluvia y grandes aguaseros podrían conducir a una inundación catastrófica en áreas cercanas al dique.

Gente que viva o trabaje en algunas áreas de el Valle de Arroyo Grande y de Oceano necesitan estar preparados en el extraño y no tan probable caso de que el dique de Arroyo Grande no funcione como debido. Los funcionarios del condado de San Luis Obispo han desarrollado este libretto que les ayudará en dirigirlos a un lugar seguro si una inundación le amenaza.

Una inundación catastrófica es un serio acontecimiento peligroso para su vida. En caso que las lluvias pesadas causen que el dique falle, agua profunda y rápida podría comenzar a inundar partes de Oceano inmediatamente. Esta es la razón por la cual usted y su familia necesitan estar preparados para evacuar inmediatamente si usted está en la zona de inundación. El mapa detrás de este libretto indica aproximadamente cuál es la zona de inundación para un evento de lluvia de 100 años.

## **¿QUE TAN SEGURO ES EL DIQUE DEL RIO DE ARROYO GRANDE?**

El dique se considera ser seguro durante lluvias leves. Sin embargo, debido a la acumulación excesiva de tierra, de vegetación, y de otros materiales dentro del río, durante una fuerte tormenta es posible que el dique pueda fallar y causar inundaciones en áreas a un cuarto de milla del río tal como está indicado en el mapa detrás de este libretto.

## **¿CUAL ES EL PLAN?**

En caso de una posibilidad de que falle el dique o que hubiera una inundación, el personal de emergencia evaluará la situación para determinar la mejor línea de conducta. Si se da la orden a evacuación, las sirenas de emergencia pueden que sonen y el personal asignado del departamento de Public Works, la autoridad, y los bomberos responderán. Los residentes y el público en general necesitarán dirigirse a la siguiente dirección - Oceano Community Building localizada en el 1425 de la calle 19, en la ciudad de Oceano. Ésta localidad servirá temporalmente como Área de refugio seguro hasta que una decisión sea tomada y se les permite regresar o transferir a los evacuados a otro lugar.

## **¿QUE NECESITO HACER SI ESCUCHO EL SONIDO DE LAS SIRENAS Y ES NECESSARIO EVACUAR?**

Si las sirenas suenan, inmediatamente programe su radio o televisor a una estación local para escuchar las instrucciones. Si las instrucciones son de evacuar, entonces evacúen inmediatamente. No espere tener más de 5 a 10 minutos en encontrar un lugar seguro. Utilice el mapa dentro de esta guía AHORA para planear su ruta. Asegúrese de que su familia sepa adónde ir en caso de una inundación catastrófica. Esto puede significar dirigirse a cualquier lugar más alto. Para muchos residentes en la zona de la inundación será más rápido y más seguro evacuar una distancia corta a pie en vez que en coche. Si usted tiene tiempo, llévese consigo su botiquín de primeros auxilios. Cuando en duda, deje todas las posesiones detrás, porque su vida es más importante.

## **¡NO SE ASUSTE! ¡ESTE PREPADO! APRENDA LAS 6 LLAVES A LA SUPERVIVENCIA**

1. Esté familiarizado con las rutas de evacuación, y sepa encontrar un nivel de tierra más alto.
2. Tenga un plan dentro de su familia que incluya el nombre y el número de teléfono de alguien fuera del área que usted pueda notificar sobre su paradero, este familiarizado con el plan de evacuación de la escuela, y cualquier arreglos especiales para las personas deshabilitadas, mayores, y personas muy jóvenes.
3. Si usted está deshabilitado o no tiene transporte, haga los planes de evacuación inmediatamente con los vecinos. El transporte público puede ser que no esté disponible.
4. Prepare su botiquín de primeros auxilios. Incluya los artículos esenciales tales como un radio portátil con baterías adicionales, agua potable, linterna, pluma y papel, medicamentos, y un silbato.
5. Esté preparado para evacuar por sí solo inmediatamente. Elabore un plan de evacuación a la casa de un amigo o de un pariente que viva en un nivel de tierra más alto y que esté fuera de la zona de la inundación.
6. Use su sentido común e intente permanecer tranquilo. *¡Manténganse a salvo y podrá ayudar a otros!*

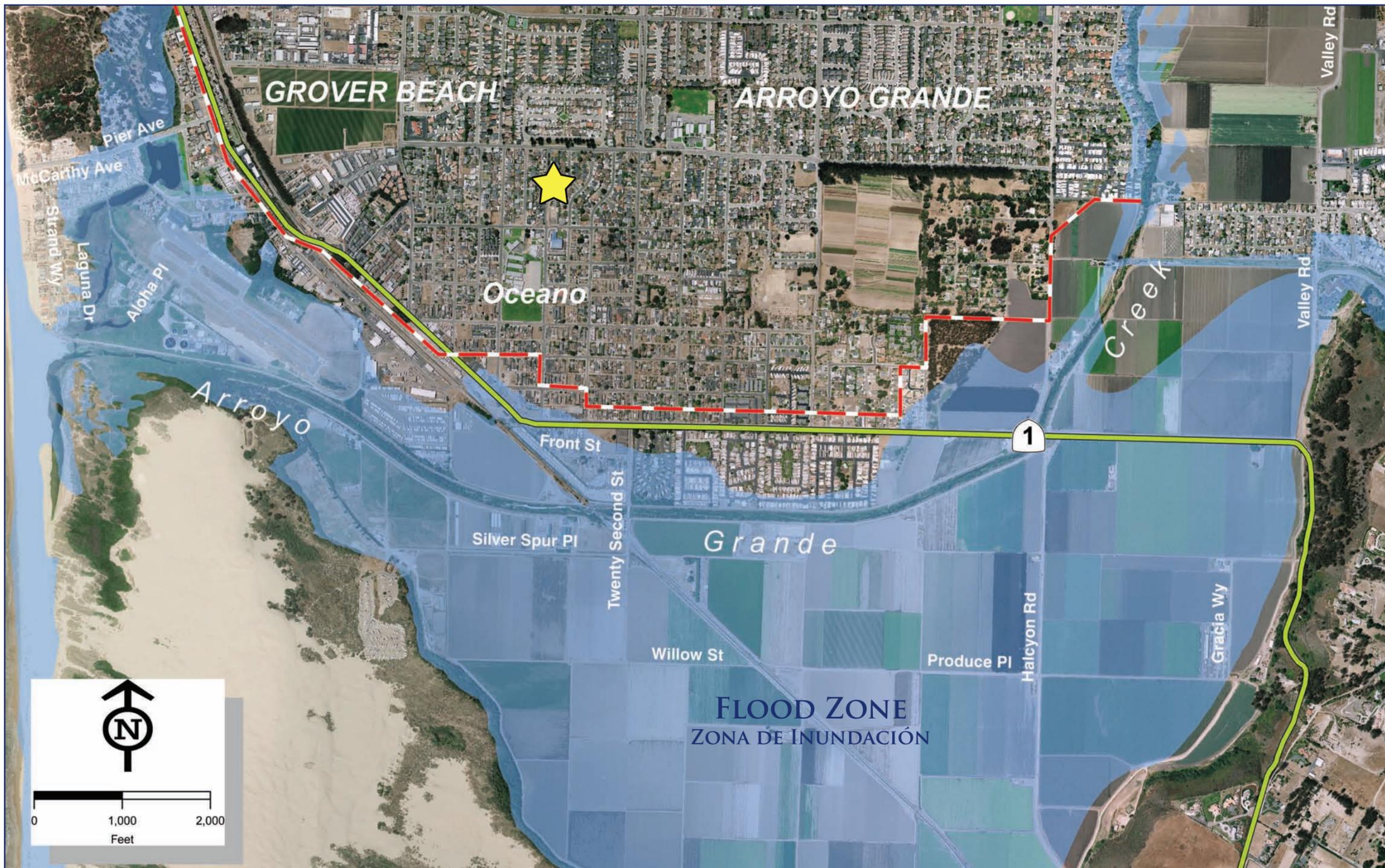
**OFFICIAL NOTICE FROM:**

The County of San Luis Obispo,  
Cities of Arroyo Grande,  
Grover Beach, Pismo Beach and the  
Oceano Community Services District

**SAFETY INFORMATION  
FOR ARROYO CREEK LEVEE,  
FLOODING AND EVACUATION  
READ THIS BOOKLET NOW!**

---

**INFORMACIÓN DE SEGURIDAD  
!LEA ESTE LIBRETE AHORA!**



**AREA OF SAFE REFUGE**  
**ÁREA DE REFUGIO SEGURO**  
 Ocean Community Center  
 1425 19th Street  
 Oceano, California

**STUDY THIS MAP NOW!**

1. Identify your home and workplace on this map.
2. If your home or workplace is located in the flood zone, plan your evacuation route to higher ground now.
3. Stay off Highway 1 in the flood zone.
4. Do not attempt to cross any flood waters.

**IN CASE OF EMERGENCY**

If the sirens sound, immediately tune to a local radio or television station and follow the instructions.

**Do not go onto a roof to avoid the flood, you must leave the flood zone!**

**¡ESTUDIE ESTE MAPA AHORA!**

1. Identifique su hogar y lugar de trabajo en este mapa.
2. Si su hogar o lugar de trabajo está situado en la zona de la inundación, planee su ruta de la evacuación a un nivel de tierra más alta ahora.
3. Permanezca fuera de la carretera 1 en la zona de la inundación.
4. No intente cruzar ninguna zona de inundación.

**EN CASO DE EMERGENCIA**

Si las sirenas suenan, inmediatamente programe su radio o televisor a una estación local para escuchar las instrucciones.

**No se dirija al techo de su casa para evitar la inundación, ¡usted debe salir de la zona de la inundación!**

**ARROYO GRANDE CREEK - OCEANO, CA**  
**FLOOD EVACUATION AREA**  
 BASED ON FEMA FLOOD ZONE "A" DESIGNATION

# **EXHIBIT TT**

term community participation in defining future desired conditions for the creek and other watershed resources.

## Summary of Findings

Preliminary assessment of the creek for steelhead habitat as well as assessment of the geomorphic and hydrologic conditions of the creek indicate that:

- There was agreement between the Arroyo Grande Creek Steering Committee and the Technical Advisory Committee that Arroyo Grande Creek should be recognized as an anadromous, natural production steelhead stream.
- In accordance with the accompanying Geomorphic and Hydrologic Assessment (Appendix B), the evolution of the creek corridor given human influences of increasing urbanization, Lopez Dam, and the flood control channel, along with the natural influences of underlying geology, is proceeding in such a way as to increase erosion along the banks of the creek, including head-cutting in the tributaries. Sediment is being deposited downstream, particularly in the Flood Control Channel.
- Water quality regarding nutrients is generally good. Sediment, as a water quality issue, needs to be addressed by stabilizing banks, increasing flood plain potential and continuing to work with landowners to install sediment reduction best management practices.
- Flood protection for the lower creek within the Flood Control Channel needs to be addressed through watershed-wide solutions coordinated among landowners, agencies and organizations.
- A comparison of historic versus present day available valley floor floodplain areas of Arroyo Grande Creek and its tributaries indicate that 15% of original floodplain area remains.

Limiting factors for Arroyo Grande Creek watershed include increasing sedimentation, decreasing spawning gravel quality and quantity, fish passage barriers, decreased water quantity, and increased water temperature due to a lack of canopy. The relatively good water quality in the watershed should be protected, as it is less expensive and more efficient to protect a water body's health than to remediate it once it has been impaired.

There is a considerable body of information regarding Arroyo Grande Creek. The culmination of several events are bringing to the forefront the need to address anew a coordinated management strategy for the watershed as the area continues to experience growth and land use changes.