



Memorandum

Date: April 29, 2013

To: Mark Tucker

From: Julie Stout and Sundeep Amin

Subject: Jurisdictional Delineations for Proposed Mitigation Sites within
Los Peñasquitos Canyon Preserve

The purpose of this memo is to document the methods and results of the delineation and jurisdictional determination conducted at two potential mitigation sites within Los Peñasquitos Canyon Preserve (Figures 1 and 2). The purpose of the delineation was to identify and map the location and extent of the limits of local, state, and federal jurisdictional waters of including wetlands that would fall under the jurisdiction of the U.S. Army Corps of Engineers (Corps), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), California Coastal Commission (CCC), and the City of San Diego. The current Arid West Regional Supplement and Rapanos/Carabell guidance (Rapanos) were applied to the methods and results of this study when relevant. This wetland study also evaluated the extent of waters of the State that may fall under the jurisdiction of the California Department of Fish and Wildlife pursuant to Section 1602 of the Fish and Game Code of California (Streambed Alteration Agreements) or the Porter-Cologne Act regulating waste discharge into waters of the State. This report is for use in the verification process with Local, State and Federal regulators and is intended to be submitted to the regulatory agencies for review and verification.

Methods

Site visits were conducted by URS biologists Julie Stout and Catherine MacGregor on April 4, 2013 and Julie Stout and Sundeep Amin on April 19, 2013. The initial site visits included vegetation mapping of the mitigation areas plus a 150-foot buffer and compilation of a plant species list. Areas with hydrophytic plant species were examined more closely to determine the wetland boundary. Initial delineation was conducted visually based on vegetation indicators. A three parameter wetland delineation was conducted in accordance with the 1987 Corps Manual and 2006 Arid West Supplement. Wetland waters of the U.S. were sampled using the general methodology detailed in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (Corps Manual) for wetlands less than 5 acres in size. Sample points were chosen based on vegetation community mapping and considered visible transitions in vegetation composition and topographical changes. Additional soil pits were created to further document the wetland and upland conditions on site during the subsequent site visit and confirm wetland conditions in the southeastern corner of the site.

The definition of the growing season and the basis of determining and recording indicators for hydrophytic vegetation, hydric soils, and wetland hydrology was the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Arid West Supplement). Both the Corps Manual and Arid West Supplement were used for the determination and evaluation of any normal circumstances, atypical situations, and problem area wetlands. All Corps and CDFW jurisdictional areas were also assumed to be under the jurisdiction of the RWQCB and the CCC.

Results

El Cuervo al Oeste-The western mitigation area included both upland and wetland areas within the current mitigation site boundary (Figure 1). Freshwater marsh and disturbed wetland overlapped the southwestern and southeastern portions of the proposed mitigation area. The riparian vegetation associated with Los Peñasquitos Creek is considered to be to be jurisdictional wetlands for all agencies. A summary of the delineation results and determinations El Cuervo al Oeste is provided in Table 1 below.

Table 1. Summary of Delineation Results and Jurisdictional Determinations for El Cuervo al Oeste

JDSP No.	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Jurisdictional Wetland (Y/N)
1	-	-	-	N
2	x	x	x	Y
4	-			N
5	x	x	x	Y
6	x	x	x	Y
7	-	-	-	N






El Cuervo del Sur-The southern mitigation area included both upland and wetland areas (Figure 2). The site is surrounded to the North and West by riparian and wetland vegetation. A small patch of wetlands was mapped within the western boundary. This area meets the state definitions of wetlands and is assumed to be Corps jurisdictional under the PJD approach. A summary of the delineation results and determinations for the El Cuervo del Sur is provided in Table 2 below.

Table 2. Summary of Delineation Results and Jurisdictional Determinations for El Cuervo del Sur





JDSP No.	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Jurisdictional Wetland (Y/N)
3	-	-	-	N
8	x	-	-	Y
4	-	-	-	N

Recommendations







It is recommended that the downstream boundary of both mitigation areas be revised to avoid wetland impacts. Suggested boundary revisions are shown on Figures 1 and 2.

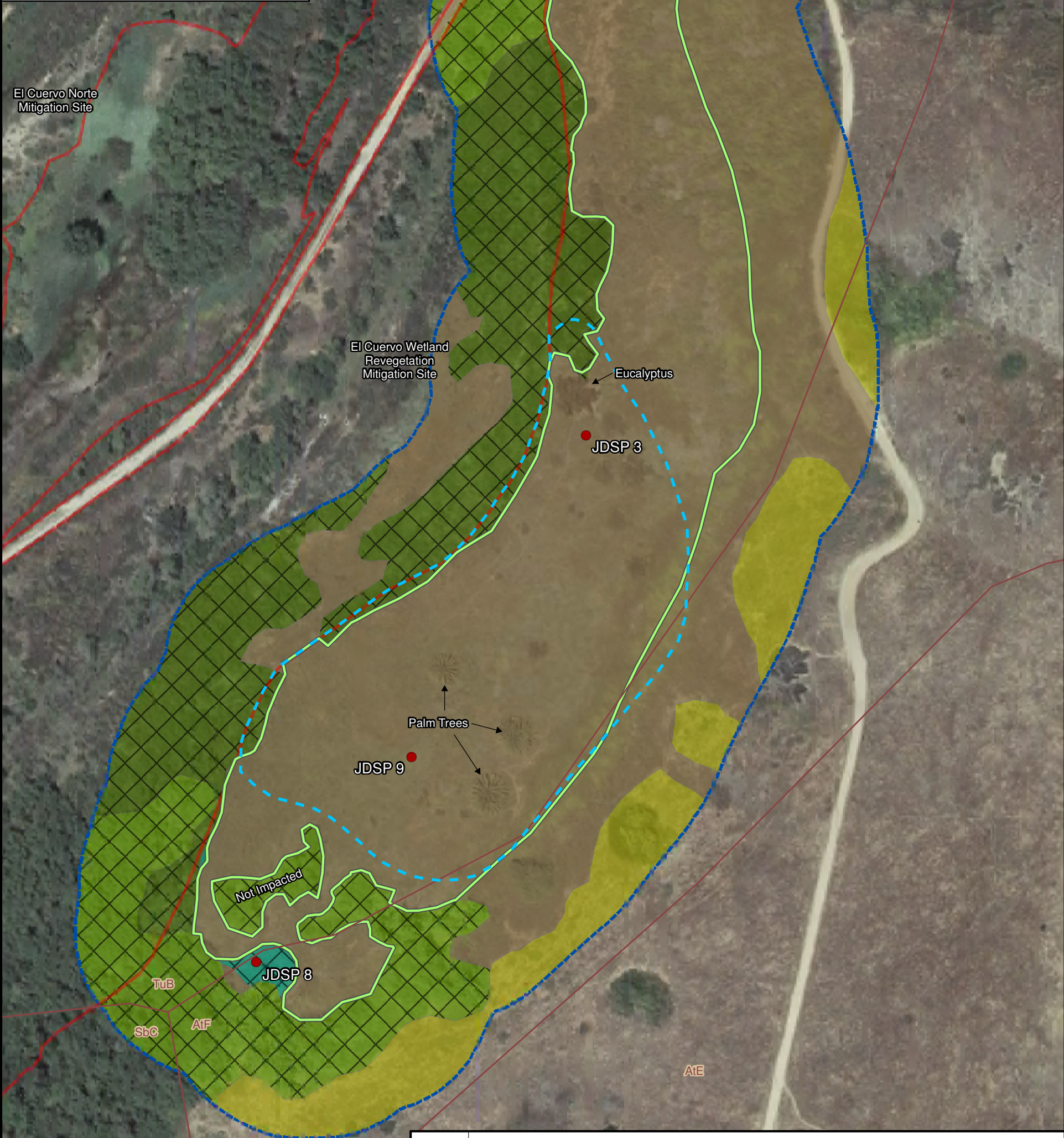
 Proposed Mitigation Site Boundary
 Suggested Boundary Revision
 100-Foot Buffer
 El Cuervo Mitigation Site
 Jurisdictional Delineation Sample Point

Soil Map Layer



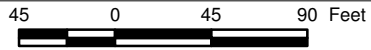
 AtE, Altamont clay, 15 to 30 percent slopes
 AtF, Altamont clay, 30 to 50 percent slopes
 SbC, Salinas clay loam, 2 to 9 percent slopes
 TuB, Tujunga sand, 0 to 5 percent slopes

Vegetation

 Disturbed
 Freshwater Marsh
 Mulefat Scrub
 Non-Native Grassland
 Southern Willow Scrub
 Jurisdictional Wetland (All Agencies)



Path: G:\gis\projects\15773767905\map_docs\smx\NO_Canyon_Mitigation\ND_Memo\ElCuervoDelSur_JD_memo.mxd, diana_smith, 10/24/2013, 10:31:31 AM

 	SOURCES: Site Boundary, Buffer, Vegetation, Utility Right of Way, JDSP, Boring (URS, 2013). Aerial Imagery (SanGIS, 2012). Soil (SSURGO, USDA, 2007).		JURISDICTIONAL DELINEATION EL CUERVO DEL SUR CITY OF SAN DIEGO	
	 SCALE: 1" = 90' (1:1,080) SCALE CORRECT WHEN PRINTED AT 11X17	CREATED BY: LR PM: BE	DATE: 10/24/2013 PROJ. NO: 27679954.08300	FIG. NO: 2

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: El Cuervo West City/County: San Diego Sampling Date: 4/4/13
 Applicant/Owner: _____ State: CA Sampling Point: Pit 1
 Investigator(s): J. Stora, C. MacGregor Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): flood terrace Local relief (concave, convex, none): _____ Slope (%): 2
 Subregion (LRR): C20 Lat: 479794.71 Long: 3690892.01 Datum: NAD83
 Soil Map Unit Name: CH10 silt loam NW classification: freshwater emergent wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (if no, explain in Remarks.)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	
Remarks:			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____				
= Total Cover				
Shrub/Strawb Stratum (Plot size: _____)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species <u>40</u> x 3 = <u>120</u>
5. _____				FACU species <u>70</u> x 4 = <u>280</u>
= Total Cover				UPL species <u>5</u> x 5 = <u>25</u>
1. <u>Cynodon dactylon</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	Column Totals: <u>115</u> (A) <u>425</u> (B)
2. <u>Berberis diandra</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	Prevalence Index = B/A = <u>3.69</u>
3. <u>Distichlis spicata</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
= Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust _____				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>

Remarks: difficult to differentiate Cynodon & Distichlis - lacking flowerheads

SOIL

Sampling Point: Pit 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
1-7	7.5YR 3/2	80					silty clay	
	7.5YR 4/3	20					"	
7-12	7.5YR 3/2	90-99	7.5YR 5/6	1-2	C	M	"	prominent clay moist, no saturation

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pure Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histic (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: Soils not hydric - not meeting F6 requirement of ≥ 5% redox with matrix value of 3 (chromz)

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D6)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____

Water Table Present? Yes _____ No Depth (inches): _____

Saturation Present? Yes _____ No Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: El Cervo West City/County: San Diego Sampling Date: 4/4/13
 Applicant/Owner: _____ State: CA Sampling Point: Pt 2
 Investigator(s): J. Stout, C. McGregor Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): flood terrace Local relief (concave, convex, none): _____ Slope (%): 1
 Subregion (LRR): C20 Lat: 479798.70 Long: 3640886.16 Datum: NAD 83
 Soil Map Unit Name: chico silt loam NWI classification: Freshwater Forested/sh
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: _____ _____ _____	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>10</u></td> <td>x 1 = <u>10</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>80</u></td> <td>x 3 = <u>240</u></td> </tr> <tr> <td>FACU species <u>15</u></td> <td>x 4 = <u>60</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>110</u> (A)</td> <td><u>320</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.9</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>10</u>	x 1 = <u>10</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>80</u>	x 3 = <u>240</u>	FACU species <u>15</u>	x 4 = <u>60</u>	UPL species _____	x 5 = _____	Column Totals: <u>110</u> (A)	<u>320</u> (B)	Prevalence Index = B/A = <u>2.9</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>10</u>	x 1 = <u>10</u>																			
FACW species <u>5</u>	x 2 = <u>10</u>																			
FAC species <u>80</u>	x 3 = <u>240</u>																			
FACU species <u>15</u>	x 4 = <u>60</u>																			
UPL species _____	x 5 = _____																			
Column Totals: <u>110</u> (A)	<u>320</u> (B)																			
Prevalence Index = B/A = <u>2.9</u>																				
Shrub/Strawb Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ = Total Cover																				
Herb Stratum (Plot size: _____) 1. <u>Salicornia pacifica</u> <u>10</u> <u>N</u> <u>OBL</u> 2. <u>Distichlis spicata</u> <u>80</u> <u>Y</u> <u>FAC</u> 3. <u>Frankenia salina</u> <u>5</u> <u>N</u> <u>FACW</u> 4. <u>Cynodon dactylon</u> <u>15</u> <u>N</u> <u>FACU</u> 5. _____ 6. _____ 7. _____ 8. _____ = Total Cover																				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ = Total Cover																				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust <u>3</u> = Total Cover																				
Remarks: _____ _____ _____																				

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is >3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No _____

SOIL

Sampling Point: Pt 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	7.5YR 3/2	60					Silty clay	
	7.5YR 4/3	10					"	
	Gt 2.5/N	30					"	
7-12	7.5YR 3/2	90	10YR 5/6	10	C	M	"	prominent

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (FB)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Filled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
water table probably high, ponded water nearby

SOIL

Sampling Point: P-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type	Loc.		
0-12	7.5YR 3/2	100					Sandy clay loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ¹ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A6) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B8)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C6) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: El Cuervo West City/County: _____ Sampling Date: 4/19/13
 Applicant/Owner: _____ State: _____ Sampling Point: Plot 4
 Investigator(s): S. Amth, J. Stout Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): fluvial terrace Local relief (concave, convex, none): _____ Slope (%): 1
 Subregion (LRR): C20 X 4799 33, 38 X 3640 945, 52 Datum: WGS 84
 Soil Map Unit Name: chino silt-loam NVM classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks.)
 Are Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No _____		
Wetland Hydrology Present?	Yes _____ No _____		
Remarks:			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____				
= Total Cover				
Shrub/Strawb Stratum (Plot size: _____)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>10</u> x 1 = <u>10</u>
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species <u>40</u> x 3 = <u>120</u>
5. _____				FACU species _____ x 4 = _____
= Total Cover				UPL species <u>20</u> x 5 = <u>100</u>
				Column Totals: <u>60</u> (A) <u>220</u> (B)
				Prevalence Index = B/A = <u>3.6</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Poa annua</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	___ Dominance Test is >50%
2. <u>Lolium perenne</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	___ Prevalence Index is >3.0
3. <u>Hordeum sp.</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				___ Problematic Hydrophytic Vegetation ² (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
= Total Cover				
Woody Vine Stratum (Plot size: _____)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____				
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		Hydrophytic Vegetation Present? Yes _____ No <u>X</u>

Remarks:
~~top title~~
 dead grass - 30%, unknown hordeum - prevalence index would still be >3 even if this turned out to be an obligate species

SOIL

Sampling Point: Pit 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	7.5YR 3/2	100					Sandy loam	
0-1	10.5YR 3/2	100					clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Fore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

(Indicators for Problematic Hydric Soils³):

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Bitic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

DWS

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: El Cuervo West City/County: Sampling Date: 4/19/13
Applicant/Owner: State: Sampling Point: PITS
Investigator(s): Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):
Subregion (LRR): X 479955.83 Long: 36408 Datum:
Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes R No
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes K No
Are Vegetation, Soil, or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes K No
Remarks:

VEGETATION - Use scientific names of plants.

Table with columns for Stratum (Tree, Sapling/Shrub, Herb, Woody Vine), Absolute % Cover, Dominant Species?, Indicator Status, and Dominance Test worksheet. Includes handwritten entries for Salix lasiulepis, Artemisia californica, and Bromus sp.

Remarks: Leaf litter 78%
Hydrophytic Vegetation Present? Yes X No

SOIL

Sampling Point: Pit 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	100					clay loam	
2-20	10YR 3/2	100					sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5) (LRR C)</p> <p><input type="checkbox"/> 1 cm Muck (A8) (LRR D)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input checked="" type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> Vernal Pools (F8)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR C)</p> <p><input type="checkbox"/> 2 cm Muck (A10) (LRR B)</p> <p><input type="checkbox"/> Reduced Vertic (F18)</p> <p><input type="checkbox"/> Red Parent Material (IF2)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input checked="" type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1) (Nonriverine)</p> <p><input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)</p> <p><input type="checkbox"/> Drift Deposits (B3) (Nonriverine)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Biotic Crust (B12)</p> <p><input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>		<p>Secondary Indicators (2 or more required)</p> <p><input checked="" type="checkbox"/> Water Marks (B1) (Riverine)</p> <p><input type="checkbox"/> Sediment Deposits (B2) (Riverine)</p> <p><input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
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Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): 4

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: El Cerezo West City/County: _____ Sampling Date: 4/19/13
 Applicant/Owner: _____ State: _____ Sampling Point: P16
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ X AB000B AS Long: 36 40 43 7.03 Datum: NAD 84
 Soil Map Unit Name: _____ NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____			
Remarks:					

VEGETATION - Use scientific names of plants.

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Tree Stratum				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
1. _____				Total Number of Dominant Species Across All Strata: _____ (B)
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
3. _____				
4. _____				
= Total Cover				
Seedling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by:
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
Herb Stratum				Column Totals: _____ (A) _____ (B)
1. <u>Scirpus americanus</u>	<u>10</u>			Prevalence Index = B/A = _____
2. <u>Apium graveolens</u>	<u>5</u>			Hydrophytic Vegetation Indicators:
3. <u>Arenopsis californica</u>	<u>90-90</u>		<u>OBL</u>	___ Dominance Test is >50%
4. <u>...</u>	<u>5</u>			___ Prevalence Index is <3.0 ¹
5. <u>Eleocharis macrostachya</u>	<u>15</u>			___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. <u>Juncus acutus</u>	<u>2</u>		<u>FACW</u>	___ Problematic Hydrophytic Vegetation ¹ (Explain)
7. <u>Helminthothen echinoides</u>	<u>5</u>		<u>FACU</u>	
8. _____				
= Total Cover				
Woody/Vine Stratum				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____				
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
Remarks:				

SOIL

Sampling Point: Pit 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR5/2	60	5YR 4/6	40	CS, C, M, PL		Sand	
4-14	7.5YR2.5/1	100					Mucky Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Plow Layer, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F8)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 12
 Saturation Present? Yes No Depth (inches): 10-2

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: El Cerrito West City/County: _____ Sampling Date: 4/19/13
 Applicant/Owner: _____ State: _____ Sampling Point: Pt 7
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ X 3640940.29 X 3640940.29 Datum: NAD 83
 Soil Map Unit Name: _____ 480002, SS NWI designation: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks:		

VEGETATION - Use scientific names of plants.

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				
= Total Cover				
Shrub/Strawb Stratum (Plot size: _____)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>1</u> x 1 = <u>1</u>
3. _____				FACW species <u>0</u> x 2 = <u>0</u>
4. _____				FAC species <u>1</u> x 3 = <u>3</u>
5. _____				FACU species <u>1</u> x 4 = <u>4</u>
				UPL species <u>1</u> x 5 = <u>5</u>
= Total Cover				Column Totals: <u>4</u> (A) <u>13</u> (B)
				Prevalence Index = B/A = <u>3.25</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Bromus diandrus</u>	<u>30</u>		<u>OBL</u>	— Dominance Test is >50%
2. <u>Foeniculum vulgare</u>	<u>2</u>		<u>FAC</u>	— Prevalence Index is >3.0
3. <u>Bumex crispus</u>	<u>5</u>		<u>FAC</u>	— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Bromus carinatus</u>	<u>70</u>		<u>FACU</u>	— Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Bromus hordeaceus</u>	<u>10</u>		<u>FACU</u>	
6. <u>Arenopsis californica</u>	<u>3</u>		<u>OBL</u>	
7. _____				
8. _____				
= Total Cover				
Woody Vine Stratum (Plot size: _____)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____				
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
Remarks:				

SOIL

Sampling Point: **Pit 7**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 3/1	90					loamy clay	
7-20	10YR 3/2	100					Sandy clay loam	1" worm
0-7	10YR 5/4	10					silt/sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)
- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)
<input type="checkbox"/> Histic Epipedon (A2)
<input type="checkbox"/> Black Histic (A3)
<input type="checkbox"/> Hydrogen Sulfide (A4)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)
<input type="checkbox"/> Depleted Below Dark Surface (A11)
<input type="checkbox"/> Thick Dark Surface (A12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)
<input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Stripped Matrix (S8)
<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Vernal Pools (F9) | Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (Explain in Remarks) |
|--|---|--|
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

- Primary Indicators (minimum of one required, check all that apply)
- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1)
<input type="checkbox"/> High Water Table (A2)
<input type="checkbox"/> Saturation (A3)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)
<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)
<input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Other (Explain in Remarks) | Secondary Indicators (2 or more required)
<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Shallow Aquifer (D3)
<input type="checkbox"/> FAC-Neutral Test (D5) |
|--|--|--|

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation Present? Yes _____ No <input checked="" type="checkbox"/> (includes capillary fringe)	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: El Cuervo del Sur City/County: San Diego Sampling Date: 4/26/13
 Applicant/Owner: _____ State: CA Sampling Point: Pit 8
 Investigator(s): S. Amin, R. Randall Section, Township, Range: _____
 Landform (hillslope, ~~eface~~ etc.): _____ Local relief (concave, convex, none): Plot Slope (%): 0
 Subregion (LRR): C20 480658 Long: 3641211 Datum: NAD83
 Soil Map Unit Name: TuB-Typhae Sand, 0 to 5% slopes NWI classification: Freshwater emergent wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
--	--

Remarks: Vegetation present, but no soils or hydrology, pit location in depression that may pond water longer than normal

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A/B)
2. _____				
3. _____				
4. _____				
= Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species <u>1</u> x 1 = <u>1</u> FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>1</u> (A) <u>1</u> (B) Prevalence Index = B/A = <u>1</u>
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				
Herb Stratum (Plot size: <u>5K²</u>)				
1. <u>Typha latifolia</u>	<u>100</u>	<u>Y</u>	<u>OBL</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>		

Hydrophytic Vegetation Present? Yes No _____
 Remarks: _____

SOIL

Sampling Point: P.1-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2						Silty Clay loam	
3-12	7.5YR 3/2						silty clay loam - small particles of nitrogen?	

¹Type: C=Concentration, D=Depletion, HM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F1B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

Indicators for Problematic Hydric Soils³:

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Soil Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquifer (D3)
<input type="checkbox"/> Water Stained Leaves (B8)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>8"</u>	

(includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil damp throughout profile, more moist after 8" or so, but not wet/glistening

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: El Cuervo del Sur City/County: San Diego Sampling Date: 4/26/13

Applicant/Owner: _____ State: CA Sampling Point: P19

Investigator(s): S. Ann R. Bandaru Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, flat): Flat Slope (%): 0

Subregion (LRR): C20 Lat: 430698 Long: 3641264 Datum: WGS 84

Soil Map Unit Name: TUB-Tulayya Sand, 0 to 5% slopes NWM classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> Remarks: _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
--	--

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>0</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species <u>1</u> x 4 = <u>4</u>
= Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>1</u> (A) <u>4</u> (B)
				Prevalence Index = B/A = <u>4</u>
Herb Stratum (Plot size: <u>5x5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Rorippa diemichiei</u>	<u>5</u>	<u>N</u>	<u>-</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Camissonia dentifolia</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	<input type="checkbox"/> Prevalence Index is <3.0'
3. <u>Atriplex confertifolia</u>	<u>5</u>	<u>N</u>	<u>-</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes _____ No <input checked="" type="checkbox"/>
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>	% Cover of Biotic Crust <u>0</u>			
Remarks: _____				

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No

SOIL

Sampling Point: P-19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	10YR 3/2						clay loam	
4-14	10YR 3/2						sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Porn Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F1B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: Soil damp, but no moisture.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required, check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (D6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Salt Crust (D11)	
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:
 Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No signs of hydrology present



Memorandum

Date: April 19, 2013
To: Sundeep Amin
From: Thomas Grace
Subject: Los Penasquitos Field Survey Progress Report

Matt Moore, Jerry Pitt and Tom Grace spent approximately 1.5 days conducting an in-house survey for Los Penasquitos Creek at the El Cuervo al Oeste and El Cuervo del Sur sites. The survey was taken with three cross-section alignments for each site. The El Cuervo al Oeste site survey was taken on April 17th, 2013 and the El Cuervo del Sur site was taken on April 18th, 2013. The field survey cross-sections were taken with the objective to closely align with the HEC-RAS cross-section and boring locations. Other than getting the general topography of the land, we also noted edge-of-water locations and depth of water.

The El Cuervo al Oeste site survey was conducted within the creek area. The area was heavily vegetated with thick brush and trees. The creek had running water and in some instances small pools of standing water were observed.

The El Cuervo del Sur site survey was conducted mainly within the project site area. The site area is mainly dry with tall grass, shrubs and trees. The creek area was very dense with tall vegetation. The vegetation was too dense to complete the survey along the alignments and the water appeared to be deep. We couldn't traverse through the creek due to safety. The third cross-section, the most downstream section, was very densely vegetated. Survey points were gathered until accessibility was limited.

The cross-section alignments were hard to establish based on the overview map. However, we oriented our alignments with visible landmarks, such as houses, trees and boring locations, to give us direction.

Attached is a map illustrating our general cross-section alignments that were established by taking waypoints with the GPS unit on the field survey. Refer to **Figure 1**.

The field survey points were then transposed onto the cross-sections generated with the existing topography, 2-ft contour intervals, to generate a more defined section. Refer to **Figure 2 and Figure 3** for El Cuervo del Oeste and El Cuervo del Sur, respectively. The City topography is not detailed enough to capture the ground points beneath the dense canopy of the trees and brush therefore a field survey was conducted to supplement those points.

The cross-sections generated from the City topography and the field surveys were used as ground point data for an HEC-RAS analysis. The results from the analysis determined the preliminary water surface elevations and flood widths for both project sites. For each site, the 2-, 5-, 10-, and 25-year floodplains were delineated. Refer to **Figure 4 and Figure 5** for El Cuervo del Oeste and El Cuervo del Sur, respectively. The flow rates were based on the FEMA Flood Insurance Study (FIS) for Los Penasquitos Creek.

Legend

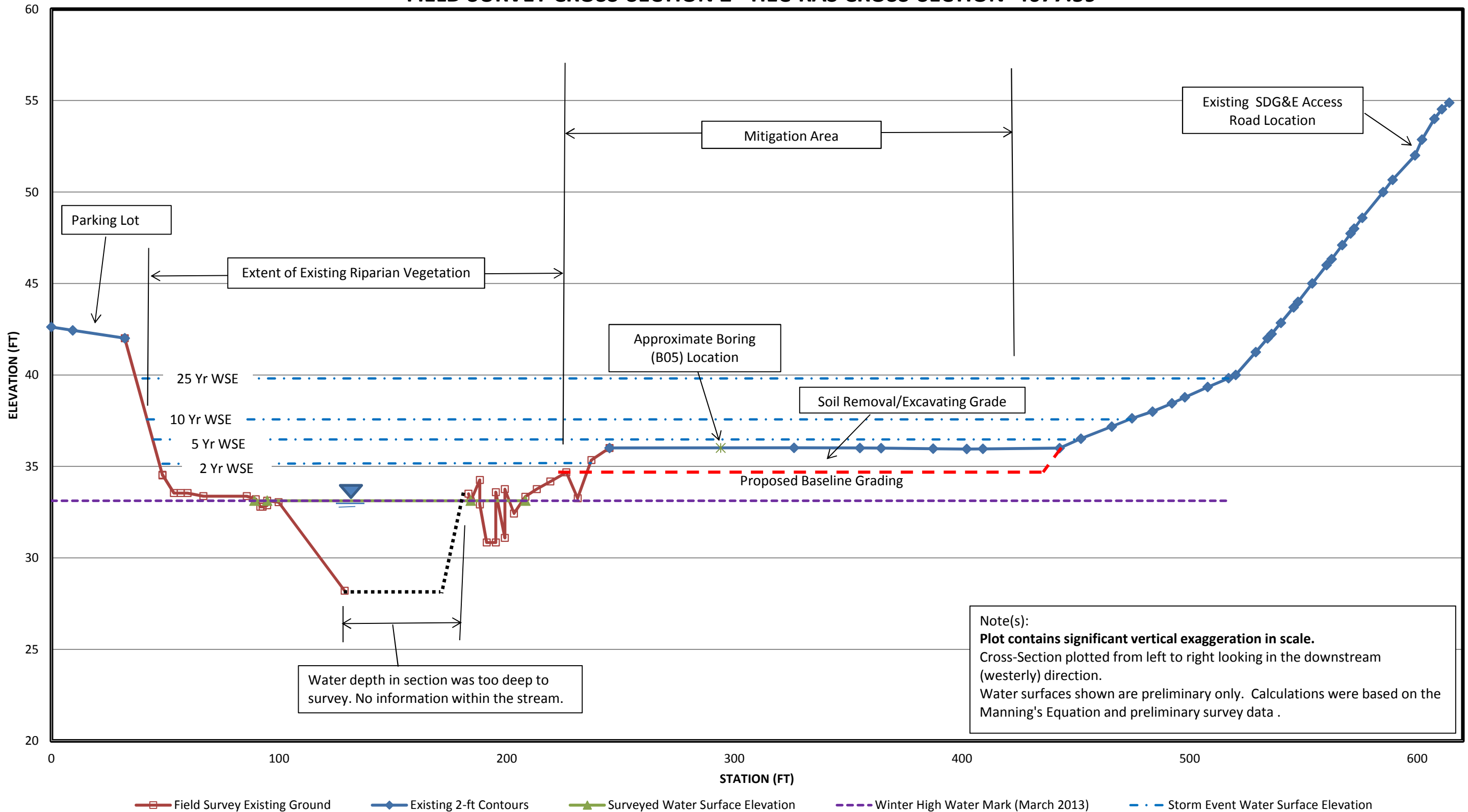
- Survey Location
- ◆ Boring
- Cross Section
- Mitigation Area



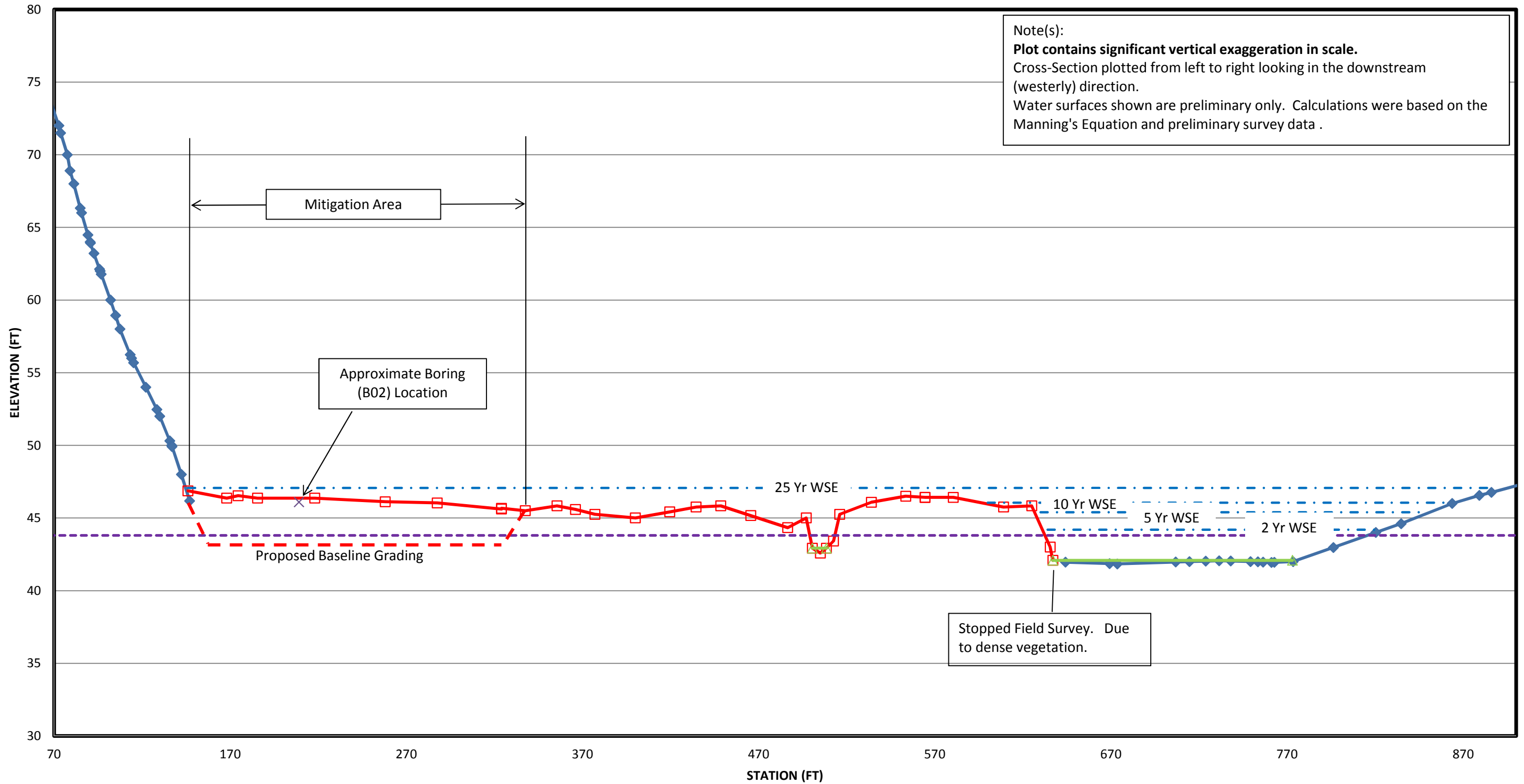
 	SOURCES: Survey Points, Borings, Cross Sections (URS, 2013). Aerial Imagery (Microsoft, 20100503).		SURVEY LOCATIONS LOS PEÑASQUITOS CREEK CITY OF SAN DIEGO	
	175 0 175 350 Feet SCALE: 1" = 350' (1:4,200) SCALE CORRECT WHEN PRINTED AT 11X17	CREATED BY: PM DATE: 4/19/2013	FIG. NO: 1	
PM: BE PROJ. NO: 27679954.08300				

Path: G:\s\braiders\157727679954\map_documents\PenasquitosLosPeñasquitosCreek_SurveyLocations.mxd; lamen_rizzo_4/19/2013_4:34:00 PM

**FIGURE 2. LOS PENASQUITOS CREEK
EL CUERVO AL OESTE - SECTION A-A
FIELD SURVEY CROSS-SECTION 2 - HEC-RAS CROSS-SECTION 4677.59**

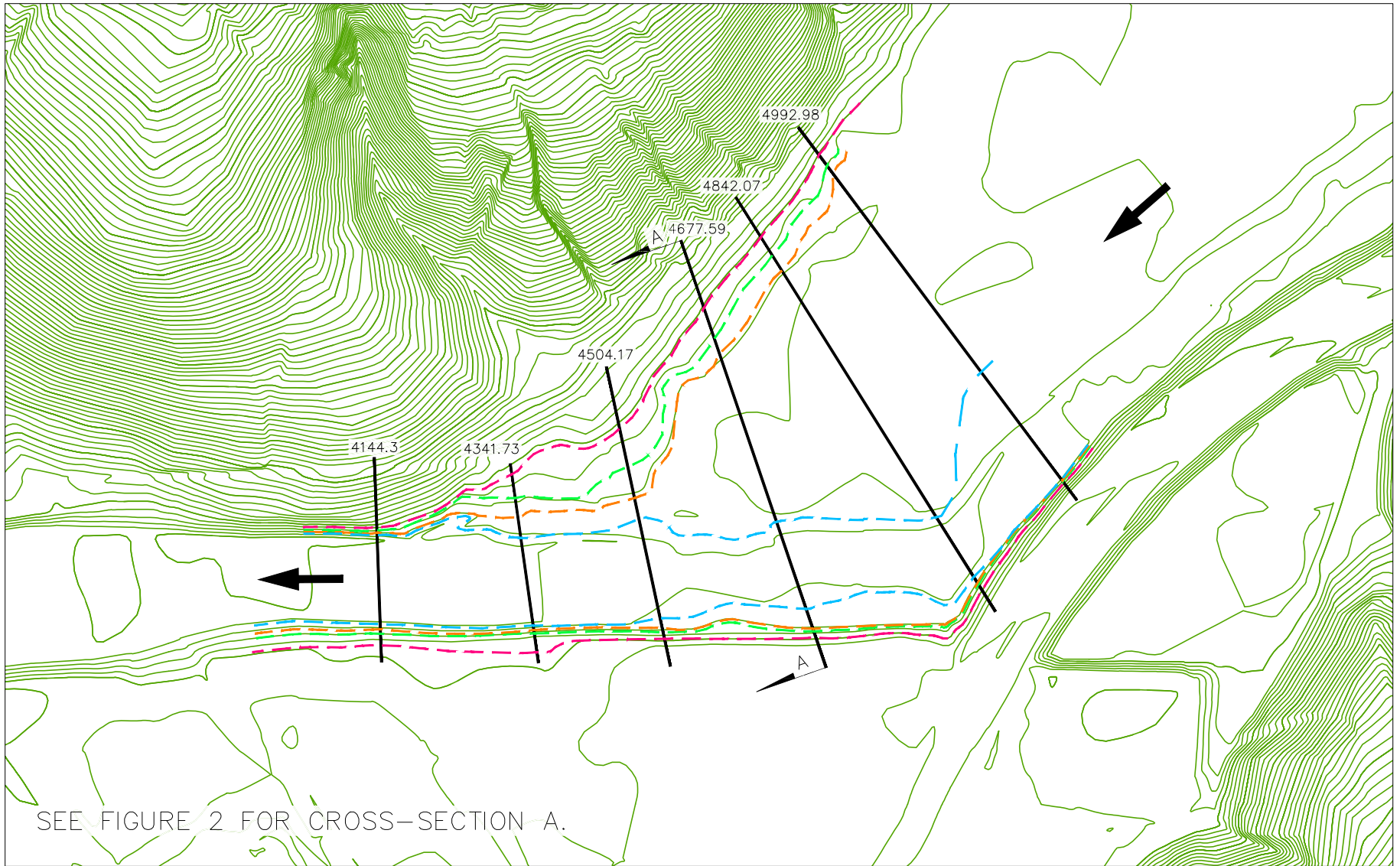


**FIGURE 3. LOS PENASQUITOS CREEK
EL CUERVO DEL SUR - SECTION B-B
FIELD SURVEY CROSS-SECTION 2 - HEC-RAS CROSS-SECTION 7566.95**

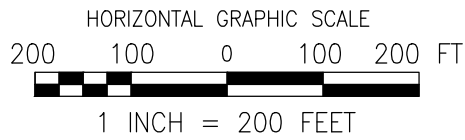
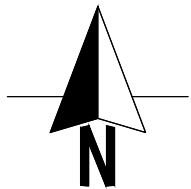


Note(s):
Plot contains significant vertical exaggeration in scale.
 Cross-Section plotted from left to right looking in the downstream (westerly) direction.
 Water surfaces shown are preliminary only. Calculations were based on the Manning's Equation and preliminary survey data .

- ◆ Existing 2-Ft Contour
- Field Survey Existing Ground
- ▲ Surveyed Water Surface Elevation
- - - Winter High Water Mark (March 2013)
- Storm Event Water Surface Elevation



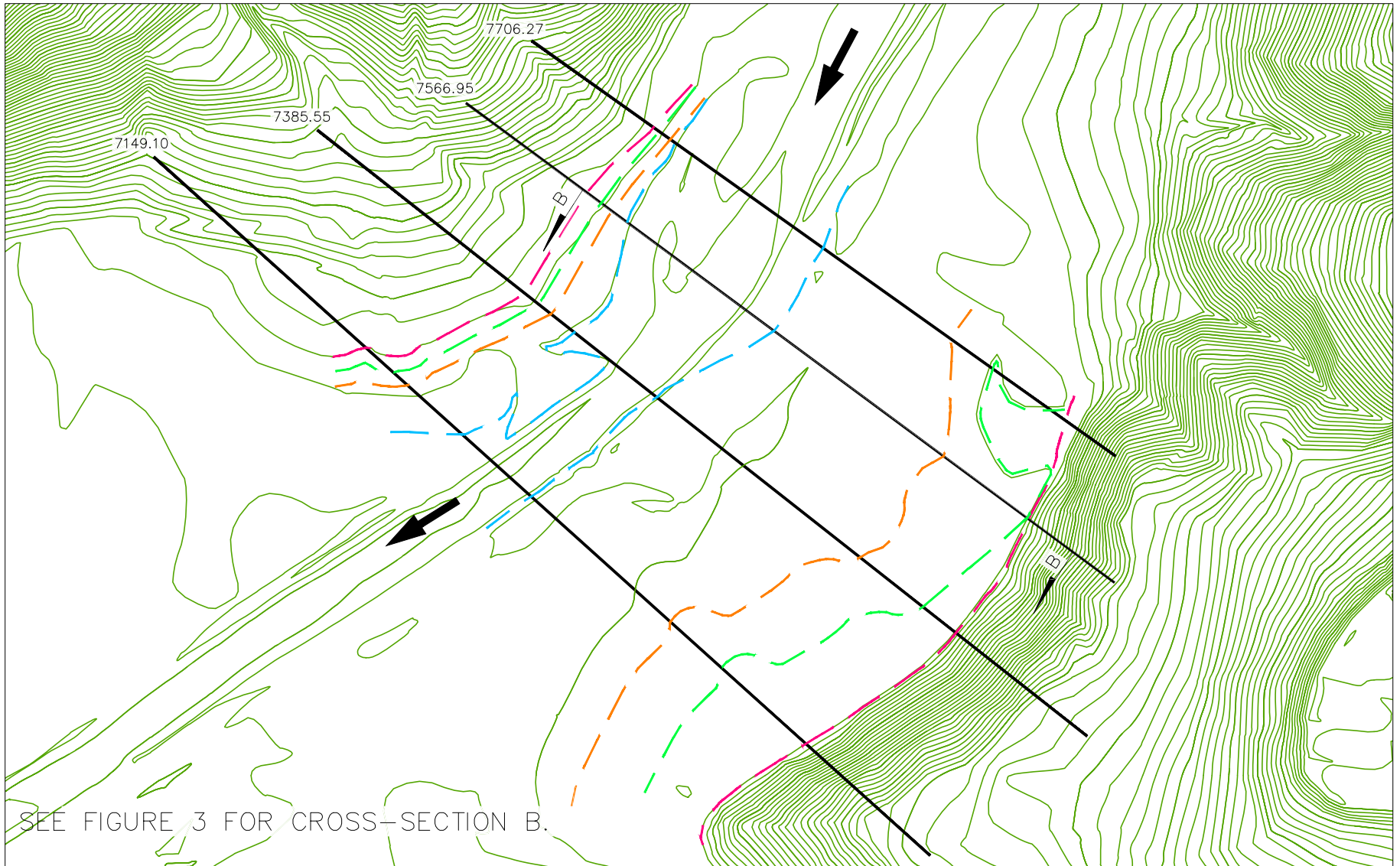
SEE FIGURE 2 FOR CROSS-SECTION A.



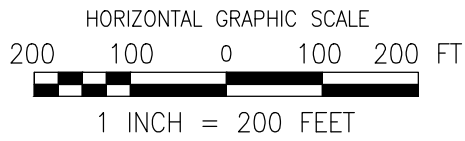
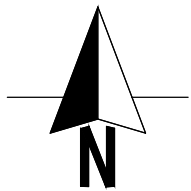
LEGEND

2-Year Floodplain	
5-Year Floodplain	
10-Year Floodplain	
25-Year Floodplain	
HEC-RAS Cross-Section Label	
Flow Direction	

FIGURE 4.
LOS PENASQUITOS CREEK
EL CUERVO AL OESTE
FLOODPLAIN MAP



SEE FIGURE 3 FOR CROSS-SECTION B.



LEGEND

- 2-Year Floodplain
- 5-Year Floodplain
- 10-Year Floodplain
- 25-Year Floodplain
- HEC-RAS Cross-Section Label 4504.17
- Flow Direction

FIGURE 5.
LOS PENASQUITOS CREEK
EL CUERVO DEL SUR
FLOODPLAIN MAP